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RADIONUCLIDE YIELD IN REACTIONS WITH PROTONS, DEUTERONS, ALPHA PARTICLES AND HELIUM-3

(Handbook)

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Moscow, Ehnergoatomizdat

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PREFACE

At the present time charged-particle accelerators are widely used in the national economy. The interaction of accelerated particles with the nuclei of a target leads to the formation of radionuclides. Therefore, when performing various applied and pure research tasks with an accelerator, it is frequently necessary to have an answer to the following questions:

1. What kind of radionuclides are formed when a target is bombarded with particles of a given type and a given energy?
2. What is the radionuclide yield of a thick target for a given particle energy (nuclide activity per unit total particle charge)?
3. How does the radionuclide yield change with a change in particle energy?

The radionuclide yield for a thick target is a nuclear-physical constant and its use in the performance of applied research assignments is more convenient than that of the reaction cross-section.

Whereas the first question may be answered comparatively easily working from the mass-energy conservation laws and the number of protons and neutrons in the nuclear reactions, the second and third questions can be answered only in a limited number of cases. This may be explained by the large number of reactions occurring in modern accelerators. The number of possible reaction channels rises swiftly with an increase in particle energy; the acceleration of large ions (isotopes of various elements) also increases sharply the number of reactions occurring. A fairly large number of measurements of nuclear reaction excitation functions and radionuclide yields in relation to particle energy have been published hitherto for the more widely used accelerator particles, namely protons, deuterons, α-particles and helium-3. The excitation function comprises the dependence of reaction cross-section on particle energy, and its integration over particle range gives the radionuclide yield in relation to particle energy for a thick target.

The tables of radionuclide yield given in this handbook have been prepared from yields calculated by integrating the excitation functions of nuclear reactions and also from published radionuclide yield figures. For about a quarter of the radionuclide production processes, yields were measured on the cyclotron of the Institute of Physics and Energetics (USSR State Committee on the Utilization of Atomic Energy) at Obninsk. At initial particle energy, when the yield grows quickly with the rise in energy,

radionuclide yield values are given for particle energy intervals of 1 MeV; where the yield is small in relation to the rise in particle energy, the energy interval is greater than 1 MeV. The maximum particle energy values are comprised in the following ranges: protons - 22-180 MeV, deuterons - 22-100 MeV, α-particles - 40-186 MeV, ^{3}He - 26-164 MeV.

This is the first time that such a handbook on radionuclide yields has been published. Its aim is to facilitate as far as possible the use of experimental data on reaction cross-sections and radionuclide yield scattered throughout the periodical literature in the performance of various assignments with accelerators and in the design and development of accelerators. In this book use is made of literature on reaction cross-sections and radionuclide yield appearing before the middle of 1984.

This book is the first attempt at such a reference work and the author would be grateful for any comments on its contents.

The author would like to thank F.E. Chukreev for the interest he has shown in the publication of the work, and would like to express his deep appreciation and thanks to Z.P. Dmitrieva who was an indispensable assistant during the preparation of the material for the book, and to Yu.S. Zamyatnin for his comments on the manuscript.

INTRODUCTION

When accelerated charged particles interact with target nuclei, stable or radioactive product nuclei are formed as a result of the nuclear reactions occurring. A target is designated thick for a given reaction if its thickness is not less than the range of the bombarding particle from the threshold energy of the reaction to maximum particle energy. A target is designated thick for all reactions if its thickness is not less than the particle range in the target material.

Nuclide yield for a thick target can be defined as the ratio of the number of nuclide nuclei formed in the nuclear reactions to the number of bombarding particles incident on the target. Radionuclides disintegrate under bombardment and this must be taken into account when measuring their yield. In Ref. [1] the concept of radionuclide yield is analysed and the statement is made that, for a thick target, it represents a nuclear-physical constant which may be more readily employed for practical applications than the reaction cross-section. Given below are the basic definitions and formulae essential for use of this book.

It is customary to express the quantity of a radionuclide in terms of its activity, i.e. the number of disintegration events per unit of time. The SI unit of activity is the Becquerel: 1 Bq = 1 disintegration/s. The number of active nuclei N and the activity A are related by the expression:

$$A = N\lambda, \qquad (1)$$

where $\lambda = 0.693/T$ is the decay constant; T is the radionuclide half-life.

Radionuclide yield is expressed in terms of the activity occurring per unit total bombarding particle charge. The total particle charge is also called the integral current of the particle beam and is measured in microampere hours: $1\ \mu A.hr = 3.6 \cdot 10^{-3}\ C = 2.5 \cdot 10^{16}$ particles carrying one electronic charge.

The radionuclides formed decay under bombardment and the general expression for radionuclide yield takes the form:

$$B = A\lambda/I\ [1 - \exp(-\lambda t)], \qquad (2)$$

where A is the activity of the nuclide on completion of bombardment and I is the particle beam current which must be constant during bombardment t. In practice this expression for yield is used when the bombardment time and the half-life are comparable (t and T differing by not more than a factor of 10).

If the bombardment time is significantly less than the half-life ($t \ll T$), then the yield may be calculated according to the formula

$$B = A/Q, \qquad (3)$$

where Q is the integral current of the particle beam.

When $t \gg T$ saturation is reached: radionuclide activity in the target at constant particle beam current does not change and is independent of bombardment time. In this case the radionuclide yield is determined using the expression

$$B = A\lambda/I. \qquad (4)$$

The number of possible reactions grows with the increase in particle energy as the latter becomes greater than the energy threshold for more and more reactions. The accepted way of writing these reactions is A(a, Σb_i)B, where A is the target nucleus, a is the bombarding particle, Σb_i are the emitted particles and B is the product nucleus.

The notational form A + a → B is also used, and shows most concisely the formation process of the product nucleus. This type of notation for radionuclide formation is convenient, for example, when bombarding a natural element, where radionuclide formation occurs simultaneously by several reactions involving isotopes of the element.

As stated above, all the reference material is presented in Table 4, where 1198 individual yield tables for 371 radionuclides are given. Tables 1-3 will facilitate the use of Table 4.

Table 1 contains a list of 1198 radionuclide formation processes, notated in the form A + a → B in order of rising atomic number of the target nucleus. Table 2 lists 371 radionuclides with their half-lives. Table 3 gives, in order of rising atomic number of the product nucleus, 1198 nuclear reactions by which radionuclides are formed. The tables have been grouped together for convenience of consultation. Explanatory remarks on these tables follow.

In Table 1, for each production process, the maximum particle energy in the corresponding part-table in Table 4 and the page reference for that part-table are given. Of course the total number of production processes for various radionuclides when the target nuclei given in Table 1 are bombarded with given particles at given particle energy is significantly greater, but experimental radionuclide yield figures as a function of particle energy for other modes of production are not as yet available. Hence, Table 1 quotes

data on the activation of elements with protons, deuterons, α-particles and helium-3, namely the particles with which the element was irradiated, and gives the radionuclides whose yield was measured.

The number of stable isotopes in elements varies, from one (^{9}Be, ^{19}F, ^{23}Na, ^{27}Al, ^{31}P, ^{45}Sc, etc.) to ten (Sn). The majority of the yields in Table 4 are measured for the bombardment of elements of natural isotopic composition, and then in many cases several isotopes of the element are target nuclei for radionuclide production. Some of the yields are measured for only one isotope of the element, and in these cases a possible contribution to radionuclide yield from reactions involving other isotopes of the element is specifically excluded, for instance by bombarding an enriched isotope. When using Table 4 it is essential to distinguish between radionuclide yields measured when irradiating elements of natural isotopic composition and those measured when bombarding only one isotope of the element.

This is done in the following way. If the radionuclide yield was produced by irradiating an element of natural isotopic composition, then the mass number of the target nucleus is not given in Table 1. If the target nucleus for radionuclide production is one isotope of the element, and the possible contribution to radionuclide yield from other isotopes of this element has been specifically excluded, then the mass number of the target nucleus is given in Table 1. Similarly, the mass number of the target nucleus is not quoted in Table 1 both when the element bombarded has only one stable isotope (^{9}Be, ^{19}F, ^{23}Na, etc.), and when it has several stable isotopes but only one of them is the target nucleus. For example, germanium has five stable isotopes, but when it is bombarded with protons ^{76}As is formed only by the reaction ^{76}Ge(p,n)^{76}As. In Table 1 the production process is given as Ge + p → ^{76}As, since the natural element is being irradiated. Similar examples: the formation of ^{28}Mg, ^{65}Zn and ^{127}Sb in the reactions ^{26}Mg(α,2p)^{28}Mg, ^{30}Si(p,3p)^{28}Mg, ^{65}Cu(p,n)^{65}Zn, or ^{124}Sn(α,p)^{127}Sb when bombarding natural Mg, Si, Cu or Sn, which have from two to ten stable isotopes.

For the process ^{47}Ti + d → ^{47}Sc the mass number of the target nucleus is given and, consequently, the yield of ^{47}Sc has been measured only for ^{47}Ti by the reaction ^{47}Ti(d,2p)^{47}Sc (see Table 3). The formation of ^{47}Sc by other reactions, namely ^{48}Ti(d,2p), ^{49}Ti(d,α) and ^{50}Ti(d,αn) has been excluded (for instance by using enriched ^{47}Ti).

For all production processes where the mass number of the target nucleus is given, the radionuclide yield in Table 4 is that for the natural

target-nucleus content. For instance, in the example quoted - $^{47}Ti + d \rightarrow {}^{47}Sc$ - the yield of ^{47}Sc in Table 4 refers to the content of ^{47}Ti in natural titanium (7.32%). Obviously the use of enriched ^{47}Ti to produce ^{47}Sc will increase the yield of ^{47}Sc compared with that stated in Table 4, depending on the percentage enrichment. For example, use of 95% enriched ^{47}Ti will increase the yield of ^{47}Sc by $95 \div 7.32 = 13$ times. In some cases the radionuclide yields in Table 4 are given both for the element in its natural composition and for particular isotopes of this element (for example, bombardment of Ni, Cu, Ga, Se and Br with protons, and of Ag with α-particles and helium-3).

The letter (k) after the product nucleus signifies cumulative radionuclide yield: apart from the reaction which forms the product nucleus, a reaction takes place forming a short-lived isobaric nucleus which decays to the final product nucleus. In this case the radionuclide yield measured will be the sum of the radionuclide yields in these reactions. (For further details on cumulative reactions see the explanations to Table 3.)

Some nuclei have long-lived excited states (isomeric or metastable states). The isomer product nucleus is indicated in the tables by the letter m. The ground state of the product nucleus is denoted by the letter g only when an isomer exists which decays to the ground state, but the product nucleus yield in the ground state is measured independently of the decay of the isomer to the ground state (product nuclei in the ground state which are formed by isomer decay are excluded). Product nuclei have been related to their isomeric and ground states in accordance with Ref. [2].

In Table 2 the 371 radionuclides are listed for which individual yield tables are given in Table 4. The half-life values have been taken from Refs [3-5].

The radionuclide formation reactions for the production processes shown in Tables 1 and 4 are given in Table 3, together with the reaction thresholds. For exothermic reactions the threshold is stated as zero. The reactions are given for all the radionuclide production processes shown in Table 1 in order of rising atomic number of the radionuclide. As may be seen from Table 3, the number of radionuclide production processes varies greatly from 1 to 15 or more (^{11}C, ^{18}F, ^{48}V, ^{52}Mn, ^{54}Mn, ^{57}Co, ^{65}Zn, ^{67}Ga, etc.), which to some extent reflects the popularity of the use of radionuclides in various forms of research.

In the reactions in Table 3 only proton, neutron and α-particle emission is shown (for some reactions involving light nuclei triton emission

is shown), although in many cases the energy levels will make possible reactions where other particles are also emitted (d, t, τ, ^{6}He, etc.). The following considerations have led to the indication only of p, d and α emission in Table 3: reactions where other particles are emitted have a significantly lower cross-section and the use of only one of these three particles substantially simplifies the notation of the reactions in Table 3. For reactions accompanied by α-particle emission, when the energy of the bombarding particle exceeds the reaction threshold by about 28.3 MeV (binding energy of an α-particle) two protons and two neutrons may be emitted instead of an α-particle. As particle energy increases the cross-section of this process may exceed the cross-section for α-particle emission. For example, for ^{24}Na the reaction ^{31}P(p,α3pn) is shown, with a reaction threshold of 42.4 MeV. When proton energy is greater than (42.4 + 28.3) = 70.7 MeV the reaction ^{31}P(p,5p3n)^{24}Na is possible, and the cross-section for this reaction with the rise in proton energy is greater than the cross-section for the reaction ^{31}P(p,α3pn).

In some cases the energy threshold of the product nucleus formation reactions is lower than the threshold quoted in Table 3 because the emission of other particles is not indicated (d, t, τ, ^{6}He). In the example given above the reaction ^{31}P(p,ατp)^{24}Na is also possible, for which the threshold is approximately (42.4 - 7.7) = 34.7 MeV (7.718 MeV is the binding energy of ^{3}He), but the cross-section for such reactions is substantially lower than that for reactions accompanied by nucleon emission. In Table 3 reactions with radiative particle capture are not given (γ-photon emission only), since their cross-section is lower than that for reactions accompanied by particle emission by several orders of magnitude, and radionuclide yield for reactions of the type (a,γ) has not been measured.

We will now proceed to explain certain symbols in Table 3. Three dots after a reaction signifies that the yield curve was measured when bombarding the natural element, with the radionuclide formation reactions involving two or more isotopes of the element, but that the reaction given is the major contributor to radionuclide yield over the whole range of particle energy or at the maximum particle energy given in Table 1. In some cases, at lower particle energy, the radionuclide yield is determined by a reaction involving another isotope of the element. For example, for the formation of ^{67}Ga when irradiating Zn with protons, the reaction ^{68}Zn(p,2n)^{67}Ga is given in Table 3, but when Zn is bombarded with protons of energy less than 18 MeV the ^{67}Ga field is determined by the reaction ^{67}Zn(p,n)^{67}Ga (see Table 4). A dot placed to the right of and above the symbol for the target nucleus denotes

the reactions for those production modes in Table 1 where the mass number of the target nucleus is stated. No indications are given for reactions if, when bombarding a natural element, only one isotope constitutes the target nucleus for radionuclide production. This applies to monoisotopic elements (^{9}Be, ^{19}F, ^{23}Na, etc.), and to the case where only one reaction produces radionuclides when bombarding an element which has several stable isotopes (examples given above in the explanations to Table 1).

When there is cumulative yield ("k" after the product nucleus in Table 1), the particles emitted in the reaction are connected by a plus sign. The first component of the expression shows the particles emitted in the product nucleus formation reaction, and the second indicates the particles emitted in the reaction for formation of a short-lived isobaric nucleus which decays to the product nucleus. For example, for ^{18}F the reaction is written as $^{19}F(p,pn + 2n)$, which stands for the reactions $^{19}F(p,pn)^{18}F$ and $^{19}F(p,2n)^{18}Ne \rightarrow {}^{18}F$. The cumulative radionuclide yield is stated in those cases where the decay of the daughter nucleus (the radionuclide produced) is negligible over the time taken for the virtually complete decay of the isobaric parent nucleus. When this is not the case one must use the formulae for determining the equilibrium ratio of daughter to parent nuclide.

Table 4 consists of individual tables in each of which the radionuclide yields for a specified production process are given at energy intervals of 1 MeV (or more - 2, 4, 8, etc. MeV). Radionuclide yield for a thick target increases with a rise in particle energy, although this increase flattens out as the radionuclide formation cross-section decreases (after the excitation function maximum is reached). If at ΔE_a = 1 MeV the yield increases by less than 15-20%, then values of ΔE_a = 2 MeV and subsequently, by analogy, ΔE_a = 4, 8, 16, etc. MeV have been used.

In each part-table the following information is given: the nuclide production process, written for the sake of brevity, in the form A(a)B, the half-life of the nuclide and a reference to the source used in preparing the yield table. The production processes in Table 4 correspond to those given in Table 1 for which detailed explanations are given above.

In Table 4 the unit of radionuclide yield used is the MBq/(μA.hr) (1 MBq = 10^6 Bq). An expression of the type a $\pm$ b for a yield signifies $a \cdot 10^{\pm b}$. The minimum particle energy is determined by the reaction energy threshold and the Coulomb barrier for the bombarding particle and the emitted particles, whereas the maximum energy is usually governed by the accelerator parameters. The yields in Table 4 were derived by integrating the excitation

functions of the nuclear reactions, and were also taken from published radionuclide yields as a function of particle energy.

The expression for the numerical integration of the excitation function $\bar{\sigma}(E_a)$, for purposes of calculating radionuclide yield values for a thick target $B(E_a)$, takes the form

$$B(E_a) = C\Sigma\bar{\sigma}_i(E_a)\Delta R_i(E_a) \qquad (5)$$

where C is the coefficient which depends on the radionuclide characteristics and the units of magnitude used in the formula, $\bar{\sigma}_i(E_a)$ is the mean reaction cross-section in the chosen particle energy range ΔE_a, and $\Delta R_i(E_a)$ is the difference in particle ranges for the chosen energy range. In this formula each term is the yield for a thin target, and for the units used below it takes the form:

$$\Delta B_i(E_a) = 0.026 \frac{P_c}{Z_a M T} \bar{\sigma}_i(E_a)\Delta R_i(E_a). \qquad (6)$$

Here $\Delta B_i(E_a)$ is the radionuclide yield for a thin target in MBq/(μA•hr), P_c is the target nuclei content in %, M is the mass number of the target nucleus, T is the half-life of the radionuclide in hours, $\bar{\sigma}_i(E_a)$ is the mean reaction cross-section in the chosen particle energy range in mb(10^{-27} cm^2), Z_a is the relative charge of the bombarding particle, and $\Delta R_i(E_a)$ is the target thickness corresponding to the chosen particle energy range in mg/cm^2. Values for $\Delta R_i(E_a)$ were prepared from the range tables in Ref.[6]. The value for P_c depends on the nature of the cross-section of the integrated excitation function. In some sources the radionuclide formation cross-section is measured simultaneously for several reactions and calculated for the natural element. For example, when bombarding Ti with protons the excitation function of the Ti(p,2pxn)^{46}Sc reactions is measured and the cross-section calculated for natural Ti. Other reference sources measure the excitation function for a reaction involving one isotope of the element and the cross-section is calculated for this isotope. Hence in Eq. (6) P_c = 100% if the excitation function cross-section has been calculated for the natural element, and is equal to the percentage content of the target isotope in the natural element if the cross-section has been calculated for one isotope of the element.

In Table 4 data are also used from sources where radionuclide yields are given for a thick target in relation to particle energy. Yields measured when bombarding natural elements are simply converted into the yield unit used in this handbook. Some sources measure yields for the bombardment of an enriched isotope and in such cases, for Table 4, they have been converted as

for a natural target-isotope content. There are also sources in which differential yields are measured: radionuclide yield for an energy range of 1 MeV, yield for a target thickness of 1 mg/cm^2. In all these cases integration has been performed and yield values have been produced for a thick target. For some individual yield tables in Table 4 the last 1-3 yield values were derived by extrapolating the excitation function or the dependence of yield on particle energy.

The yield values in Table 4 are given to three significant figures which were calculated when integrating the excitation function and converting published yield values into the MBq/(μA•hr) unit. In most sources a possible error of 8-15% in reaction cross-section and isotope yield is indicated. At the beginning of the excitation function, or of the yield to particle energy ratio curve (relatively small cross-section and yield values), the error margin is noticeably greater. However, not all sources analyse error margins completely enough. Usually cross-section and yield errors caused by errors in particle energy values are not taken into account. For some publications errors in cross-section and yield measurements due to the use of wrong values for the quantum γ-ray yields of the radionuclides when measuring their activity have been corrected. More detailed information on the errors in reaction cross-section and radionuclide yield measurements for each of the part-tables making up Table 4 may be found in the reference sources. Integration of the excitation function somewhat increases yield error by comparison with cross-section error as a result of inaccuracy in particle range values used. For the majority of yields in Table 4 the error margin is estimated as being within the range 10-16%; for some initial yield values it may be substantially higher. Yield error increases when there are errors in mean particle energy value, which may grossly distort the relationship between yield and particle energy.

For some part-tables two references are given; usually this means that a relative ratio of yield to particle energy has been used. The yield-energy relationship from one source has been normalized using a more accurate yield value from another source. This gives a more accurate yield-energy relationship over a wide range of particle energy.

From Eq. (6) it follows that:

$$\bar{\sigma}_i(E_a) = 38.5 \frac{\Delta B_i(E_a) Z_a M T}{P_c \Delta R_i(E_a)} . \qquad (7)$$

Using the radionuclide yield to particle energy relationship for a thick target it is possible with this formula, to calculate the mean radionuclide

formation reaction cross-section for a given particle energy range ΔE_a. When ΔE_a = 1 MeV (as in Table 4), this task is made easier. Calculation of $\bar{\sigma}_i(E_a)$ using Eq. (7) involves differentiation of the radionuclide yield to particle energy ratio curve in order to find the radionuclide formation reaction cross-section.

In Table 4 radionuclide yields are given for a thick target; however it is often necessary to know the yield for a thin target. For instance, when producing certain radionuclides the use of a thin target makes it possible to reduce the presence of chemically inseparable radionuclides of the same element. Knowing the yield to particle energy relation for a thick target it is easy to find the nuclide yield for a thin target. A particle of energy E_1 will have a range in the target material of R_1. As a result of deceleration in the thin target of thickness ΔR the particle, on exiting from it, has an energy of E_2, corresponding to the range $R_2 = R_1 - \Delta R$, and the value E_2 may be found in range-energy tables from the range R_2. Hence radionuclide yield for a target of thickness ΔR is

$$\Delta B = B(E_1) - B(E_2). \qquad (8)$$

Radionuclide yield at particle energy E_1 and E_2 may be found from the already available radionuclide yield to particle energy relationship for a thick target.

The data in Table 4, with the help of Eqs (2)-(4), permit the determination of radionuclide activity in the target if particle current and irradiation time are known:

$$A = BI\left(\frac{1 - \exp(-t)}{\lambda}\right) \quad \text{when } t \simeq T; \qquad (9)$$

$$A = BQ \quad \text{when } t \ll T; \qquad (10)$$

$$A = BI/\lambda \quad \text{when } t \gg T. \qquad (11)$$

For radionuclides with a half life of a few seconds or minutes saturation quickly sets in and, in accordance with Eq. (11), their activity in the target is constant for a constant irradiation rate.

In Table 4 radionuclide yields are given in relation to particle energy. However, in some sources radionuclide yield is measured for one particle energy value. The most comprehensive tables of radionuclide yields for a thick target and for one particle energy value are given in Refs [7] (188 yield values for 140 radionuclides at a proton energy of 22 MeV), [8] (208 yield values for 151 radionuclides at a deuteron energy of 22 MeV), [9] (215 yield values for 145 radionuclides at an α-particle energy of 44 MeV).

A large part of the data on nuclide yields given in Table 4 and in Refs [7-9] permits the comparison of multiple and single reaction yields for a wide range of nuclear masses and bombarding particle energies. The reaction yield for a thick target may be indicated as the number of reaction events per 1000 bombarding particles. When producing radionuclides each event of a given reaction forms one specific nuclide atom. Reaction yield may be found from radionuclide yield using the formula

$$W = 0.0227\ Z_a TB/P_c\ , \qquad (12)$$

where W is the atom reaction yield per 1000 particles; Z_a, T, B, P_c have the same meanings as in formula (6). In Ref. [10] systematized yield data are given for 185 reactions of the type p,n; p,2n; p,pn; p,(pn + 2n); p,α; etc. for a thick target at a proton energy of 22 MeV. Similar data for 211 reactions of the type d,n; d,2n; d,3n; d,p; d,α; etc. at a deuteron energy of 22 MeV are given in Ref. [11].

In Table 4 radionuclide yield is expressed per unit total particle charge (μA•hr).

When producing radionuclides in an accelerator it is for practical purposes also useful to express radionuclide yield per unit of particle beam power. In practice any target may have a beam power limit, and when producing a radionuclide in an accelerator the efficiency of the radionuclide production process depends on the level of particle beam power permissible before noticeable losses of radionuclide appear as a result of evaporation and sputtering of the target material.

The following formula connects the radionuclide yield G (MBq/(kW•hr)) and the yield B (MBq/(μA•hr)):

$$G = 10^3 Z_a B/E_a\ . \qquad (13)$$

From this formula it follows that if the radionuclide yield $B(E_a)$ rises more slowly than particle energy, then the yield $G(E_a)$ has a maximum value at which the greatest radionuclide yield G^{max} is reached for uniform beam power on the target.

The annex (following Table 4) contains a table showing the natural abundance of isotopes.

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TABLES
(see original)

Table 1: Radionuclide production processes for which yields are given in Table 4.

Production process	Radionuclide	Maximum particle energy, MeV	Page

Table 2: Radionuclides for which yields are given in Table 4.

Radionuclide	Half life

Key to the times in Tables 2 and 4:

second = с
minute = мин
hour = ч
day = сут
year. = года
лет

Table 3: Radionuclide formation reactions for the production processes given in Table 1.

Radionuclide	Formation reaction	Reaction threshold, MeV

Table 4: Radionuclide yield for a thick target as a function of proton (p), deuteron (d), α-particle (α) and helium-3 (τ) energy.

Particle energy, MeV	Radionuclide yield, MBq/μA·hr

Key to the times:

second = с
minute = мин
hour = ч
day = сут
year. = года
лет

Annex: Isotope abundance, %.

Element	Isotope	Content

Таблица 1. Способы получения радионуклидов, для которых в табл. 4 приведены выходы

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
Li + *p*	^{7}Be	24	44
Li + *d*	^{7}Be	24	44
Be + *p*	^{7}Be	23	44
Be + *d*	^{7}Be	23	44
	^{10}Be	26	44
Be + α	^{7}Be	44	44
	^{11}C	46	44
Be + τ	^{11}C	40	44
B + *p*	^{7}Be	23	45
	^{11}C	24	45
B + *d*	^{7}Be	24	45
	^{11}C	24	45
B + α	^{11}C	46	45
	^{13}N	50	45
B + τ	^{11}C	32	46
	^{13}N	32	46
C + *p*	^{11}C	23	46
	^{13}N	24	46
C + *d*	^{11}C	24	46
	^{13}N	26	46
C + α	^{11}C	45	46
	^{13}N	44	47
C + τ	^{11}C	32	47
	^{13}N	32	47
N + *p*	^{11}C	25	47
	^{13}N	25	47
N + *d*	^{11}C	25	47
	^{13}N	25	47
N + α	^{11}C	46	48
	^{13}N	50	48
	^{18}F	50	48
N + τ	^{11}C	32	48
	^{13}N	32	48
O + *p*	^{13}N	26	48
	^{18}F	26	49
O + *d*	^{13}N	26	49
	^{18}F	26	49
O + α	^{18}F(к.)	50	49
O + τ	^{11}C	32	49
	^{18}F(к.)	32	49
F + *p*	^{18}F(к.)	26	49
F + *d*	^{18}F(к.)	26	50
F + α	^{18}F	50	50
F + τ	^{18}F(к.)	32	50
Ne + *d*	^{18}F	24	50
Ne + τ	^{18}F	50	50
Na + *d*	^{22}Na	22	50
	24Na	24	51
Na + α	^{18}F	50	51
Na + τ	^{18}F	36	51
Mg + *p*	^{21}Na	26	51
	^{22}Na	100	51
	^{24}Na	26	52
	^{25}Na	28	52
	^{23}Mg	26	52
	^{24}Al	28	52
Mg + *d*	^{18}F	24	52
	^{22}Na	26	52
	^{24}Na	22	52
	^{25}Na	22	52
	^{27}Mg	22	53
	^{25}Al	22	53
Mg + α	^{24}Na	36	53
	^{27}Mg	36	53
	^{28}Mg	160	53

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{28}Al	36	53
	^{29}Al	36	54
	^{27}Si	36	54
Mg + τ	^{18}F	32	54
	^{20}F	40	54
	^{22}Mg	40	54
	^{23}Mg	40	55
	^{27}Mg	40	55
	^{24}Al	40	55
	^{25}Al	40	55
	^{28}Al	40	55
	^{26}Si	40	55
Al + p	^{7}Be	70	56
	^{22}Na	70	56
	^{24}Na	70	56
	^{25}Al	30	56
	^{23}Mg	30	56
	^{27}Si	22	57
Al + d	^{7}Be	52	57
	^{22}Na	52	57
	^{24}Na	202	57
	^{27}Mg	22	59
Al + α	^{7}Be	106	58
	^{22}Na	122	58
	^{24}Na	122	58
	^{28}Mg	164	59
	^{28}Al	34	59
	^{29}Al	34	59
	^{30}P	36	59
Al + τ	^{18}F	36	59
	^{22}Na	34	60
	^{24}Na	132	60
	^{27}Mg	38	60
	^{28}Al	40	60
	^{27}Si	40	60
Si + p	^{24}Na	180	60
	^{28}Mg	180	61
	^{25}Al	28	61
	^{28}Al	28	61
	^{27}Si	28	61
Si + d	^{29}Al	18	61
	^{29}P	22	61
Si + α	^{29}Al	32	62
	^{30}P	32	62
Si + τ	^{23}Mg	36	62
	^{28}Al	28	62
	^{26}Si	38	62
	^{29}P	38	62
	^{30}S	38	63
P + p	^{24}Na	180	63
	^{28}Mg	160	63
P + α	^{34m}Cl	44	64
S + p	^{24}Na	180	63
	^{28}Mg	160	64
	^{34m}Cl	22	64
S + d	^{34m}Cl	24	64
S + α	^{34m}Cl	48	64
S + τ	^{34m}Cl	32	64
Cl + p	^{24}Na	180	64
	^{28}Mg	180	65
	^{34m}Cl	23	65
Cl + d	^{38}Cl	23	65
Cl + α	^{34m}Cl	48	65
Cl + τ	^{34m}Cl	32	65
	^{38}Cl	32	66
Ar + p	^{24}Na	180	66
	^{28}Mg	180	66
	^{38}S	50	66
Ar + α	^{42}K	32	66
	^{43}K	44	67
K + p	^{24}Na	180	67
	^{28}Mg	180	67
Ca + p	^{38}K	40	67
	^{42}K	24	67
	^{43}K	24	68
Ca + d	^{42}K	24	68
	^{43}K	24	68
Sc + p	^{42}K	86	68
	^{43}K	88	68
	^{44m}Sc	92	68
	^{44}Sc	84	69

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{44}Ti	88	69
	^{45}Ti	98	69
Sc + d	^{44}Ti	24	69
Sc + α	^{44m}Sc	44	69
	^{44}Sc	44	69
	^{46}Sc	44	69
	^{47}Sc	44	70
	^{47}V	44	70
	^{48}V	50	70
Ti + p	^{43}K	50	70
	^{43}Sc	50	70
	^{44m}Sc	50	71
	^{44}Sc	50	71
	^{46}Sc	50	71
	^{47}Sc	50	71
	^{48}Sc	50	71
	^{48}V	48	72
^{46}Ti + d	^{44m}Sc	24	72
	^{44}Sc	24	72
	^{46}Sc	24	72
	^{47}V	24	72
^{47}Ti + d	^{44m}Sc	24	72
	^{44}Sc	24	72
	^{47}Sc	24	73
	^{47}V	24	73
	^{48}V	24	73
^{48}Ti + d	^{46}Sc	24	73
	^{48}V	24	73
^{49}Ti + d	^{46}Sc	24	73
	^{47}Sc	24	73
^{50}Ti + d	^{47}Sc	24	74
Ti + α	^{48}V (к)	44	74
	^{48}Cr	176	74
	^{51}Cr	192	74
Ti + τ	^{44m}Sc	160	74
	^{46}Sc	160	75
	^{47}Sc	160	75
	^{48}Sc	164	75
	^{48}V	160	76
	^{48}Cr	164	76
	^{51}Cr	160	76
V + p	^{34m}Cl	84	76
	^{38}Cl	84	77
	^{39}Cl	84	77
	^{42}K	84	77
	^{43}K	84	77
	^{47}Ca	84	77
	^{43}Sc	80	78
	^{44m}Sc	80	78
	^{44}Sc	80	78
	^{46}Sc	84	78
	^{47}Sc	84	79
	^{48}Sc	84	79
	^{45}Ti	84	79
	^{47}V	84	79
	^{48}V (к)	84	80
	^{48}V	84	80
	^{48}Cr	84	80
	^{49}Cr	84	80
	^{51}Cr	56	81
V + d	^{48}Cr	100	81
	^{49}Cr	100	81
	^{51}Cr	100	81
V + α	^{44m}Sc	120	81
	^{46}Sc	122	82
	^{47}Sc	120	82
	^{48}Sc	122	82
	^{48}V(к)	122	83
	^{51}Cr(к)	122	83
	^{52}Mn	118	83
	^{54}Mn	86	83
V + τ	^{46}Sc	34	83
	^{48}V	34	84
	^{51}Cr(к)	34	84
	^{52}Mn	34	84
Cr + p	^{52}Mn	24	84
	^{54}Mn	28	84
Cr + d	^{48}V	22	84
	^{51}Cr(к)	22	84
	^{52}Mn	24	85
	^{54}Mn	26	85

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
Cr + α	^{52}Mn	48	85
	^{54}Mn	48	85
	^{52}Fe	48	85
Cr + τ	^{51}Cr(к)	34	85
	^{52}Mn	34	85
	^{54}Mn	34	86
	^{52}Fe	50	86
Mn + p	^{54}Mn	24	86
Mn + α	^{54}Mn	44	87
	^{56}Mn	44	87
	^{56}Co	46	86
	^{57}Co	44	86
	^{58}Co	44	86
Fe + p	^{48}V(к)	70	87
	^{51}Cr	70	87
	^{52}Mn	70	87
	^{54}Mn	70	87
	^{52}Fe	50	88
	^{55}Fe	40	88
	^{55}Co	50	88
	^{56}Co	60	88
	^{57}Co	60	88
	^{58}Co	40	89
Fe + d	^{52}Mn	24	89
	^{54}Mn	24	89
	^{55}Co	22	89
	^{56}Co	24	89
	^{57}Co	24	89
^{54}Fe + α	^{55}Fe	44	89
	^{55}Co(к)	44	90
	^{56}Co	44	90
	^{57}Co	48	90
	^{56}Ni	44	91
	^{57}Ni	48	91
^{56}Fe + α	^{55}Co(к)	64	90
	^{56}Co	70	90
	^{57}Co	64	90
	^{58}Co	64	91
	^{56}Ni	64	91
	^{57}Ni	64	91
Fe + τ	^{52}Mn	34	91
	^{54}Mn	34	92
	^{56}Co	34	92
	^{57}Co	34	92
	^{58}Co	34	92
	^{57}Ni	34	92
^{56}Fe + τ	^{56}Ni	32	92
Co + p	^{48}V	100	92
	^{53}V	100	93
	^{48}Cr	100	93
	^{51}Cr	100	93
	^{51}Mn	100	93
	^{52m}Mn	100	93
	^{52}Mn	100	94
	^{54}Mn	100	94
	^{56}Mn	100	94
	^{52}Fe	100	94
	^{53}Fe	100	95
	^{55}Fe	92	95
	^{55}Co(к)	102	95
	^{56}Co	100	95
	^{57}Co	100	96
	^{58m}Co	100	96
	^{58}Co	100	96
	^{56}Ni	100	96
	^{57}Ni	100	96
Co + d	^{46}Sc	90	97
	^{47}Sc	90	97
	^{48}V	90	97
	^{51}Cr(к)	100	97
	^{52}Mn	100	98
	^{54}Mn	100	98
	^{56}Mn	100	98
	^{52}Fe	90	99
	^{59}Fe	100	99
	^{55}Co(к)	100	99
	^{56}Co	100	99
	^{57}Co	100	100
	^{58}Co	100	100
	^{60}Co	100	100

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{56}Ni	90	100
	^{57}Ni	100	101
Co + α	^{42}K	180	101
	^{43}K	180	101
	^{44m}Sc	180	102
	^{44}Sc	180	102
	^{46}Sc	182	102
	^{47}Sc	180	103
	^{48}V	180	103
	^{51}Cr(к)	182	103
	^{52}Mn	182	104
	^{54}Mn	182	104
	^{56}Mn	186	104
	^{52}Fe	180	105
	^{59}Fe	180	105
	^{55}Co(к)	180	105
	^{56}Co	180	106
	^{57}Co	182	106
	^{58}Co	182	106
	^{60}Co	182	107
	^{61}Co	44	107
	^{57}Ni(к)	180	107
	^{60}Cu	44	107
	^{61}Cu	170	108
	^{62}Cu	44	108
Ni + p	^{56}Co	100	109
	^{57}Co (к)	100	110
	^{57}Co	60	110
	^{58}Co	100	111
	^{60}Co	60	111
	^{56}Ni	60	112
	^{57}Ni (к)	60	112
	^{61}Cu	50	113
^{58}Ni + p	^{52}Mn	60	108
	^{52}Fe	60	108
	^{53}Fe	60	108
	^{55}Co(к)	60	109
	^{56}Co	60	109
	^{57}Co(к)	60	110
	^{57}Co	60	110
^{60}Ni + p	^{57}Ni(к)	60	112
	^{54}Mn	60	108
	^{55}Co(к)	60	109
	^{56}Co	60	109
	^{57}Co	60	110
	^{58}Co	60	111
	^{57}Ni(к)	24	112
	^{60}Cu	24	113
^{61}Ni + p	^{58}Co	22	111
^{62}Ni + p	^{62}Cu	24	113
^{64}Ni + p	^{64}Cu	24	113
Ni + d	^{55}Co(к)	44	114
^{58}Ni + d	^{52}Mn	42	113
	^{54}Mn	42	113
	^{55}Fe	26	114
	^{56}Co	44	114
	^{57}Co	44	114
	^{58}Co	44	114
	^{56}Ni	44	115
	^{57}Ni(к)	44	115
^{60}Ni + d	^{54}Mn	26	114
Ni + α	^{56}Co	50	115
	^{57}Co	50	115
	^{58}Co	48	116
	^{56}Ni	50	116
	^{57}Ni	50	116
	^{60}Cu(к)	44	116
	^{61}Cu(к)	44	116
	^{62}Zn	46	116
	^{63}Zn	44	117
	^{65}Zn	44	117
Ni + τ	^{56}Co	32	117
	^{57}Co	32	117
	^{58}Co	32	117
	^{56}Ni	32	118
	^{57}Ni(к)	32	118
Cu + p	^{52}Mn	70	118
	^{54}Mn	70	118
	^{56}Mn	70	118
	^{59}Fe	70	118

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{55}Co(к)	70	119
	^{56}Co	70	119
	^{57}Co(к)	72	119
	^{58}Co	72	119
	^{60}Co	72	119
	^{56}Ni	72	120
	^{57}Ni	72	120
	^{60}Cu(к)	70	120
	^{61}Cu(к)	106	120
	^{62}Cu	100	121
	^{64}Cu	100	122
	^{62}Zn	100	122
	^{63}Zn	100	122
	^{65}Zn	72	123
^{63}Cu + p	^{61}Cu(к)	106	120
	^{62}Cu	100	121
	^{62}Zn	100	122
	^{63}Zn	100	123
^{65}Cu + p	^{61}Cu(к)	106	121
	^{62}Cu	102	121
	^{62}Zn	100	122
	^{63}Zn	100	123
Cu + d	^{65}Ni	26	123
	^{61}Cu(к)	42	123
	^{62}Cu	42	123
	^{64}Cu	42	124
	^{66}Cu	30	124
	^{62}Zn	40	124
	^{63}Zn	44	124
	^{65}Zn	44	124
Cu + α	^{61}Co	44	125
	^{62}Cu	44	125
	^{64}Cu	44	125
	^{67}Cu	44	125
	^{65}Zn(к)	44	125
	^{65}Zn	44	125
	^{65}Ga	44	126
	^{66}Ga	44	126
	^{67}Ga	60	126
	^{68}Ga	44	126
Cu + τ	^{57}Co	34	126
	^{58}Co	34	126
	^{60}Co	34	127
	^{61}Cu	26	127
	^{62}Cu	26	127
	^{64}Cu	26	127
	^{62}Zn	26	127
	^{63}Zn	30	127
	^{65}Zn(к)	34	127
	^{65}Ga	26	128
	^{66}Ga	26	128
	^{67}Ga	34	129
^{63}Cu + τ	^{65}Zn	26	128
	^{65}Ga	26	128
^{65}Cu + τ	^{65}Zn	26	128
	^{65}Ga	26	128
Zn + p	^{66}Ga	40	129
	^{67}Ga	40	130
^{66}Zn + p	^{66}Ga	40	129
^{67}Zn + p	^{66}Ga	40	130
	^{67}Ga	40	130
^{68}Zn + p	^{67}Cu	94	129
	^{65}Zn(к)	88	129
	^{66}Ga	92	130
	^{67}Ga	94	130
	^{68}Ga	100	131
Zn + d	^{61}Cu	22	131
	^{64}Cu	22	131
	^{67}Cu	22	131
	^{65}Zn(к)	22	131
	^{66}Ga	24	131
	^{67}Ga	24	131
Zn + α	^{65}Zn(к)	44	132
	^{66}Ga	44	133
	^{67}Ga(к)	44	133
	^{68}Ga	44	134
	^{68}Ge	44	134
	^{69}Ge	44	135
^{64}Zn + α	^{62}Cu	48	132
	^{62}Zn	48	132

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{63}Zn	48	132
	^{65}Zn(к)	48	132
	^{65}Zn	48	132
	^{65}Ga(к)	48	133
	^{65}Ga	48	133
	^{67}Ga(к)	44	133
	^{67}Ga	44	134
	^{65}Ge	44	134
	^{66}Ge	44	134
	^{67}Ge	44	134
Zn + τ	^{65}Zn(к)	36	135
	^{67}Ga(к)	34	135
	^{68}Ge	34	135
Ga + p	^{64}Cu	60	135
	^{67}Cu(к)	60	136
	^{65}Zn(к)	60	137
	^{65}Zn	60	137
	^{66}Ga	60	139
	^{67}Ga(к)	60	139
	^{67}Ga	60	140
	^{68}Ga	60	140
	^{70}Ga	60	141
	^{66}Ge	60	141
	^{67}Ge	60	141
	^{68}Ge	60	141
	^{69}Ge	60	142
^{69}Ga + p	^{64}Cu	60	136
	^{67}Cu	60	136
	^{62}Zn	60	137
	^{63}Zn	60	137
	^{65}Zn(к)	60	138
	^{65}Zn	60	138
	^{65}Ga(к)	60	139
	^{68}Ga	60	140
	^{68}Ge	60	142
	^{69}Ge	60	142
^{71}Ga + p	^{64}Cu	60	136
	^{67}Cu(к)	60	136
	^{65}Zn	60	138
	^{69m}Zn	60	138
	^{69g}Zn(к)	60	139
Ga + d	^{68}Ge	24	142
Ga + α	^{73}As	48	142
	^{74}As	52	143
Ge + p	^{65}Zn(к)	70	143
	^{66}Ga	70	143
	^{67}Ga	70	143
	^{68}Ge(к)	70	143
	^{69}Ge(к)	70	144
	^{71}As	70	144
	^{72}As	70	144
	^{73}As	70	144
	^{74}As	70	145
	^{76}As	22	145
Ge + d	^{67}Ga	24	145
	^{73}As	24	145
	^{74}As	24	145
Ge + α	^{72}As	46	145
	^{73}As(к)	48	145
	^{74}As	48	146
	^{72}Se	48	146
	^{75}Se	48	146
As + p	^{73}Se	80	146
	^{75}Se	80	146
As + d	^{75}Ge	50	146
	^{73}As	50	147
	^{74}As	50	147
	^{76}As	50	147
	^{72}Se	50	147
	^{73m}Se	50	147
	^{73g}Se	50	147
	^{75}Se	50	148
As + α	^{74}Br	74	148
	^{75}Br	74	148

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{76}Br	74	148
	^{77}Br	48	148
As + τ	^{74}Br	46	148
	^{75}Br	46	149
	^{76}Br	48	149
Se + p	^{76}Br	50	149
	^{77}Br	60	150
	^{82}Br	26	150
^{76}Se + p	^{74}Br	38	149
	^{75}Br	38	149
^{77}Se + p	^{76}Br	28	149
^{78}Se + p	^{77}Br	26	150
Se + d	^{76}Br	26	150
	^{77}Br	24	151
	^{82}Br	24	151
^{76}Se + d	^{74}Br	48	150
	^{75}Br	48	150
	^{76}Br	48	150
Se + α	^{76}Br	46	151
	^{77}Br(к)	46	151
	^{82}Br	46	151
Se + τ	^{76}Kr	40	151
	^{77}Kr	40	152
	^{79}Kr	40	152
^{76}Se + τ	^{75}Se	40	152
	^{75}Br(к)	40	152
	^{76}Br	40	152
	^{77}Br(к)	40	152
	^{77}Br	40	153
	^{76}Kr	40	153
	^{77}Kr	40	153
^{77}Se + τ	^{75}Se	40	153
	^{76}Br	40	153
	^{77}Br(к)	40	153
	^{77}Br	40	153
	^{78}Br	40	154
	^{76}Kr	40	154
	^{77}Kr	40	154
	^{79}Kr	40	154
Br + p	^{75}Br(к)	86	154
	^{76}Br	86	155
	^{77}Br(к)	90	156
	^{77}Br	90	156
	^{78}Br	92	157
	^{80m}Br	92	157
	^{80g}Br	90	158
	^{76}Kr	86	158
	^{77}Kr	88	158
	^{79}Kr	86	159
^{79}Br + p	^{74}Br	88	154
	^{78}Br	92	157
	^{79}Kr	86	159
^{81}Br + p	^{75}Br(к)	86	155
	^{76}Br	86	155
	^{77}Br(к)	88	156
	^{77}Br	90	156
	^{78}Br	92	157
	^{76}Kr	86	158
	^{77}Kr	88	158
	^{79}Kr	88	159
Br + d	^{76}Br	90	159
	^{77}Br(к)	88	159
	^{77}Br	88	160
	^{76}Kr	90	160
	^{77}Kr	90	160
Br + α	^{83}Rb	48	161
	^{84}Rb	48	161
^{79}Br + α	^{77}Br(к)	100	160
	^{77}Br	100	161
	^{77}Kr(к)	100	161
Rb + p	^{85}Sr	26	163
^{85}Rb + p	^{79}Kr	70	161
	^{81m}Rb	70	162
	^{81}Rb	70	162
	^{82m}Rb	70	162
	^{83}Rb	70	162
	^{84}Rb	70	163
	^{84m}Rb	70	162
	^{84g}Rb	70	163
	^{81}Sr	70	163
	^{82}Sr	70	163

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{83}Sr	70	163
	^{85}Sr	26	164
Rb + d	^{85m}Y	60	164
Rb + α	^{85}Y	60	164
	^{86m}Y	60	164
	^{87m}Y	60	164
	^{87g}Y	52	164
	^{88}Y	60	164
	^{85m}Y	40	165
Rb + τ	^{85}Y	40	165
	^{86m}Y	40	165
	^{87m}Y	40	165
	^{88}Y	40	165
	^{87m}Y	22	168
Sr + p	^{87g}Y	22	168
	^{88}Y	88	168
	^{83}Rb	86	165
^{88}Sr + p	^{84}Rb	84	166
	^{86}Rb	90	166
	^{85}Sr(к)	90	166
	^{85m}Sr	80	166
	^{85g}Sr	80	166
	^{84}Y	86	167
	^{85m}Y	84	167
	^{85}Y	84	167
	^{86}Y	90	167
	^{86m}Y	74	167
	^{86g}Y	74	168
	^{87m}Y	34	168
	^{87g}Y	34	168
Sr + d	^{87m}Y	24	168
	^{87g}Y	24	169
	^{88}Y	24	169
Y + p	^{84}Y(к)	86	169
	^{85m}Y	86	169
	^{85}Y(к)	86	169
	^{86}Y	86	170
	^{86m}Y	86	170
	^{86g}Y	86	170
	^{87m}Y	86	170
	^{87g}Y	86	171
	^{88}Y	86	171
	^{86}Zr	88	171
	^{87}Zr	86	171
	^{88}Zr	86	171
	^{89}Zr	86	172
^{90}Zr + p	^{81}Rb	86	172
	^{82m}Rb	86	172
	^{83}Rb	86	172
	^{84}Rb	86	173
	^{82}Sr(к)	88	173
	^{83}Sr(к)	86	173
	^{85}Sr(к)	86	173
	^{84}Y(к)	86	173
	^{85}Y(к)	86	174
	^{86}Y	86	174
	^{87g}Y	86	174
	^{88}Y	86	174
^{90}Zr + α	^{88}Y	86	175
	^{88}Zr(к)	80	175
	^{89}Zr(к)	80	175
	^{90}Nb	80	175
	^{90}Mo	80	175
Nb + p	^{89}Zr	30	176
	^{92m}Nb	30	176
	^{93m}Mo	30	176
Nb + α	^{93m}Tc	72	176
	^{93g}Tc	72	176
	^{94m}Tc	72	176
	^{94}Tc	72	177
	^{95m}Tc	48	177
	^{95g}Tc	48	177
	^{96m}Tc	24	177
	^{96g}Tc	48	177
Nb + τ	^{88}Y	32	177
	^{92m}Nb	32	177
	^{95m}Tc	32	177
Mo + p	^{95m}Tc	24	178
	^{96}Tc	24	178
	^{97m}Tc	24	178

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
Mo + *d*	^{95m}Tc	24	178
	^{96}Tc	24	178
	^{97m}Tc	24	178
Mo + *α*	^{95m}Tc(к)	46	179
	^{96}Tc	46	180
	^{101}Tc	40	180
	^{103}Ru(к)	44	181
^{92}Mo + *α*	^{93m}Tc(к)	56	178
	^{93g}Tc (к)	56	179
	^{94m}Tc	40	179
	^{94g}Tc	44	179
	^{95g}Tc	30	179
	^{94}Ru	44	180
	^{95}Ru	32	181
^{94}Mo + *α*	^{95g}Tc	56	179
	^{95}Ru	60	181
	^{97}Ru	60	181
^{95}Mo + *α*	^{96g}Tc	60	180
	^{97}Ru	60	181
^{100}Mo + *α*	^{101}Tc	58	180
	^{102m}Tc	50	180
Mo + *τ*	^{95m}Tc	32	181
	^{96}Tc	32	181
	^{97}Ru	32	181
Rh + *p*	^{97}Ru(к)	68	182
	^{103}Pd	24	182
Rh + *d*	^{103}Pd	24	182
Rh + *α*	^{102m}Ag	82	182
	^{102g}Ag	82	182
	^{103}Ag	82	182
	^{104m}Ag	82	183
	^{104g}Ag	82	183
	^{105}Ag	52	183
	^{106m}Ag	52	183
	^{106}Ag	28	183
Ag + *p*	^{107}Cd	24	183
	^{109}Cd	24	183
Ag + *d*	^{109}Cd	24	183
Ag + *α*	^{107}Cd	94	185
	^{109}Cd(к)	48	186
	^{106m}In	100	186
	^{107}In	100	186
	^{108m}In	94	187
	^{109}In	100	187
	^{110m}In	54	188
	^{110}In	52	188
	^{111}In	48	189
^{107}Ag + *α*	^{102g}Ag	100	184
	^{103}Ag	98	184
	^{104m}Ag	74	184
	^{104g}Ag	74	184
	^{105}Ag	46	185
	^{106m}Ag	44	185
	^{104}Cd	100	185
	^{107}Cd	94	185
	^{108}In	44	187
	^{109}In	100	188
	^{110m}In	54	188
	^{110}In	52	189
^{109}Ag + *α*	^{107}Cd	96	186
	^{106m}In	100	186
	^{107}In	100	187
	^{108m}In	94	187
	^{109}In	100	188
	^{110m}In	54	188
	^{110}In	52	189
Ag + *τ*	^{105}Ag	40	190
	^{106m}Ag	40	190
	^{110m}Ag	40	191
	^{108m}In	40	192
	^{108}In	40	192
	^{109}In	40	193
	^{110m}In	40	193
	^{110}In	40	194
	^{111}In	40	194
^{107}Ag + *τ*	^{103}Ag	40	189
	^{104m}Ag	40	189
	^{104g}Ag	40	189
	^{105}Ag	40	190
	^{106m}Ag	40	191

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{107}Cd	40	191
	^{106m}In	40	191
	^{106}In	40	192
	^{107}In	40	192
	^{108m}In	40	192
	^{108}In	40	193
	^{109}In	40	193
^{109}Ag + *τ*	^{105}Ag	40	190
	^{106m}Ag	40	191
	^{108m}In	40	192
	^{108}In	40	193
	^{109}In	40	193
Cd + *p*	^{110m}In	24	194
	^{110}In	24	195
	^{111}In	24	195
	^{112m}In	24	196
	^{112g}In	24	196
	^{113m}In	24	197
	^{114m}In	24	197
	^{115m}In	24	197
	^{116m}In	24	197
^{110}Cd + *p*	^{109}Cd(к)	18	194
	^{109}Cd	18	194
	^{109}In	24	194
	^{110m}In	24	194
	^{110}In	24	195
^{111}Cd + *p*	^{110m}In	24	195
	^{110}In	24	195
	^{111}In	24	195
^{112}Cd + *p*	^{110m}In	36	195
	^{110}In	36	195
	^{111}In	38	196
	^{112m}In	24	196
	^{112g}In	24	196
^{113}Cd + *p*	^{112m}In	24	196
	^{112g}In	24	196
	^{113m}In	24	197
^{114}Cd + *p*	^{113m}In	24	197
Cd + *d*	^{111}In	24	197
	^{114m}In	24	197
Cd + *α*	^{113}Sn	48	198
	^{117m}Sn	48	198
Cd + *τ*	^{109}Cd(к)	34	198
	^{111}In(к)	34	198
	^{113}Sn	34	198
In + *p*	^{113}Sn	24	198
In + *d*	^{113}Sn	24	199
In + *α*	^{117m}Sn	48	199
Sn + *α*	^{126m}Sb	44	199
	^{126g}Sb	44	200
	^{127}Sb	44	200
	^{118}Te	44	200
	^{119m}Te	44	200
	^{121m}Te	44	200
	^{121g}Te	44	200
	^{123m}Te	44	201
	^{127m}Te	44	201
	^{127g}Te	44	201
^{124}Sn + *α*	^{123m}Sn	44	199
	^{123}Sn	44	199
	^{125m}Sn	44	199
	^{125}Sn	44	199
	^{125m}Te	44	201
Sb + *p*	^{121m}Te	24	201
	^{121g}Te	24	201
	^{123m}Te	24	201
Sb + *d*	^{121m}Te	24	202
	^{121g}Te	24	202
	^{123m}Te	24	202
Sb + *α*	^{123}I	46	202
	^{124}I	46	202
	^{125}I	46	202
	^{126}I	52	202
Sb + *τ*	^{121}I	30	203
	^{124}I	30	203
Te + *p*	^{121}I	36	203
	^{123}I	36	203
	^{124}I	36	203
	^{125}I	24	204
	^{126}I	36	201
	^{128}I	36	204

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{130}I	36	204
^{124}Te + p	^{123}I	30	203
	^{124}I	30	204
Te + d	^{123}I	24	204
	^{124}I	24	204
	^{125}I	24	205
	^{126}I	24	205
	^{130}I	24	205
	^{131}I	24	205
^{122}Te + d	^{120m_1}Sb	42	205
	^{121m_1}Te	42	205
	^{121g}Te	42	205
	^{123m_1}Te	42	206
	^{121}I	50	206
	^{122}I	50	206
	^{123}I	50	206
Te + α	^{123}I(к)	50	206
	^{124}I	46	207
	^{125}I(к)	46	207
	^{126}I	46	207
	^{130}I	46	207
	^{131}I(к)	46	207
	^{132}I	46	208
^{122}Te + α	^{123}Xe	50	208
^{123}Te + τ	^{123}I	40	208
	^{123}Xe	40	208
^{124}Te + τ	^{123}I	54	208
	^{123}Xe	54	209
I + p	^{123}I	80	209
	^{124}I	80	209
	^{125}I	82	209
	^{126}I	82	210
	^{121}Xe	160	210
	^{123}Xe	164	210
	^{125}Xe	162	210
	^{127}Xe	66	211
I + d	^{119}I	98	211
	^{120}I	98	211
	^{121}I	96	211
	^{123}I	100	211
	^{124}I	100	212
	^{126}I	100	212
	^{121}Xe	98	212
	^{122}Xe	100	212
	^{123}Xe	100	213
	^{125}Xe	100	213
	^{127}Xe	100	213
I + α	^{127}Cs	48	213
	^{129}Cs	48	213
Cs + p	^{133m_1}Ba	24	213
	^{133}Ba	24	214
Cs + d	^{133m}Ba	24	214
	^{133}Ba	24	214
Cs + α	^{135m}Ba	48	214
La + p	^{135m}Ba	24	214
	^{139}Ce	24	214
La + d	^{139}Ce	24	214
La + α	^{141}Ce(к)	46	214
	^{139}Pr	46	215
	^{140}Pr	46	215
	^{142}Pr	48	215
Eu + d	^{151}Gd	24	215
	^{153}Gd	24	215
Dy + p	^{155}Dy(к)	90	215
	^{157}Dy(к)	90	215
	^{159}Dy	82	216
	^{159}Ho	82	216
	^{160m}Ho	86	216
	^{160g}Ho	40	217
	^{161}Ho	82	217
	^{162}Ho	40	217
Ho + p	^{161}Er	54	217
Ho + α	^{165}Tm	56	217
	^{166}Tm	58	217
	^{167}Tm	60	218
	^{168}Tm	48	218
Er + p	^{157}Dy(к)	88	218
	^{159}Dy(к)	88	218
	^{160m}Ho	88	218
	^{161}Ho	78	218
	^{160}Er(к)	88	219

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{161}Er(к)	86	219
	^{165}Er	86	219
	^{169}Er(к)	88	220
	^{163}Tm	86	220
	^{165}Tm	62	220
	^{166}Tm	88	220
	^{167}Tm	92	221
	^{168}Tm	24	221
	^{170}Tm	24	221
Er + d	^{165}Tm	24	221
	^{166}Tm	24	221
	^{167}Tm	24	221
	^{168}Tm	24	221
	^{170}Tm	24	221
Er + α	^{163}Tm(к)	46	222
	^{165}Tm(к)	46	222
	^{167}Tm(к)	46	222
	^{168}Tm	46	222
	^{166}Yb	46	222
	^{169}Yb	46	223
^{166}Er + α	^{168}Tm	46	222
	^{166}Yb	46	223
Er + τ	^{165}Tm(к)	46	223
	^{166}Tm	46	223
	^{167}Tm(к)	46	223
	^{168}Tm	46	223
	^{169}Yb	46	224
Tm + α	^{169}Yb	58	224
	^{168}Lu	56	224
	^{169}Lu	56	224
	^{170}Lu	58	224
	^{171}Lu	56	224
	^{172}Lu	52	224
Ta + p	^{171}Lu	84	225
	^{172}Lu	84	225
	^{176m_1}Lu	66	225
	^{171}Hf	84	225
	^{175}Hf	84	226
	^{175}Ta	84	226
	^{177}Ta	84	226
	^{178}Ta	54	226
	^{179}Ta	38	227
	^{180m}Ta	46	227
	^{176}W	84	227
	^{177}W	84	227
	^{178}W	84	227
	^{179}W	40	227
	^{181}W	34	228
Ta + d	^{173}Hf	80	228
	^{175}Hf	64	228
	^{181}Hf	78	228
	^{178m}Ta	80	228
	^{182}Ta	80	228
	^{175}W	80	229
	^{176}W	80	229
	^{177}W	80	229
	^{178}W	80	229
	^{181}W	24	229
Ta + α	^{177}Re	104	229
	^{178}Re	100	229
	^{179}Re	100	230
	^{180}Re	84	230
	^{181}Re	80	230
	^{182m}Re	50	230
	^{182}Re	50	230
	^{183}Re	48	230
	^{184m}Re	48	231
	^{184g}Re	48	231
Ta + τ	^{177}Re	80	231
	^{178}Re	80	231
	^{179}Re	80	231
	^{180}Re	70	231
	^{181}Re	60	232
W + p	^{181}Re	24	232
	^{182m}Re	24	232
	^{182}Re	24	232
	^{183}Re	70	232
	^{184m}Re	24	232
	^{184g}Re	72	233
W + d	^{181}Re	24	233
	^{182m}Re	24	233
	^{182}Re	24	233

Продолжение табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{183}Re	24	233
	^{184m}Re	24	234
	^{184g}Re	24	234
^{184}W + d	^{182}Ta	22	233
^{186}W + d	^{183}Ta	22	233
	^{184}Ta	22	233
W + τ	^{185}W	32	234
	^{183}Re(к)	32	234
	^{184g}Re	32	234
	^{185}Os	32	234
^{187}Re + α	^{184}Ir	86	234
	^{185}Ir	84	234
	^{186}Ir	84	235
	^{187}Ir	70	235
	^{188}Ir	60	235
^{187}Re + τ	^{184}Ir	72	235
	^{185}Ir	72	235
	^{186}Ir	60	236
	^{187}Ir	52	236
Ir + p	^{181}Re	90	236
	^{182}Os	92	236
	^{183}Os	92	236
	^{185}Os	90	236
	^{185}Ir(к)	90	237
	^{186}Ir	92	237
	^{188}Ir	90	237
	^{190m}Ir	50	237
	^{190g}Ir	90	237
	^{192}Ir	96	238
	^{186}Pt	88	238
	^{188}Pt	92	238
	^{189}Pt	92	238
	^{191}Pt	32	239
Pt + p	^{195}Au	24	239
Pt + d	^{195}Au	24	239
Pt + α	^{195}Au(к)	48	239
Au + p	^{195}Au	30	239
	^{196m}Au	54	239
	^{196g}Au	54	239
	^{195m}Hg	40	240
	^{195g}Hg	40	240
	^{197m}Hg	22	240
	^{197g}Hg	22	240
Au + d	^{192}Au	86	240
	^{194}Au	90	240
	^{196}Au	80	241
	^{198}Au	80	241
	^{190}Hg	88	241
	^{191}Hg	86	241
	^{192}Hg	90	241
	^{193m}Hg	86	242
	^{195m}Hg	80	242
	^{197m}Hg	24	242
	^{197g}Hg	24	242
Au + α	^{196}Au	52	242
	^{193m}Hg	156	242
	^{195m}Hg	156	243
	^{197m}Hg	154	243
	^{197g}Hg	56	243
	^{190}Tl	158	243
	^{191}Tl	156	244
	^{192}Tl	170	244
	^{193}Tl	156	244
	^{194}Tl	158	244
	^{195}Tl	158	245
	^{196g}Tl	158	245
	^{197}Tl	136	245
	^{198g}Tl	60	245
	^{199}Tl	50	245
	^{200}Tl	48	245
Au + τ	^{193}Tl	74	245
	^{194}Tl	74	246
	^{195}Tl	74	246
	^{196g}Tl	70	246
	^{197}Tl	52	246
Hg + p	^{200}Tl	24	248
	^{201}Tl	24	249
	^{202}Tl	24	249
^{202}Hg + p	^{192}Au	86	246
	^{193}Au	86	247
	^{194}Au	86	247

Окончание табл. 1

Способ получения	Радионуклид	Максимальная энергия частиц, МэВ	Страница
	^{196}Au	86	247
	^{198}Au	86	247
	^{199}Au	86	248
	^{200}Au	86	248
	^{201}Au	86	248
Hg + d	^{200}Tl	24	249
	^{201}Tl	24	249
	^{202}Tl	24	249
Tl + p	^{201}Tl	46	249
	^{202}Tl	46	249
	^{199}Pb	48	250
	^{200}Pb	60	250
	^{201}Pb	60	250
	^{202m}Pb	50	251
	^{203}Pb	60	251
	^{204m}Pb	60	252
^{203}Tl + p	^{200}Pb	60	250
	^{201}Pb	60	251
	^{202m}Pb	50	251
^{205}Tl + p	^{200}Pb	60	250
	^{201}Pb	60	251
	^{202m}Pb	60	251
Tl + d	^{203}Pb	24	252
Pb + p	^{205}Bi	24	252
	^{206}Bi	24	252
	^{207}Bi	24	252
Pb + d	^{205}Bi	24	252
	^{206}Bi	24	252
	^{207}Bi	24	253
Pb + α	^{208}Po	50	253
	^{210}Po	34	254
^{206}Pb + α	^{206}Po	50	253
	^{207}Po	48	253
	^{208}Po	52	253
^{207}Pb + α	^{208}Po	50	253
	^{210}Po	34	254
^{208}Pb + α	^{208}Po	50	253
	^{209}Po	50	253
	^{210}Po	52	254
^{207}Pb + τ	^{207}Po	40	254
Bi + p	^{199}Bi	150	254
	^{200}Bi	150	254
	^{201}Bi	150	255
	^{202}Bi	150	255
	^{203}Bi	152	255
	^{204}Bi	82	255
	^{205}Bi	152	256
	^{206}Bi	132	256
	^{198}Po	160	256
	^{199}Po	158	256
	^{200}Po	162	256
	^{201}Po	154	257
	^{202}Po	158	257
	^{203}Po	146	257
	^{204}Po	82	257
	^{205}Po	144	258
	^{206}Po	146	258
	^{207}Po	54	258
	^{208}Po	90	258
Bi + α	^{207}At	80	258
	^{208}At	80	258
	^{209}At	80	259
	^{210}At	64	259
^{233}U + α	^{233}Np	46	259
	^{234}Np	46	259
	^{235}Np	46	259
	^{236m}Np	46	259
	^{233}Pu	46	260
	^{234}Pu	46	260
	^{235}Pu	48	260
	^{236}Pu	48	260
^{235}U + α	^{236m}Np	46	260
	^{238}Np	48	260
	^{234}Pu	46	261
	^{235}Pu	46	261
	^{236}Pu	48	261
	^{237}Pu	48	261
	^{238}Pu	48	261
^{238}U + α	^{237}U	46	261
	^{238}Np	46	261
	^{239}Np	46	261

Таблица 2. **Радионуклиды, для которых в табл. 4 приведены выходы**

Радионуклид	Период полураспада	Радионуклид	Период полураспада	Радионуклид	Период полураспада
^{7}Be	53,23 сут	^{51}Cr	27,7 сут	^{73}As	80,3 сут
^{10}Be	$1{,}59 \cdot 10^{6}$ лет	^{51}Mn	45,9 мин	^{74}As	17,77 сут
^{11}C	20,38 мин	^{52m}Mn	21,3 мин	^{76}As	1,097 сут
^{13}N	9,97 мин	^{52}Mn	5,59 сут	^{72}Sc	8,4 сут
^{18}F	1,83 ч	^{54}Mn	312,2 сут	^{73}Se	7,1 ч
^{20}F	10,97 с	^{56}Mn	2,578 ч	^{73m}Se	39 мин
^{21}Na	22,47 с	^{52}Fe	8,28 ч	^{75}Se	119,8 сут
^{22}Na	2,603 года	^{53}Fe	8,53 мин	^{74}Br	25,3 мин
^{24}Na	15,03 ч	^{55}Fe	2,72 года	^{75}Br	1,633 ч
^{25}Na	1,0 мин	^{59}Fe	44,52 сут	^{76}Br	16,2 ч
^{22}Mg	3,86 с	^{55}Co	17,64 ч	^{77}Br	57,04 ч
^{23}Mg	11,34 с	^{56}Co	78,76 сут	^{78}Br	6,46 мин
^{27}Mg	9,46 мин	^{57}Co	271,5 сут	^{80m}Br	4,42 ч
^{28}Mg	20,93 ч	^{58m}Co	9,15 ч	^{80}Br	17,4 мин
^{24}Al	2,09 с	^{58}Co	70,79 сут	^{82}Br	1,47 сут
^{25}Al	7,17 с	^{60}Co	5,273 года	^{76}Kr	14,8 ч
^{28}Al	2,24 мин	^{61}Co	1,65 ч	^{77}Kr	1,245 ч
^{29}Al	6,52 мин	^{56}Ni	6,1 сут	^{79}Kr	1,46 сут
^{26}Si	2,21 с	^{57}Ni	1,507 сут	^{81m}Rb	32 мин
^{27}Si	4,11 с	^{65}Ni	2,52 ч	^{81}Rb	4,58 ч
^{29}P	4,09 с	^{60}Cu	23,2 мин	^{82m}Rb	6,2 ч
^{30}P	2,5 мин	^{61}Cu	3,41 ч	^{83}Rb	86,2 сут
^{30}S	1,21 с	^{62}Cu	9,74 мин	^{84m}Rb	20,5 мин
^{38}S	2,87 ч	^{64}Cu	12,71 ч	^{84}Rb	32,77 сут
^{34m}Cl	32,06 мин	^{66}Cu	5,1 мин	^{86}Rb	18,8 сут
^{38}Cl	38,18 мин	^{67}Cu	2,575 сут	^{81}Sr	25,5 мин
^{39}Cl	56,2 мин	^{62}Zn	9,26 ч	^{82}Sr	25,0 сут
^{38}K	7,71 мин	^{63}Zn	38,1 мин	^{83}Sr	1,35 сут
^{42}K	12,36 ч	^{65}Zn	243,9 сут	^{85m}Sr	1,128 ч
^{43}K	22,6 ч	^{69m}Zn	14,0 ч	^{85}Sr	65,84 сут
^{47}Ca	4,54 сут	^{69g}Zn	55,6 мин	^{84}Y	38,5 мин
^{43}Sc	3,89 ч	^{65}Ga	15,2 мин	^{85m}Y	2,68 ч
^{44m}Sc	2,44 сут	^{66}Ga	9,40 ч	^{85}Y	4,8 ч
^{44}Sc	3,92 ч	^{67}Ga	78,26 ч	^{86m}Y	48 мин
^{46}Sc	83,8 сут	^{68}Ga	68,0 мин	^{86}Y	14,74 ч
^{47}Sc	3,35 сут	^{70}Ga	21,15 мин	^{87m}Y	13,2 ч
^{48}Sc	1,825 сут	^{65}Ge	30,9 с	^{87}Y	3,346 сут
^{44}Ti	47,3 года	^{66}Ge	2,27 ч	^{88}Y	106,6 сут
^{45}Ti	3,09 ч	^{67}Ge	18,7 мин	^{86}Zr	16,5 ч
^{47}V	32,6 мин	^{68}Ge	288 сут	^{87}Zr	1,57 ч
^{48}V	15,97 сут	^{69}Ge	1,252 сут	^{88}Zr	83,4 сут
^{53}V	1,55 мин	^{75}Ge	1,38 ч	^{89}Zr	3,268 сут
^{48}Cr	21,56 ч	^{71}As	2,70 сут	^{90}Nb	14,6 ч
^{49}Cr	41,4 мин	^{72}As	1,083 сут	^{92m}Nb	10,13 сут

Продолжение табл. 2

Радионуклид	Период полураспада	Радионуклид	Период полураспада	Радионуклид	Период полураспада
^{90}Mo	5,67 ч	^{113}Sn	115,1 сут	^{142}Pr	19,13 ч
^{93m}Mo	6,85 ч	^{117m}Sn	14,0 сут	^{151}Gd	120 сут
^{93m}Tc	43,5 мин	^{123m}Sn	40,0 мин	^{153}Gd	241 сут
^{93}Tc	2,73 ч	^{123}Sn	129,3 сут	^{155}Dy	10,0 ч
^{94m}Tc	52 мин	^{125m}Sn	9,52 мин	^{157}Dy	8,1 ч
^{94}Tc	4,88 ч	^{125}Sn	9,64 сут	^{159}Dy	144,4 сут
^{95m}Tc	61 сут	^{120m}Sb	5,76 сут	^{159}Ho	33 мин
^{95}Tc	20,0 ч	^{126m}Sb	19,0 мин	^{160m}Ho	5,02 ч
^{96m}Tc	51,5 мин	^{126}Sb	12,4 сут	^{160}Ho	25,6 мин
^{96}Tc	4,28 сут	^{127}Sb	3,87 сут	^{161}Ho	2,5 ч
^{97m}Tc	87 сут	^{118}Te	6,00 сут	^{162}Ho	15 мин
^{101}Tc	14,2 мин	^{119m}Te	4,7 сут	^{160}Er	1,191 сут
^{102m}Tc	4,35 мин	^{121m}Te	154 сут	^{161}Er	3,24 ч
^{94}Ru	51,8 мин	^{121}Te	17 сут	^{165}Er	10,36 ч
^{95}Ru	1,63 ч	^{123m}Te	119,7 сут	^{169}Er	9,3 сут
^{97}Ru	2,89 сут	^{125m}Te	57,4 сут	^{163}Tm	1,81 ч
^{103}Ru	39,35 сут	^{127m}Te	109 сут	^{165}Tm	1,233 сут
^{103}Pd	16,96 сут	^{127}Te	9,35 ч	^{166}Tm	7,70 ч
^{102m}Ag	7,7 мин	^{119}I	19 мин	^{167}Tm	9,25 сут
^{102}Ag	12,9 мин	^{120}I	1,350 ч	^{168}Tm	93,1 сут
^{103}Ag	1,095 ч	^{121}I	2,12 ч	^{170}Tm	128,6 сут
^{104m}Ag	33,5 мин	^{122}I	3,62 мин	^{166}Yb	2,362 сут
^{104}Ag	1,153 ч	^{123}I	13,31 ч	^{169}Yb	32,0 сут
^{105}Ag	41,29 сут	^{124}I	4,18 сут	^{168}Lu	5,3 мин
^{106m}Ag	8,41 сут	^{125}I	60,04 сут	^{169}Lu	1,419 сут
^{106}Ag	23,96 мин	^{126}I	12,93 сут	^{170}Lu	2,0 сут
^{110m}Ag	249,9 сут	^{128}I	25 мин	^{171}Lu	8,22 сут
^{104}Cd	57,7 мин	^{130}I	12,36 ч	^{172}Lu	6,70 сут
^{107}Cd	6,49 ч	^{131}I	8,054 сут	^{176m}Lu	3,68 ч
^{109}Cd	1,24 лет	^{132}I	2,30 ч	^{171}Hf	12,1 ч
^{106m}In	6,26 мин	^{121}Xe	40,1 мин	^{173}Hf	24,0 ч
^{106}In	5,33 мин	^{122}Xe	20,1 ч	^{175}Hf	70 сут
^{107}In	32,4 мин	^{123}Xe	2,08 ч	^{181}Hf	42,4 сут
^{108m}In	58 мин	^{125}Xe	17,0 ч	^{175}Ta	10,21 ч
^{108}In	39,6 мин	^{127}Xe	36,41 сут	^{177}Ta	2,358 ч
^{109}In	4,3 ч	^{127}Cs	6,25 ч	^{178}Ta	9,31 мин
^{110m}In	4,9 ч	^{129}Cs	1,336 сут	^{178m}Ta	2,45 ч
^{110}In	1,152 ч	^{133m}Ba	1,621 сут	^{179}Ta	664,9 сут
^{111}In	2,802 сут	^{133}Ba	10,73 года	^{180m}Ta	8,1 ч
^{112m}In	20,9 мин	^{135m}Ba	1,196 сут	^{182}Ta	115,0 сут
^{112}In	14,4 мин	^{139}Ce	137,6 сут	^{183}Ta	5,1 сут
^{113m}In	1,658 ч	^{141}Ce	32,5 сут	^{184}Ta	8,7 ч
^{114m}In	49,51 сут	^{139}Pr	4,42 ч	^{175}W	34 мин
^{115m}In	4,49 ч	^{140}Pr	3,39 мин	^{176}W	2,3 ч
^{116m}In	54,15 мин				

Окончание табл. 2

Радионуклид	Период полураспада	Радионуклид	Период полураспада	Радионуклид	Период полураспада
^{177}W	2,25 ч	^{198}Au	2,695 сут	^{204}Bi	11,2 ч
^{178}W	21,7 сут	^{199}Au	3,13 сут	^{205}Bi	15,31 сут
^{179}W	37,5 мин	^{200}Au	2,017 сут	^{206}Bi	6,24 сут
^{181}W	121,2 сут	^{201}Au	26,4 мин	^{207}Bi	33,4 года
^{185}W	75,9 сут	^{190}Hg	20,0 мин	^{198}Po	1,8 мин
^{177}Re	14,0 мин	^{191}Hg	50,8 мин	^{199}Po	5,2 мин
^{178}Re	13,2 мин	^{192}Hg	4,9 ч	^{200}Po	11,8 мин
^{179}Re	19,7 мин	^{193m}Hg	11,1 ч	^{201}Po	14,5 мин
^{180}Re	2,43 мин	^{195m}Hg	1,667 сут	^{202}Po	43,8 мин
^{181}Re	20 ч	^{195}Hg	9,5 ч	^{203}Po	36,0 мин
^{182m}Re	2,667 сут	^{197m}Hg	23,8 ч	^{204}Po	3,52 ч
^{182}Re	12,7 ч	^{197}Hg	2,67 сут	^{205}Po	1,8 ч
^{183}Re	70 сут	^{190}Tl	3,2 мин	^{206}Po	8,8 сут
^{184m}Re	165 сут	^{191}Tl	5,22 мин	^{207}Po	5,84 ч
^{184}Re	38 сут	^{192}Tl	9,5 мин	^{208}Po	2,9 года
^{182}Os	22 ч	^{193}Tl	21 мин	^{209}Po	102 года
^{183}Os	13,0 ч	^{194}Tl	33,0 мин	^{210}Po	138,4 сут
^{185}Os	93,6 сут	^{195}Tl	1,16 ч	^{207}At	1,80 ч
^{184}Ir	3,2 ч	^{196}Tl	1,84 ч	^{208}At	1,63 ч
^{185}Ir	14,0 ч	^{197}Tl	2,84 ч	^{209}At	5,3 ч
^{186}Ir	15,8 ч	^{198}Tl	5,3 мин	^{210}At	8,3 ч
^{187}Ir	10,5 ч	^{199}Tl	7,4 мин	^{237}U	6,75 сут
^{188}Ir	1,729 сут	^{200}Tl	1,088 сут	^{233}Np	32,6 мин
^{190m}Ir	3,1 ч	^{201}Tl	3,062 сут	^{234}Np	4,4 сут
^{190}Ir	12,1 сут	^{202}Tl	12,2 сут	^{235}Np	1,084 года
^{192}Ir	74,08 сут	^{199}Pb	1,5 ч	^{236}Np	22,5 ч
^{186}Pt	2,1 ч	^{200}Pb	21,5 ч	^{238}Np	2,117 сут
^{188}Pt	10,2 сут	^{201}Pb	9,4 ч	^{239}Np	2,355 сут
^{189}Pt	10,87 сут	^{202m}Pb	3,62 ч	^{233}Pu	20,9 мин
^{191}Pt	3,0 сут	^{203}Pb	2,167 сут	^{234}Pu	8,8 ч
^{192}Au	5,03 ч	^{204m}Pb	1,115 ч	^{235}Pu	25,6 сут
^{193}Au	17,65 ч	^{199}Bi	24,4 мин	^{236}Pu	2,85 года
^{194}Au	39,5 ч	^{200}Bi	35 мин	^{237}Pu	45,63 сут
^{195}Au	182,9 сут	^{201}Bi	1,667 ч	^{238}Pu	87,74 года
^{196m}Au	9,7 ч	^{202}Bi	1,79 ч		
^{196}Au	6,18 сут	^{203}Bi	11,76 ч		

Таблица 3. **Реакции образования радионуклидов для способов их получения, приведенных в табл. 1**

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ	Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
^{7}Be	^{7}Li(p, n)	1,88		^{19}F (p, $pn + 2n$)	11,0
	^{9}Be(p, t)	13,4		^{18}O (d, $2n$)...	5,76
	^{11}B (p, αn) ...	11,2		^{19}F (d, $p2n + 3n$)	14,0
	^{27}Al(p, $5\alpha n$)	47,6		^{20}Ne(d, α)...	0
	^{7}Li(d, $2n$) ...	4,98		^{24}Mg(d, 2α)...	7,06
	^{9}Be(d, tn)	17,5		^{15}N(α, n)	8,13
	^{11}B (d, $\alpha 2n$) ...	16,1		^{16}O (α, $pn + 2n$)...	23,2
	^{27}Al(d, $5\alpha 2n$)	51,7		^{19}F(α, αn)	12,6
	^{9}Be (α, $\alpha 2n$)	29,6		^{23}Na(α, $2\alpha n$)	24,5
	^{27}Al(α, $5\alpha p3n$)	85,2		^{16}O (τ, $p + n$)...	0
^{10}Be	^{9}Be(d, p)	0		^{19}F(τ, α)	0
^{11}C	^{11}B (p, n)	3,02		^{20}Ne(τ, αp)...	3,10
	^{12}C (p, pn) ...	20,3		^{23}Na(τ, 2α)	0,36
	^{14}N(p, α)...	3,13		^{24}Mg(τ, $2\alpha p$)...	4,83
	^{11}B (d, $2n$)...	5,79		^{27}Al(τ, 3α)	11,6
	^{12}C(d, t)...	14,5	^{20}F	^{26}Mg(τ, $2\alpha p$)...	13,4
	^{14}N(d, αn)...	5,88	^{21}Na	^{24}Mg(p, α)...	7,20
	^{9}Be (α, $2n$)	18,8	^{22}Na	^{24}Mg(p, $2pn + p2n$)...	25,1
	^{10}B (α, t)...	15,6		^{27}Al(p, αpn)	23,3
	^{12}C (α, αn)...	25,0		^{23}Na(d, t)	6,70
	^{14}N(α, αt)...	29,2		^{24}Mg(d, α)...	0
	^{9}Be(τ, n).	0		^{27}Al(d, $\alpha p2n$)	26,6
	^{11}B (τ, t)	2,55		^{27}Al(α, $2\alpha n$)	25,8
	^{12}C (τ, α)	0		^{27}Al(τ, 2α)	2,14
	^{14}N (τ, αpn)	13,3	^{24}Na	^{25}Mg(p, $2p$)...	12,5
	^{16}O (τ, 2α)	6,30		^{27}Al(p, $3pn$)	32,6
^{13}N	^{13}C (p, n)	3,23		^{28}Si(p, $4pn$)...	44,6
	^{14}N(p, pn)...	11,3		^{31}P(p, $\alpha 3pn$)	42,4
	^{16}O (p, α)...	5,54		^{32}S(p, $\alpha 4pn$)...	51,5
	^{12}C(d, n)...	0,33		^{35}Cl(p, $2\alpha 3pn$)...	49,5
	^{14}N (d, t)...	5,88		^{40}Ar(p, $4\alpha n$)...	38,0
	^{16}O (d, αn)...	8,37		^{39}K(p, $3\alpha 3p$)...	56,7
	^{11}B (α, $2n$)...	14,2		^{23}Na(d, p)	0
	^{12}C (α, t)...	23,8		^{24}Mg(d, $2p$)...	7,53
	^{14}N(α, αn)...	13,6		^{27}Al(d, αp)	5,75
	^{11}B (τ, n)	0		^{25}Mg(α, αp)...	14,0
	^{12}C (τ, pn)...	7,22		^{27}Al(α, $\alpha 2pn$)	36,1
	^{14}N(τ, α)	0		^{27}Al(τ, $\alpha 2p$)	10,8
^{18}F	^{18}O (p, n)	2,57	^{25}Na	^{26}Mg(p, $2p$)	14,7

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	$^{25}Mg(d, 2p)$...	5,70
^{22}Mg	$^{24}Mg(\tau, \alpha n)$...	10,2
^{23}Mg	$^{24}Mg(p, pn)$...	17,2
	$^{27}Al(p, \alpha n)$	16,5
	$^{24}Mg(\tau, \alpha)$...	0
	$^{28}Si(\tau, 2\alpha)$...	6,58
^{27}Mg	$^{26}Mg(d, p)$	0
	$^{27}Al(d, 2p)$	4,35
	$^{26}Mg(\alpha, 2pn + 3p)$...	25,2
	$^{26}Mg(\tau, 2p)$...	1,42
	$^{27}Al(\tau, 3p)$	10,6
^{28}Mg	$^{30}Si(p, 3p)$	24,8
	$^{31}P(p, 4p)$	32,3
	$^{32}S(p, 5p)$...	41,4
	$^{35}Cl(p, \alpha 4p)$...	39,4
	$^{40}Ar(p, 3\alpha p)$...	28,0
	$^{39}K(p, 2\alpha 4p)$...	46,7
	$^{26}Mg(\alpha, 2p)$	15,4
	$^{27}Al(\alpha, 3p)$	24,8
^{24}Al	$^{24}Mg(p, n)$...	15,3
	$^{24}Mg(\tau, p2n)$...	25,2
^{25}Al	$^{29}Si(p, \alpha)$...	16,7
	$^{24}Mg(d, n)$...	0
	$^{24}Mg(\tau, pn)$...	6,13
	$^{27}Al(p, t)$	16,5
^{28}Al	$^{29}Si(p, 2p)$...	12,8
	$^{26}Mg(\alpha, pn)$...	14,2
	$^{27}Al(\alpha, 2pn)$	23,6
	$^{26}Mg(\tau, p)$	0
	$^{27}Al(\tau, 2p)$	0
	$^{30}Si(\tau, \alpha p)$...	2,60
^{29}Al	$^{29}Si(d, 2p)$...	5,48
	$^{26}Mg(\alpha, p)$	3,30
	$^{27}Al(\alpha, 2p)$	11,1
	$^{30}Si(\alpha, \alpha p)$...	13,4
^{26}Si	$^{24}Mg(\tau, n)$...	0
	$^{28}Si(\tau, \alpha n)$...	11,0
^{27}Si	$^{27}Al(p, n)$	5,80
	$^{28}Si(p, pn)$...	17,8
	$^{24}Mg(\alpha, n)$...	8,39
	$^{27}Al(\tau, p2n)$	14,8

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
^{29}P	$^{28}Si(d, n)$...	0
	$^{28}Si(\tau, pn)$...	5,50
^{30}P	$^{27}Al(\alpha, n)$	3,03
	$^{28}Si(\alpha, pn)$...	16,2
	$^{28}Si(\tau, p)$...	0
^{30}S	$^{28}Si(\tau, n)$...	0,630
^{38}S	$^{40}Ar(p, 3p)$	23,3
^{34m}Cl	$^{34}S(p, n)$...	6,61
	$^{35}Cl(p, pn)$...	13,2
	$^{51}V(p, 3\alpha p5n)$...	74,4
	$^{34}S(d, 2n)$...	9,15
	$^{31}P(\alpha, n)$	6,54
	$^{32}S(\alpha, pn)$...	16,5
	$^{35}Cl(\alpha, \alpha n)$...	14,2
	$^{32}S(\tau, p)$...	0
	$^{35}Cl(\tau, \alpha)$...	0
^{38}Cl	$^{51}V(p, 3\alpha pn)$...	37,5
	$^{37}Cl(d, p)$	0
	$^{37}Cl(\tau, 2p)$	1,74
^{39}Cl	$^{51}V(p, 3\alpha p)$...	30,2
^{38}K	$^{40}Ca(p, 2pn)$...	22,0
^{42}K	$^{43}Ca(p, 2p)$...	10,9
	$^{45}Sc(p, 3pn)$	29,3
	$^{51}V(p, 2\alpha pn)$...	30,7
	$^{44}Ca(d, \alpha)$...	0
	$^{40}Ar(\alpha, pn)$	14,2
	$^{59}Co(\alpha, 5\alpha n)$	48,0
^{43}K	$^{44}Ca(p, 2p)$...	12,4
	$^{45}Sc(p, 3p)$	19,5
	$^{48}Ti(p, \alpha 2p)$...	22,1
	$^{51}V(p, 2\alpha p)$...	20,9
	$^{44}Ca(d, 2pn)$...	15,0
	$^{40}Ar(\alpha, p)$	3,65
	$^{59}Co(\alpha, 5\alpha)$	37,8
^{47}Ca	$^{51}V(p, 4pn)$...	40,6
^{43}Sc	$^{48}Ti(p, \alpha 2n)$...	24,1
	$^{51}V(p, \alpha p4n)$...	49,4
^{44m}Sc	$^{45}Sc(p, pn)$	11,8
	$^{48}Ti(p, \alpha n)$...	14,4
	$^{51}V(p, \alpha p3n)$...	40,2

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	$^{46}Ti(d, \alpha)$	0
	$^{47}Ti(d, \alpha n)$	4,95
	$^{45}Sc(\alpha, \alpha n)$	12,6
	$^{51}V(\alpha, 2\alpha 3n)$...	44,6
	$^{59}Co(\alpha, 4\alpha 3n)$	60,0
	$^{48}Ti(\tau, \alpha p2n)$...	23,2
^{44}Sc	$^{45}Sc(p, pn)$	11,6
	$^{48}Ti(p, \alpha n)$...	14,2
	$^{51}V(p, \alpha p3n)$...	40,0
	$^{46}Ti(d, \alpha)$	0
	$^{47}Ti(d, \alpha n)$	4,66
	$^{45}So(\alpha, \alpha n)$	12,3
	$^{59}Co(\alpha, 4\alpha 3n)$	59,7
^{46}Sc	$^{48}Ti(p, 2pn)$...	22,6
	$^{51}V(p, \alpha pn)$...	20,0
	$^{46}Ti(d, 2p)$	3,98
	$^{48}Ti(d, \alpha)$	0
	$^{49}Ti(d, \alpha n)$	4,33
	$^{59}Co(d, 3\alpha p2n)$	39,3
	$^{45}Sc(\alpha, 2pn)$	21,3
	$^{51}V(\alpha, 2\alpha n)$...	22,6
	$^{59}Co(\alpha, 4\alpha n)$	38,2
	$^{48}Ti(\tau, \alpha p)$...	1,60
	$^{51}V(\tau, 2\alpha)$...	11,3
^{47}Sc	$^{48}Ti(p, 2p)$...	11,7
	$^{51}V(p, \alpha p)$...	9,23
	$^{47}Ti(d, 2p)$	2,13
	$^{49}Ti(d, \alpha)$	0
	$^{50}Ti(d, \alpha n)$	4,64
	$^{59}Co(d, 3\alpha pn)$	28,3
	$^{45}Sc(\alpha, 2p)$	6,68
	$^{51}V(\alpha, 2\alpha)$...	0
	$^{59}Co(\alpha, 4\alpha)$	26,9
	$^{48}Ti(\tau, 3pn)$...	20,4
^{48}Sc	$^{50}Ti(p, 2pn)$...	22,7
	$^{51}V(p, 3pn)$...	31,0
	$^{51}V(\alpha, \alpha 2pn)$...	32,7
	$^{48}Ti(\tau, 3p)$...	11,6
^{44}Ti	$^{45}Sc(p, 2n)$	12,6
	$^{45}Sc(d, 3n)$	15,2

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
^{45}Ti	$^{45}Sc(p, n)$	2,91
	$^{51}V(p, \alpha 3n)$...	33,2
^{47}V	$^{51}V(p, p4n)$...	43,3
	$^{46}Ti(d, n)$	0
	$^{47}Ti(d, 2n)$	6,18
	$^{45}Sc(\alpha, 2n)$	13,9
^{48}V	$^{48}Ti(p, n)$...	4,90
	$^{51}V(p, p3n + 4n)$...	32,6
	$^{51}V(p, p3n)$...	32,6
	$^{56}Fe(p, 2\alpha n + \alpha p4n)$...	22,1
	$^{59}Co(p, 2\alpha p3n)$	47,6
	$^{47}Ti(d, n)$	0
	$^{48}Ti(d, 2n)$	7,32
	$^{50}Cr(d, \alpha)$...	0
	$^{59}Co(d, 2\alpha p4n)$	50,7
	$^{45}Sc(\alpha, n)$	2,44
	$^{46}Ti(\alpha, pn+2n)$...	13,7
	$^{51}V(\alpha, \alpha 3n+p6n)$...	34,4
	$^{59}Co(\alpha, 3\alpha 3n)$	50,0
	$^{48}Ti(\tau, p2n)$...	12,3
	$^{51}V(\tau, \alpha 2n)$...	12,0
^{53}V	$^{59}Co(p, \alpha 3p)$	27,8
^{48}Cr	$^{51}V(p, 4n)$...	35,0
	$^{59}Co(p, 2\alpha 4n)$	50,1
	$^{51}V(d, 5n)$...	37,8
	$^{48}Ti(\alpha, 4n)$...	38,5
	$^{48}Ti(\tau, 3n)$...	15,9
^{49}Cr	$^{51}V(p, 3n)$...	24,2
	$^{51}V(d, 4n)$...	26,8
^{51}Cr	$^{51}V(p, n)$	1,56
	$^{56}Fe(p, \alpha pn)$...	20,0
	$^{59}Co(p, 2\alpha n)$	16,7
	$^{51}V(d, 2n)$...	3,91
	$^{52}Cr(d, p2n + 3n)$...	14,8
	$^{59}Co(d, 2\alpha 2n + \alpha p5n)$	19,3
	$^{48}Ti(\alpha, n)$...	2,92
	$^{51}V(\alpha, p3n + 4n)$...	32,2
	$^{59}Co(\alpha, 2\alpha p3n + 2\alpha 4n)$	47,8
	$^{50}Ti(\tau, 2n)$...	1,27
	$^{51}V(\tau, p2n + 3n)$...	9,80

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	^{52}Cr($\tau, \alpha + p3n$)...	0
^{51}Mn	^{59}Co($p, \alpha p4n$)	49,5
^{52m}Mn	^{59}Co($p, \alpha p3n$)	39,2
^{52}Mn	^{52}Cr(p, n)...	5,60
	^{56}Fe($p, \alpha n$)...	13,3
	^{59}Co($p, \alpha p3n$)	38,8
	^{58}Ni*($p, \alpha 2pn$)	27,8
	^{63}Cu($p, 2\alpha p3n$)...	44,6
	^{52}Cr($d, 2n$)...	8,02
	^{56}Fe($d, \alpha 2n$)...	15,9
	^{59}Co($d, \alpha p4n$)	41,8
	^{58}Ni*($d, 2\alpha$)	1,29
	^{51}V($\alpha, 3n$)...	26,1
	^{52}Cr($\alpha, p3n$)...	36,4
	^{59}Co($\alpha, 2\alpha 3n$)	40,8
	^{51}V($\tau, 2n$)...	2,86
	^{52}Cr($\tau, p2n$)...	14,0
	^{56}Fe($\tau, \alpha p2n$)...	22,0
^{54}Mn	^{54}Cr(p, n)	2,20
	^{55}Mn(p, pn)	11,1
	^{56}Fe($p, 2pn$)...	20,8
	^{59}Co($p, \alpha pn$)	17,5
	^{60}Ni*($p, \alpha 2pn$)	27,1
	^{63}Cu($p, 2\alpha pn$)...	23,3
	^{53}Cr(d, n)...	0
	^{56}Fe(d, α)...	0
	^{59}Co($d, \alpha p2n$)	20,0
	^{58}Ni*($d, \alpha 2p$)	8,84
	^{60}Ni*($d, 2\alpha$)	0,656
	^{51}V(α, n)	2,46
	^{52}Cr(α, pn)...	13,8
	^{55}Mn($\alpha, \alpha n$)	11,0
	^{59}Co($\alpha, 2\alpha n$)	18,3
	^{52}Cr(τ, p)...	0
	^{56}Fe($\tau, \alpha p$)...	0
^{56}Mn	^{59}Co($p, 3pn$)	28,4
	^{63}Cu ($p, \alpha 3pn$)...	34,3
	^{59}Co($d, \alpha p$)	1,96
	^{55}Mn($\alpha, 2pn$)	22,6
	^{59}Co($\alpha, \alpha 2pn$)	29,9
^{52}Fe	^{56}Fe($p, p4n$)...	45,4
	^{59}Co($p, \alpha 4n$)	42,0
	^{58}Ni*($p, \alpha p2n$)	31,0
	^{59}Co($d, \alpha 5n$)	45,0
	^{52}Cr($\alpha, 4n$)...	39,8
	^{59}Co($\alpha, \alpha p6n$)	74,3
	^{52}Cr($\tau, 3n$)...	17,3
^{53}Fe	^{59}Co($p, \alpha 3n$)	31,2
	^{58}Ni*($p, \alpha pn$)	20,1
^{55}Fe	^{56}Fe(p, pn)...	11,4
	^{59}Co($p, \alpha n$)	8,10
	^{58}Ni*($d, \alpha p$)	0
	^{54}Fe*($\alpha, 2pn$)	20,4
^{59}Fe	^{63}Cu($p, 4pn$)...	35,4
	^{59}Co($d, 2p$)	3,10
	^{59}Co($\alpha, 3pn$)	31,05
^{55}Co	^{56}Fe($p, 2n$)...	15,9
	^{59}Co($p, p4n$)	41,2
	^{58}Ni*($p, \alpha + p3n$)	1,39
	^{60}Ni*($p, \alpha 2n + p5n$)	22,1
	^{63}Cu($p, \alpha p4n + \alpha 5n$)...	47,0
	^{56}Fe($d, 3n$)...	18,4
	^{59}Co($d, p5n + 6n$)	44,2
	^{58}Ni ($d, \alpha n + p4n$)...	3,71
	^{54}Fe*($\alpha, p2n + 3n$)	25,0
	^{56}Fe*($\alpha, p4n + 5n$)	46,8
	^{59}Co($\alpha, \alpha 4n + p7n$)	43,3
^{56}Co	^{56}Fe(p, n)...	5,49
	^{59}Co($p, p3n$)	30,9
	^{60}Ni ($p, \alpha n$)...	11,8
	^{58}Ni*($p, 2pn$)	19,9
	^{60}Ni* ($p, \alpha n$)	11,8
	^{63}Cu($p, \alpha p3n$)...	36,8
	^{56}Fe($d, 2n$)...	7,85
	^{59}Co($d, p4n$)	33,7
	^{58}Ni* (d, α)	0
	^{55}Mn($\alpha, 3n$)	25,2
	^{54}Fe*(α, pn)	14,2
	^{56}Fe*($\alpha, p3n$)	36,0
	^{59}Co($\alpha, \alpha 3n$)	32,5

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	^{58}Ni($\alpha, \alpha pn$)...	20,9
	^{56}Fe($\tau, p3n$)...	13,8
	^{58}Ni($\tau, \alpha p$)...	0
^{57}Co	^{57}Fe(p, n)...	1,67
	^{59}Co($p, p2n$)	19,4
	^{58}Ni ($p, 2p + pn$)...	8,33
	^{58}Ni($p, 2p$)...	8,33
	^{58}Ni*($p, 2p + pn$)...	8,33
	^{58}Ni*($p, 2p$)	8,33
	^{60}Ni*(p, α)	0,268
	^{63}Cu($p, \alpha p2n + \alpha 3n$)...	25,2
	^{56}Fe(d, n)...	0
	^{59}Co($d, p3n$)	22,0
	^{58}Ni*($d, 2pn$)	10,8
	^{55}Mn($\alpha, 2n$)	13,0
	^{54}Fe*(α, p)	1,90
	^{56}Fe*($\alpha, p2n$)	23,9
	^{59}Co($\alpha, \alpha 2n$)	20,3
	^{58}Ni($\alpha, \alpha p$)...	8,74
	^{56}Fe(τ, pn)...	1,78
	^{60}Ni($\tau, \alpha pn$)...	8,42
	^{63}Cu($\tau, 2\alpha n$)...	4,43
^{58m}Co	^{59}Co(p, pn)	10,7
^{58}Co	^{58}Fe(p, n)	3,14
	^{59}Co(p, pn)	10,6
	^{60}Ni ($p, 2pn$)...	20,3
	^{60}Ni*($p, 2pn$)	20,3
	^{61}Ni*(p, α)	0
	^{63}Cu($p, \alpha pn$)...	16,5
	^{59}Co($d, p2n$)	13,1
	^{58}Ni*($d, 2p$)	1,89
	^{55}Mn(α, n)	3,77
	^{56}Fe*(α, pn)	14,7
	^{59}Co($\alpha, \alpha n$)	11,2
	^{58}Ni($\alpha, 3pn$)...	29,8
	^{56}Fe(τ, p)...	0
	^{58}Ni($\tau, 3p$)...	7,70
	^{63}Cu($\tau, 2\alpha$)...	0
^{60}Co	^{64}Ni($p, \alpha n$)...	8,79
	^{63}Cu($p, 3pn$)...	27,0
	^{59}Co(d, p)	0
	^{59}Co($\alpha, 2pn$)	22,2
	^{65}Cu($\tau, 2\alpha$)...	0
^{61}Co	^{59}Co($\alpha, 2p$)	12,3
	^{65}Cu($\alpha, 2\alpha$)...	7,19
^{56}Ni	^{59}Co($p, 4n$)	33,9
	^{58}Ni ($p, p2n$)...	22,9
	^{63}Cu($p, \alpha 4n$)...	39,7
	^{59}Co($d, 5n$)	36,7
	^{58}Ni* ($d, p3n$)	25,5
	^{54}Fe* ($\alpha, 2n$)	17,2
	^{56}Fe* ($\alpha, 4n$)	39,2
	^{58}Ni($\alpha, \alpha 2n$)...	24,0
	^{56}Fe* ($\tau, 3n$)	16,8
	^{58}Ni($\tau, \alpha n$)...	1,99
^{57}Ni	^{59}Co($p, 3n$)	23,4
	^{58}Ni($p, pn + 2n$)...	12,4
	^{58}Ni* ($p, pn + 2n$)	12,4
	^{60}Ni* ($p, p3n + 4n$)	33,1
	^{63}Cu($p, \alpha 3n$)...	29,3
	^{59}Co($d, 4n$)	26,2
	^{58}Ni* ($d, p2n + 3n$)	14,9
	^{54}Fe* (α, n)	6,22
	^{56}Fe* ($\alpha, 3n$)	28,0
	^{59}Co($\alpha, p5n + 6n$)	54,8
	^{58}Ni($\alpha, \alpha n + p4n$)...	13,0
	^{56}Fe($\tau, 2n$)...	6,02
	^{58}Ni($\tau, \alpha + p3n$)...	0
^{65}Ni	^{65}Cu($d, 2p$)	3,69
^{60}Cu	^{60}Ni* (p, n)	7,02
	^{63}Cu($p, p3n + 4n$)...	31,9
	^{59}Co($\alpha, 3n$)	27,4
	^{58}Ni($\alpha, pn + 2n$)...	15,8
^{61}Cu	^{62}Ni($p, 2n$)...	13,8
	^{63}Cu($p, p2n + 3n$)...	20,1
	^{63}Cu*($p, p2n + 3n$)	20,1
	^{65}Cu*($p, p4n + 5n$)	38,2
	^{63}Cu($d, p3n + 4n$)...	22,7
	^{64}Zn($d, \alpha n$)...	1,43
	^{59}Co($\alpha, 2n$)	14,9

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	^{58}Ni (α, $p+n$)...	3,33
	^{63}Cu (τ, αn)...	0
^{62}Cu	^{62}Ni* (p, n)	4,81
	^{65}Cu (p, $p3n$)...	29,1
	^{63}Cu* (p, pn)	11,0
	^{65}Cu* (p, $p3n$)	29,1
	^{63}Cu (d, $p2n$)...	13,5
	^{59}Co (α, n)	5,42
	^{63}Cu (α, αn)...	11,5
	^{64}Zn* (α, αpn)	19,7
	^{63}Cu (τ, α)...	0
^{64}Cu	^{64}Ni (p, n)	2,50
	^{65}Cu (p, pn)	10,1
	^{69}Ga (p, αpn)...	14,6
	^{69}Ga* (p, αpn)	14,6
	^{71}Ga* (p, $\alpha p3n$)	31,8
	^{63}Cu (d, p)...	0
	^{66}Zn (d, α)...	0
	^{65}Cu (α, αn)...	10,5
	^{65}Cu (τ, α)...	0
^{66}Cu	^{65}Cu (d, p)	0
^{67}Cu	^{68}Zn (p, $2p$)	10,1
	^{71}Ga (p, $\alpha p+4pn$)...	5,41
	^{69}Ga* (p, $3p$)	16,8
	^{71}Ga* (p, $\alpha p+4pn$)	5,41
	^{68}Zn (d, $2pn$)...	12,6
	^{65}Cu (α, $2p$)	12,9
^{62}Zn	^{65}Cu (p, $4n$)...	31,6
	^{63}Cu* (p, $2n$)	13,5
	^{65}Cu* (p, $4n$)	31,6
	^{69}Ga (p, $\alpha 4n$)...	36,2
	^{63}Cu (d, $3n$)...	16,0
	^{60}Ni (α, $2n$)...	18,2
	^{64}Zn* (α, $\alpha 2n$)	22,4
	^{63}Cu (τ, $p3n$)...	22,0
^{63}Zn	^{65}Cu (p, $3n$)...	22,3
	^{63}Cu* (p, n)	4,03
	^{65}Cu* (p, $3n$)	22,3
	^{69}Ga* (p, $\alpha 3n$)	26,8
	^{65}Cu (d, $4n$)...	24,9
	^{60}Ni (α, n)...	8,43
	^{64}Zn* (α, αn)	12,6
	^{63}Cu (τ, $p2n$)...	12,4
^{65}Zn	^{65}Cu (p, n)	2,16
	^{68}Zn* (p, $p3n+4n$)	28,7
	^{69}Ga (p, $\alpha n+p4n$)...	6,71
	^{69}Ga (p, αn)...	6,71
	^{69}Ga* (p, $\alpha n+p4n$)	6,71
	^{69}Ga* (p, αn)	6,71
	^{71}Ga* (p, $\alpha 3n$)	23,9
	^{70}Ge (p, $\alpha p+\alpha n$)...	15,4
	^{65}Cu (d, $2n$)	4,49
	^{64}Zn (d, $p+n$)...	0
	^{62}Ni (α, n)...	6,90
	^{63}Cu (α, $pn+2n$)...	13,4
	^{63}Cu (α, pn)...	13,4
	^{64}Zn (α, $2pn+p2n$)...	21,6
	^{64}Zn* (α, $2pn+p2n$)	21,6
	^{64}Zn* (α, $2pn$)	21,6
	^{65}Cu (τ, $p2n+3n$)...	10,3
	^{63}Cu* (τ, p)	0
	^{65}Cu* (τ, $p2n$)	10,3
	^{66}Zn (τ, $\alpha+p3n$)...	0
^{69m}Zn	^{71}Ga (p, $2pn$)	17,8
^{69g}Zn	^{71}Ga (p, $2pn$)	17,3
^{65}Ga	^{69}Ga (p, $p4n+5n$)...	39,5
	^{63}Cu (α, $2n$)...	17,7
	^{64}Zn* (α, $p2n+3n$)	25,9
	^{64}Zn* (α, $p2n$)	25,9
	^{65}Cu (τ, $3n$)...	14,5
	^{63}Cu* (τ, n)	0
	^{65}Cu* (τ, $3n$)	14,5
^{66}Ga	^{68}Zn (p, $3n$)...	23,6
	^{66}Zn* (p, n)	6,05
	^{67}Zn* (p, $2n$)	13,2
	^{68}Zn* (p, $3n$)	23,6
	^{69}Ga (p, $p3n$)...	30,2
	^{71}Ga* (p, $p5n$)	47,4
	^{70}Ge (p, αn)...	10,2
	^{66}Zn (d, $2n$)...	8,43

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции,
	^{65}Cu (α, $3n$)...	26,9
	^{64}Zn (α, pn)...	16,2
	^{65}Cu (τ, $2n$)	4,98
^{67}Ga	^{68}Zn (p, $2n$)...	12,2
	^{67}Zn* (p, n)	1,81
	^{68}Zn* (p, $2n$)	12,2
	^{69}Ga (p, $p2n+3n$)...	18,9
	^{69}Ga (p, $p2n$)...	18,9
	^{71}Ga* (p, $p4n$)	36,0
	^{70}Ge (p, α)...	0
	^{66}Zn (d, n)...	0
	^{70}Ge (d, αn)...	1,07
	^{65}Cu (α, $2n$)	15,0
	^{64}Zn (α, $p+n$)...	4,25
	^{64}Zn* (α, $p+n$)	4,25
	^{64}Zn* (α, p)	4,25
	^{65}Cu (τ, n)	0
	^{66}Zn (τ, $pn+2n$)...	0
^{68}Ga	^{68}Zn* (p, n)	3,76
	^{69}Ga (p, pn)...	10,5
	^{69}Ga* (p, pn)	10,5
	^{71}Ga* (p, $p3n$)	27,6
	^{65}Cu (α, n)	6,18
	^{66}Zn (α, pn)...	15,6
^{70}Ga	^{71}Ga (p, pn)	9,44
^{65}Ge	^{64}Zn* (α, $3n$)	33,4
^{66}Ge	^{69}Ga (p, $4n$)...	33,2
	^{71}Ga* (p, $6n$)	50,4
	^{64}Zn* (α, $2n$)	19,2
^{67}Ge	^{69}Ga (p, $3n$)...	24,2
	^{71}Ga* (p, $5n$)	40,7
	^{64}Zn* (α, n)	9,78
^{68}Ge	^{69}Ga (p, $2n$)...	11,6
	^{69}Ga* (p, $2n$)	11,6
	^{71}Ga* (p, $4n$)	28,8
	^{70}Ge (p, $p2n+3n$)...	20,0
	^{69}Ga (d, $3n$)...	14,3
	^{66}Zn (α, $2n$)...	16,9
	^{68}Zn (τ, $3n$)...	13,1
^{69}Ge	^{71}Ga (p, $3n$)...	20,2
	^{69}Ga* (p, n)	3,05
	^{71}Ga* (p, $3n$)	20,2
	^{72}Ge (p, $p3n+4n$)...	30,1
	^{68}Zn (α, $3n$)...	26,2
^{75}Ge	^{75}As (d, $2p$)	2,69
^{71}As	^{74}Ge (p, $4n$)...	30,9
^{72}As	^{74}Ge (p, $3n$)...	22,4
	^{70}Ge (α, pn) ...	16,1
^{73}As	^{74}Ge (p, $2n$)...	11,5
	^{72}Ge (d, n)...	0
	^{75}As (d, $p3n+4n$)	21,0
	^{71}Ga (α, $2n$)	13,6
	^{72}Ge (α, $p2n+3n$)...	24,2
^{74}As	^{74}Ge (p, n)...	3,38
	^{74}Ge (d, $2n$)...	5,72
	^{75}As (d, $p2n$)	12,8
	^{71}Ga (α, n)	5,20
	^{72}Ge (α, pn)...	15,8
^{76}As	^{76}Ge (p, n)	1,73
	^{75}As (d, p)	0
^{72}Se	^{75}As (d, $5n$)	33,2
	^{70}Ge (α, $2n$)...	17,6
^{73}Se	^{75}As (p, $3n$)	22,0
^{73m}Se	^{75}As (d, $4n$)	24,6
^{73g}Se	^{75}As (d, $4n$)	24,6
^{75}Se	^{75}As (p, n)	1,67
	^{75}As (d, $2n$)	3,98
	^{74}Ge (α, $3n$)...	24,3
	^{76}Se* (τ, α)	0
	^{77}Se* (τ, αn)	0
^{74}Br	^{76}Se* (p, $3n$)	27,2
	^{79}Br* (p, $p5n$)	51,8
	^{76}Se* (d, $4n$)	29,9
	^{75}As (α, $5n$)	48,1
	^{75}As (τ, $4n$)	26,1
^{75}Br	^{76}Se* (p, $2n$)	15,2
	^{79}Br (p, $p4n+5n$)...	39,7
	^{81}Br* (p, $p6n+7n$)	58,0
	^{76}Se* (d, $3n$)	17,6
	^{75}As (α, $4n$)	35,5

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	$^{75}As(\tau, 3n)$	13,7
	$^{76}Se(\tau, p3n+4n)$	23,6
^{76}Br	$^{77}Se(p, 2n)$...	13,0
	$^{77}Se^{*}(p, 2n)$	13,0
	$^{79}Br(p, p3n)$...	30,4
	$^{81}Br(p, p5n)$	48,6
	$^{76}Se(d, 2n)$...	8,31
	$^{76}Se^{*}(d, 2n)$	8,31
	$^{79}Br(d, p4n)$...	33,0
	$^{75}As(\alpha, 3n)$	25,5
	$^{76}Se^{*}(\alpha, p3n)$...	32,8
	$^{75}As(\tau, 2n)$	4,10
	$^{76}Se^{*}(\tau, 3n)$	14,0
	$^{77}Se^{*}(\tau, 4n)$	21,7
^{77}Br	$^{78}Se(p, 2n)$...	12,8
	$^{78}Se^{*}(p, 2n)$	12,8
	$^{79}Br(p, p2n+3n)$...	19,2
	$^{79}Br^{*}(p, p2n)$...	19,2
	$^{81}Br^{*}(p, p4n+5n)$	37,5
	$^{81}Br(p, p4n)$	37,5
	$^{78}Se(d, 3n)$...	15,2
	$^{79}Br(d, p3n+4n)$...	21,7
	$^{79}Br(d, p3n)$...	21,7
	$^{75}As(\alpha, 2n)$	14,2
	$^{76}Se(\alpha, p2n+3n)$...	24,2
	$^{79}Br^{*}(\alpha, \alpha 2n+p5n)$	19,9
	$^{79}Br(\alpha, \alpha 2n)$	19,9
	$^{76}Se^{*}(\tau, pn+2n)$	2,54
	$^{76}Se^{*}(\tau, pn)$	2,54
	$^{77}Se^{*}(\tau, p2n+3n)$	10,2
	$^{77}Se^{*}(\tau, p2n)$	10,2
^{78}Br	$^{79}Br(p, pn)$...	10,8
	$^{79}Br^{*}(p, pn)$	10,8
	$^{81}Br(p, p3n)$	29,1
	$^{77}Se^{*}(\tau, pn)$	1,64
^{80m}Br	$^{81}Br(p, pn)$	10,4
^{80g}Br	$^{81}Br(p, pn)$	10,3
^{82}Br	$^{82}Se(p, n)$	0,882
	$^{82}Se(d, 2n)$	3,17
	$^{80}Se(\alpha, pn)$...	13,9
^{76}Kr	$^{79}Br(p, 4n)$...	32,5
	$^{81}Br^{*}(p, 6n)$	50,6
	$^{79}Br(d, 5n)$...	35,0
	$^{76}Se(\tau, 3n)$...	16,0
	$^{76}Se^{*}(\tau, 3n)$	16,0
	$^{77}Se^{*}(\tau, 4n)$	23,7
^{77}Kr	$^{79}Br(p, 3n)$...	22,9
	$^{81}Br^{*}(p, 5n)$	41,3
	$^{79}Br(d, 4n)$...	25,6
	$^{79}Br(\alpha, p5n+6n)$	53,6
	$^{78}Se(\tau, 4n)$...	25,1
	$^{76}Se^{*}(\tau, 2n)$	6,48
	$^{77}Se^{*}(\tau, 3n)$	14,2
^{79}Kr	$^{81}Br(p, 3n)$...	20,7
	$^{79}Br^{*}(p, n)$	2,44
	$^{81}Br^{*}(p, 3n)$	20,7
	$^{85}Rb^{*}(p, \alpha 3n)$	27,4
	$^{80}Se(\tau, 4n)$...	21,4
	$^{77}Se^{*}(\tau, n)$	0
^{81m}Rb	$^{85}Rb^{*}(p, p4n)$	39,5
^{81}Rb	$^{85}Rb^{*}(p, p4n)$	39,5
	$^{90}Zr^{*}(p, 2\alpha 2n)$	27,3
^{82m}Rb	$^{85}Rb^{*}(p, p3n)$	30,6
	$^{90}Zr^{*}(p, 2\alpha n)$	17,3
^{83}Rb	$^{85}Rb^{*}(p, p2n)$	19,5
	$^{88}Sr^{*}(p, \alpha 2n)$	19,6
	$^{90}Zr^{*}(p, 2\alpha)$	7,42
	$^{81}Br(\alpha, 2n)$	13,3
^{84}Rb	$^{85}Rb^{*}(p, pn)$	10,6
	$^{88}Sr^{*}(p, \alpha n)$	11,5
	$^{90}Zr^{*}(\alpha, 2pn)$	28,(
	$^{81}Br(\alpha, n)$	4,06
^{84m}Rb	$^{85}Rb^{*}(p, pn)$	11,0
^{84g}Rb	$^{85}Rb^{*}(p, pn)$	10,6
^{86}Rb	$^{88}Sr^{*}(p, 2pn)$	20,8
^{81}Sr	$^{85}Rb^{*}(p, 5n)$	44,3
^{82}Sr	$^{85}Rb^{*}(p, 4n)$	31,5
	$^{90}Zr^{*}(p, \alpha p4n+\alpha 5n)$	48,(
^{83}Sr	$^{85}Rb^{*}(p, 3n)$	22,6
	$^{90}Zr^{*}(p, \alpha p3n+\alpha 4n)$	39,1

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
^{85}Sr	$^{85}Rb(p, n)$...	1,87
	$^{88}Sr(p, p3n+4n)$	31,4
	$^{90}Zr^{*}(p, \alpha pn+\alpha 2n)$	18,4
	$^{85}Rb(d, 2n)$...	4,16
^{85m}Sr	$^{88}Sr^{*}(p, p3n)$	31,6
^{85g}Sr	$^{88}Sr^{*}(p, p3n)$	31,4
^{84}Y	$^{88}Sr^{*}(p, 5n)$	47,8
	$^{89}Y(p, p5n+6n)$	55,0
	$^{90}Zr^{*}(p, \alpha 3n+p6n)$	34,8
^{85m}Y	$^{88}Sr^{*}(p, 4n)$	35,5
	$^{89}Y(p, p4n)$	42,4
	$^{85}Rb(\alpha, 4n)$...	35,8
	$^{85}Rb(\tau, 3n)$...	14,1
^{85}Y	$^{88}Sr^{*}(p, 4n)$	35,5
	$^{89}Y(p, p4n+5n)$	42,6
	$^{90}Zr^{*}(p, \alpha 2n+p5n)$	22,5
	$^{85}Rb(\alpha, 4n)$...	35,9
	$^{85}Rb(\tau, 3n)$ ...	14,2
^{86}Y	$^{88}Sr^{*}(p, 3n)$	25,9
	$^{89}Y(p, p3n)$	33,0
	$^{90}Zr^{*}(p, \alpha n)$	12,9
^{86m}Y	$^{88}Sr^{*}(p, 3n)$	26,1
	$^{89}Y(p, p3n)$	33,3
	$^{85}Rb(\alpha, 3n)$...	26,1
	$^{85}Rb(\tau, 2n)$...	4,50
^{86g}Y	$^{88}Sr^{*}(p, 3n)$	25,9
	$^{89}Y(p, p3n)$	33,0
^{87m}Y	$^{88}Sr(p, 2n)$...	14,3
	$^{88}Sr^{*}(p, 2n)$	14,3
	$^{89}Y(p, p2n)$	21,4
	$^{88}Sr(d, 3n)$...	16,7
	$^{85}Rb(\alpha, 2n)$...	13,9
	$^{87}Rb(\tau, 3n)$...	11,6
^{87g}Y	$^{88}Sr(p, 2n)$...	13,9
	$^{88}Sr^{*}(p, 2n)$	13,9
	$^{89}Y(p, p2n)$	21,1
	$^{90}Zr^{*}(p, \alpha)$	0,904
	$^{88}Sr(d, 3n)$...	16,4
	$^{85}Rb(\alpha, 2n)$...	13,4
^{88}Y	$^{88}Sr(p, n)$	4,44
	$^{89}Y(p, pn)$	11,6
	$^{90}Zr^{*}(p, 2pn)$	20,0
	$^{88}Sr(d, 2n)$...	6,77
	$^{87}Rb(\alpha, 3n)$...	23,1
	$^{90}Zr^{*}(\alpha, \alpha pn)$	20,7
	$^{87}Rb(\tau, 2n)$	1,56
	$^{93}Nb(\tau, 2\alpha)$	0
^{86}Zr	$^{89}Y(p, 4n)$	35,1
^{87}Zr	$^{89}Y(p, 3n)$	25,5
^{88}Zr	$^{89}Y(p, 2n)$	13,1
	$^{90}Zr^{*}(\alpha, \alpha 2n+p5n)$	22,2
^{89}Zr	$^{89}Y(p, n)$	3,66
	$^{93}Nb(p, \alpha n)$	5,62
	$^{90}Zr^{*}(\alpha, \alpha n+p4n)$	12,5
^{90}Nb	$^{90}Zr^{*}(\alpha, p3n)$	36,8
^{92m}Nb	$^{93}Nb(p, pn)$	9,06
	$^{93}Nb(\tau, \alpha)$	0
^{90}Mo	$^{90}Zr^{*}(\alpha, 4n)$	40,2
^{93m}Mo	$^{93}Nb(p, n)$	3,65
^{93m}Tc	$^{93}Nb(\alpha, 4n)$	35,3
	$^{92}Mo^{*}(\alpha, p2n+3n)$	25,7
^{93g}Tc	$^{93}Nb(\alpha, 4n)$	34,9
	$^{92}Mo^{*}(\alpha, p2n+3n)$	25,3
^{94m}Tc	$^{93}Nb(\alpha, 3n)$	25,7
	$^{92}Mo^{*}(\alpha, pn)$	16,3
^{94}Tc	$^{93}Nb(\alpha, 3n)$	25,9
	$^{92}Mo^{*}(\alpha, pn)$	16,3
^{95m}Tc	$^{96}Mo(p, 2n)$...	11,8
	$^{95}Mo(d, 2n)$...	4,85
	$^{93}Nb(\alpha, 2n)$	15,6
	$^{94}Mo(\alpha, p2n+3n)$...	24,4
	$^{93}Nb(\tau, n)$	0
^{95g}Tc	$^{95}Mo(\tau, p2n+3n)$...	10,6
	$^{93}Nb(\alpha, 2n)$	15,6
	$^{92}Mo^{*}(\alpha, p)$	5,90
	$^{94}Mo^{*}(\alpha, p2n)$	24,4
	$^{95}Mo^{*}(\alpha, p3n)$	32,1
	$^{97}Mo(p, 2n)$...	10,6
^{96}Tc	$^{96}Mo(d, 2n)$...	6,07
	$^{95}Mo(\alpha, p2n)$...	23,8
	$^{96}Mo(\tau, p2n)$...	11,3

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
^{96m}Tc	^{93}Nb(α, n)	7,37
^{96g}Tc	^{93}Nb(α, n)	7,30
	^{95}Mo*(α, p2n)	23,8
^{97m}Tc	^{98}Mo(p, 2n)...	9,94
	^{98}Mo(d, 3n)...	12,3
^{101}Tc	^{98}Mo(α, p)...	6,92
	^{100}Mo*(α, p2n)	21,7
^{102m}Tc	^{100}Mo(α, pn)	15,4
^{94}Ru	^{92}Mo*(α, 2n)	18,7
^{95}Ru	^{92}Mo*(α, n)	9,39
	^{94}Mo*(α, 3n)	27,9
^{97}Ru	^{103}Rh(p, α3n+p6n)	21,5
	^{94}Mo*(α, n)	8,32
	^{95}Mo*(α, 2n)	16,0
	^{96}Mo(τ, 2n)...	4,05
^{103}Ru	^{100}Mo(α, p+n)	4,76
^{103}Pd	^{103}Rh(p, n)	1,35
	^{103}Rh(d, 2n)	3,63
^{102m}Ag	^{103}Rh(α, 5n)	45,3
^{102g}Ag	^{103}Rh(α, 5n)	45,3
	^{107}Ag*(α, α5n)	48,2
^{103}Ag	^{103}Rh(α, 4n)	34,4
	^{107}Ag*(α, α4n)	36,9
	^{107}Ag*(τ, α3n)	15,8
^{104m}Ag	^{103}Rh(α, 3n)	25,9
	^{107}Ag*(α, α3n)	28,5
	^{107}Ag*(τ, α2n)	7,20
^{104g}Ag	^{103}Rh(α, 3n)	25,9
	^{107}Ag*(α, α3n)	28,5
	^{107}Ag*(τ, α2n)	7,20
^{105}Ag	^{103}Rh(α, 2n)	15,2
	^{107}Ag*(α, α2n)	18,1
	^{107}Ag(τ, αn)...	0
	^{107}Ag*(τ, αn)	0
	^{109}Ag*(τ, α3n)	13,7
^{106m}Ag	^{103}Rh(α, n)	7,10
	^{107}Ag*(α, αn)	10,0
	^{109}Ag(τ, α2n)...	5,67
	^{107}Ag*(τ, α)	0
	^{109}Ag*(τ, α2n)	5,67

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
^{106}Ag	^{103}Rh(α, n)	7,00
^{110m}Ag	^{109}Ag(τ, 2p)	1,06
^{104}Cd	^{107}Ag*(α, p6n)	60,0
^{107}Cd	^{109}Ag(p, 3n)...	18,8
	^{107}Ag(α, p3n)...	31,6
	^{107}Ag*(α, p3n)	31,6
	^{109}Ag*(α, p5n)	48,7
	^{107}Ag*(τ, p2n)	10,2
^{109}Cd	^{109}Ag(p, n)	0,974
	^{110}Cd*(p, pn+2n)	9,97
	^{110}Cd*(p, pn)	9,97
	^{109}Ag(d, 2n)	3,25
	^{107}Ag(α, pn+2n)...	13,4
	^{110}Cd(τ, α+p3n)...	0
^{106m}In	^{107}Ag(α, 5n)...	47,5
	^{109}Ag*(α, 7n)	64,5
	^{107}Ag*(τ, 4n)	25,9
^{106}In	^{107}Ag(τ, 4n)	25,9
^{107}In	^{107}Ag(α, 4n)...	36,1
	^{109}Ag*(α, 6n)	53,1
	^{107}Ag*(τ, 3n)	14,6
^{108m}In	^{107}Ag(α, 3n)...	26,8
	^{109}Ag*(α, 5n)	44,1
	^{109}Ag(τ, 4n)...	22,6
	^{107}Ag*(τ, 2n)	5,67
	^{109}Ag*(τ, 4n)	22,6
^{108}In	^{107}Ag*(α, 3n)	26,8
	^{109}Ag(τ, 4n)...	22,6
	^{107}Ag*(τ, 2n)	5,07
	^{109}Ag*(τ, 4n)	22,6
^{109}In	^{110}Cd*(p, 2n)	12,8
	^{109}Ag(α, 4n)...	33,2
	^{107}Ag*(α, 2n)	16,2
	^{109}Ag*(α, 4n)	33,2
	^{109}Ag(τ, 3n)...	11,8
	^{107}Ag*(τ, n)	5,12
	^{109}Ag*(τ, 3n)	11,8
^{110m}In	^{111}Cd(p, 2n)...	11,8
	^{110}Cd*(p, n)	4,76
	^{111}Cd*(p, 2n)	11,8

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	^{112}Cd*(p, 3n)	21,3
	^{109}Ag(α, 3n)...	25,0
	^{107}Ag*(α, n)	7,93
	^{109}Ag*(α, 3n)	25,0
	^{109}Ag(τ, 2n)	3,62
^{110}In	^{111}Cd(p, 2n)...	11,8
	^{110}Cd*(p, n)	4,76
	^{111}Cd*(p, 2n)	11,8
	^{112}Cd*(p, 3n)	21,3
	^{109}Ag(α, 3n)...	25,0
	^{107}Ag*(α, n)	7,93
	^{109}Ag*(α, 3n)	25,0
	^{109}Ag(τ, 2n)	3,62
^{111}In	^{112}Cd(p, 2n)...	11,4
	^{111}Cd*(p, n)	1,62
	^{112}Cd*(p, 2n)	11,4
	^{111}Cd(d, 2n)...	4,17
	^{109}Ag(α, 2n)	14,8
	^{109}Ag(τ, n)	0
	^{110}Cd(τ, pn+2n)...	2,44
^{112m}In	^{113}Cd(p, 2n)...	10,2
	^{112}Cd*(p, n)	3,55
	^{113}Cd*(p, 2n)	10,2
^{112g}In	^{113}Cd(p, 2n)...	9,99
	^{112}Cd*(p, n)	3,39
	^{113}Cd*(p, 2n)	10,1
^{113m}In	^{114}Cd(p, 2n)...	9,98
	^{113}Cd*(p, n)	0,860
	^{114}Cd*(p, 2n)	9,98
^{114m}In	^{114}Cd(p, n)...	2,44
	^{114}Cd(d, 2n)...	4,72
^{115m}In	^{116}Cd(p, 2n)	8,44
^{116m}In	^{116}Cd(p, n)	1,39
^{113}Sn	^{115}In(p, 3n)...	18,3
	^{113}In(d, 2n)...	4,11
	^{112}Cd(α, 3n)...	24,9
	^{112}Cd(τ, 2n)...	3,55
^{117m}Sn	^{114}Cd(α, n)...	5,78
	^{115}In(α, pn)	12,8
^{123m}Sn	^{124}Sn*(α, αn)	8,79
^{123}Sn	^{124}Sn*(α, αn)	8,76

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
^{125m}Sn	^{124}Sn*(α, 2pn)	23,3
^{125}Sn	^{124}Sn*(α, 2pn)	23,2
^{120m}Sb	^{122}Te*(d, α)	0
^{126m}Sb	^{124}Sn(α, pn)	15,3
^{126g}Sb	^{124}Sn(α, pn)	15,2
^{127}Sb	^{124}Sn(α, p)	6,61
^{118}Te	^{116}Sn(α, 2n)...	18,2
^{119m}Te	^{118}Sn(α, 3n)...	27,5
^{121m}Te	^{121}Sb(p, n)...	2,17
	^{121}Sb(d, 2n)...	4,42
	^{122}Te*(d, p2n)	12,4
	^{120}Sn(α, 3n)...	25,5
^{121g}Te	^{121}Sb(p, n)...	1,79
	^{121}Sb(d, 2n)...	4,07
	^{122}Te*(d, p2n)	12,3
	^{120}Sb(α, 3n)...	25,1
^{123m}Te	^{123}Sb(p, n)	1,09
	^{123}Sb(d, 2n)	3,36
	^{122}Te*(d, p)	0
	^{120}Sn(α, n)...	7,83
^{125m}Te	^{124}Sn*(α, 3n)	21,8
^{127m}Te	^{124}Sn(α, n)	5,78
^{127g}Te	^{124}Sn(α, n)	5,70
^{119}I	^{127}I(d, p9n)	73,1
^{120}I	^{127}I(d, p8n)	64,7
^{121}I	^{122}Te(p, 2n)...	13,1
	^{122}Te*(d, 3n)	15,5
	^{127}I(d, p7n)	54,3
	^{121}Sb(τ, 3n)...	13,0
^{122}I	^{122}Te*(d, 2n)	7,27
^{123}I	^{125}Te(p, 3n)...	18,1
	^{124}Te*(p, 2n)	11,5
	^{127}I(p, p4n)	33,6
	^{122}Te*(d, n)	0
	^{124}Te(d, 3n)...	13,8
	^{127}I(d, p5n)	36,1
	^{121}Sb(α, 2n)...	15,8
	^{122}Te(α, p2n+3n)...	24,1
	^{123}Te*(τ, p2n)	9,94
	^{124}Te*(τ, p3n)	19,6

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
^{124}I	^{126}Te(p, 3n)...	19,8
	^{124}Te*(p, n)	3,97
	^{127}I(p, p3n)	26,0
	^{124}Te(d, 2n)...	6,27
	^{127}I(d, p4n)	28,5
	^{123}Sb(α3n)...	24,4
	^{122}Te(α, pn)...	16,4
	^{123}Sb(τ, 2n)	3,14
^{125}I	^{126}Te(p, 2n)...	10,1
	^{127}I(p, p2n)	16,4
	^{125}Te(d, 2n)...	3,21
	^{123}Sb(α, 2n)	14,5
	^{124}Te(α, p2n+3n)...	23,4
^{126}I	^{128}Te(p, 3n)...	18,1
	^{127}I(p, pn)	9,21
	^{126}Te(d, 2n)...	6,25
	^{127}I(d, p2n)	11,5
	^{123}Sb(α, n)	7,18
	^{125}Te(α, p2n)...	22,8
^{128}I	^{130}Te(p, 3n)...	16,7
^{130}I	^{130}Te(p, n)	1,25
	^{130}Te(d, 2n)	3,52
	^{128}Te(α, pn)...	15,5
^{131}I	^{130}Te(d, p+n)	0
	^{130}Te(α, p2n+2pn)...	21,6
^{132}I	^{130}Te(α, pn)	15,0
^{121}Xe	^{127}I(p, 7n)	56,3
	^{127}I(d, 8n)	59,0
^{122}Xe	^{127}I(d, 7n)	47,9
^{123}Xe	^{127}I(p, 5n)	37,0
	^{127}I(d, 6n)	39,6
	^{122}Te*(α, 3n)	27,7
	^{123}Te*(τ, 3n)	13,5
	^{124}Te*(τ, 4n)	23,1
^{125}Xe	^{127}I(p, 3n)	18,9
	^{127}I(d, 4n)	21,4
^{127}Xe	^{127}I(p, n)	1,46
	^{127}I(d, 2n)	3,73
^{127}Cs	^{127}I(α, 4n)	33,6
^{129}Cs	^{127}I(α, 2n)	15,6
^{133m}Ba	^{133}Cs(p, n)	1,60
	^{133}Cs(d, 2n)	3,84
^{133}Ba	^{133}Cs(p, n)	1,31
	^{133}Cs(d, 2n)	3,57
^{135m}Ba	^{139}La(p, αn)...	2,86
	^{133}Cs(α, pn)	13,8
^{139}Ce	^{139}La(p, n)	1,06
	^{139}La(d, 2n)...	3,31
^{141}Ce	^{139}La(α, pn+2p)...	15,2
^{139}Pr	^{139}La(α, 4n)...	33,2
^{140}Pr	^{139}La(α, 3n)...	25,0
^{142}Pr	^{139}La(α, n)	9,35
^{151}Gd	^{151}Eu(d, 2n)...	3,52
^{153}Gd	^{153}Eu(d, 2n)	3,29
^{155}Dy	^{160}Dy(p, p5n+6n)...	41,1
^{157}Dy	^{161}Dy(p, p4n+5n)...	31,1
	^{166}Er(p, αp5n+α6n)...	38,5
^{159}Dy	^{161}Dy(p, p2n)...	15,1
	^{166}Er(p, αp3n+α4n)...	22,5
^{159}Ho	^{163}Dy(p, 5n)...	32,3
^{160m}Ho	^{164}Dy(p, 5n)...	32,9
	^{166}Er(p, α3n)...	18,0
^{160g}Ho	^{164}Dy(p, 5n)...	32,8
^{161}Ho	^{163}Dy(p, 3n)...	16,2
	^{166}Er(p, α2n)...	9,05
^{162}Ho	^{164}Dy(p, 3n)...	16,8
^{160}Er	^{166}Er(p, p6n+7n)...	47,6
^{161}Er	^{165}Ho(p, 5n)	33,0
	^{166}Er(p, p5n+6n)...	40,3
^{165}Er	^{168}Er(p, p3n)...	22,8
^{169}Er	^{170}Er(p, pn+2p)	7,31
^{163}Tm	^{166}Er(p, 4n)...	27,3
	^{162}Er(α, p2n+3n)...	25,2
^{165}Tm	^{167}Er(p, 3n)...	17,4
	^{166}Er(d, 3n)...	13,2
	^{165}Ho(α, 4n)	32,6
	^{164}Er(α, p2n+3n)...	24,6
	^{166}Er(τ, p3n+4n)...	18,9
^{166}Tm	^{168}Er(p, 3n)...	18,1
	^{166}Er(d, 2n)...	6,10

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	^{165}Ho(α, 3n)	25,4
	^{166}Er(τ, p2n)...	11,2
^{167}Tm	^{168}Er(p, 2n)...	9,36
	^{167}Er(d, 2n)...	3,80
	^{165}Ho(α, 2n)	16,5
	^{166}Er(α, p2n+3n)...	24,0
	^{166}Er(τ, pn+2n)...	2,86
^{168}Tm	^{168}Er(p, n)...	2,50
	^{168}Er(d, 2n)...	4,76
	^{165}Ho(α, n)	9,48
	^{166}Er(α, pn)...	17,0
	^{166}Er*(α, pn)	17,0
	^{168}Er(τ, p2n)...	10,4
^{170}Tm	^{170}Er(p, n)	1,11
	^{170}Er(d, 2n)	3,36
^{166}Yb	^{166}Er(α, 4n)...	34,0
	^{166}Er*(α, 4n)	34,0
^{169}Yb	^{168}Er(α, 3n)...	25,0
	^{169}Tm(α, p3n)	30,7
	^{168}Er(τ, 2n)...	3,90
^{168}Lu	^{169}Tm(α, 5n)	43,1
^{169}Lu	^{169}Tm(α, 4n)	34,0
^{170}Lu	^{169}Tm(α, 3n)	26,8
^{171}Lu	^{181}Ta(p, αp6n)...	41,7
	^{169}Tm(α, 2n)	17,6
^{172}Lu	^{181}Ta(p, αp5n)...	34,7
	^{169}Tm(α, n)	10,4
^{176m}Lu	^{181}Ta(p, αpn)...	5,70
^{171}Hf	^{181}Ta(p, α7n)...	45,0
^{173}Hf	^{181}Ta(d, α6n)...	31,2
^{175}Hf	^{181}Ta(p, α3n)...	13,3
	^{181}Ta(d, α4n)...	15,6
^{181}Hf	^{181}Ta(d, 2p)	2,49
^{175}Ta	^{181}Ta(p, p6n)...	44,8
^{177}Ta	^{181}Ta(p, p4n)...	29,2
^{178}Ta	^{181}Ta(p, p3n)...	22,2
^{178m}Ta	^{181}Ta(d, p4n)...	24,6
^{179}Ta	^{181}Ta(p, p2n)...	14,3
^{180m}Ta	^{181}Ta(p, pn)	7,62
^{182}Ta	^{181}Ta(d, p)	0
	^{184}W*(d, α)	0
^{183}Ta	^{186}W*(d, αn)	0
^{184}Ta	^{186}W*(d, α)	0
^{175}W	^{181}Ta(d, 8n)...	51,0
^{176}W	^{181}Ta(p, 6n)...	39,2
	^{181}Ta(d, 7n)...	41,7
^{177}W	^{181}Ta(p, 5n)...	31,9
	^{181}Ta(d, 6n)...	34,4
^{178}W	^{181}Ta(p, 4n)...	23,1
	^{181}Ta(d, 5n)...	25,5
^{179}W	^{181}Ta(p, 3n)...	16,2
^{181}W	^{181}Ta(p, n)	0,975
	^{181}Ta(d, 2n)...	3,23
^{185}W	^{186}W(τ, α)...	0
^{177}Re	^{181}Ta(α, 8n)...	65,9
	^{181}Ta(τ, 7n)...	44,6
^{178}Re	^{181}Ta(α, 7n)...	58,0
	^{181}Ta(τ, 6n)...	36,8
^{179}Re	^{181}Ta(α, 6n)...	48,9
	^{181}Ta(τ, 5n)...	27,7
^{180}Re	^{181}Ta(α, 5n)...	41,4
	^{181}Ta(τ, 4n)...	20,3
^{181}Re	^{182}W(p, 2n)...	10,7
	^{191}Ir(p, αp6n)...	41,3
	^{182}W(d, 3n)...	12,0
	^{181}Ta(α, 4n)...	32,6
	^{181}Ta(τ, 3n)...	11,4
^{182m}Re	^{183}W(p, 2n)...	9,82
	^{182}W(d, 2n)...	5,87
	^{181}Ta(α, 3n)...	25,3
^{182}Re	^{183}W(p, 2n)...	9,89
	^{182}W(d, 2n)...	5,93
	^{181}Ta(α, 3n)...	25,4
^{183}Re	^{184}W(p, 2n)...	8,80
	^{183}W(d, 2n)...	3,60
	^{181}Ta(α, 2n)...	16,7
	^{182}W(τ, pn+2n)...	2,91
^{184m}Re	^{184}W(p, n)...	2,48
	^{184}W(d, 2n)...	4,74
	^{181}Ta(α, n)	10,3
^{184g}Re	^{184}W(p, n)...	2,41

Продолжение табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	^{184}W(d, 2n)...	4,67
	^{181}Ta(α, n)	10,1
	^{184}W(τ, p2n)...	10,2
^{182}Os	^{191}Ir(p, α6n)...	35,9
^{183}Os	^{191}Ir(p, α5n)...	28,8
^{185}Os	^{191}Ir(p, α3n)...	13,3
	^{184}W(τ, 2n)...	4,18
^{184}Ir	^{187}Re*(α, 7n)	57,0
	^{187}Re*(τ, 6n)	35,8
^{185}Ir	^{191}Ir(p, p6n+7n)...	45,1
	^{187}Re*(α, 6n)	47,9
	^{187}Re*(τ, 5n)	26,8
^{186}Ir	^{191}Ir(p, p5n)...	38,1
	^{187}Re*(α, 5n)	41,3
	^{187}Re*(τ, 4n)	19,7
^{187}Ir	^{187}Re*(α, 4n)	32,0
	^{187}Re*(τ, 3n)	11,0
^{188}Ir	^{193}Ir(p, p5n)...	36,7
	^{187}Re*(α, 3n)	25,2
^{190m}Ir	^{193}Ir(p, p3n)...	22,3
^{190g}Ir	^{193}Ir(p, p3n)...	22,1
^{192}Ir	^{193}Ir(p, pn)	7,81
^{186}Pt	^{191}Ir(p, 6n)...	40,2
^{188}Pt	^{191}Ir(p, 4n)...	24,0
^{189}Pt	^{193}Ir(p, 5n)...	31,2
^{191}Pt	^{193}Ir(p, 3n)...	15,8
^{192}Au	^{202}Hg*(p, α7n)	46,4
	^{197}Au(d, p6n)	41,4
^{193}Au	^{202}Hg*(p, α6n)	37,7
^{194}Au	^{202}Hg*(p, α5n)	30,7
	^{197}Au(d, p4n)	25,6
^{195}Au	^{196}Pt(p, 2n)...	8,93
	^{197}Au(p, p2n)	14,8
	^{195}Pt(d, 2n)...	3,23
	^{194}Pt(α, p2n+3n)...	23,7
^{196m}Au	^{197}Au(p, pn)	8,70
^{196g}Au	^{197}Au(p, pn)	8,10
	^{202}Hg (p, α3n)	15,6
	^{197}Au(d, p2n)	10,4
	^{197}Au(α, αn)	8,24
^{198}Au	^{202}Hg*(p, αn)	0,977
	^{197}Au(d, p)	0
^{199}Au	^{202}Hg*(p, α)	0
^{200}Au	^{202}Hg*(p, 2pn)	15,5
^{201}Au	^{202}Hg*(p, 2p)	8,28
^{190}Hg	^{197}Au(d, 9n)	60,3
^{191}Hg	^{197}Au(d, 8n)	52,6
^{192}Hg	^{197}Au(d, 7n)	43,0
^{193m}Hg	^{197}Au(d, 6n)	35,9
	^{197}Au(α, p7n)	62,9
^{195m}Hg	^{197}Au(p, 3n)	17,3
	^{197}Au(d, 4n)	19,6
	^{197}Au(α, p5n)	46,4
^{195g}Hg	^{197}Au(p, 3n)	17,0
^{197m}Hg	^{197}Au(p, n)	1,50
	^{197}Au(d, 2n)	3,76
	^{197}Au(α, p3n)	30,4
^{197g}Hg	^{197}Au(p, n)	1,20
	^{197}Au(d, 2n)	3,44
	^{197}Au(α, p3n)	30,1
^{190}Tl	^{197}Au(α, 11n)	95,2
^{191}Tl	^{197}Au(α, 10n)	85,3
^{192}Tl	^{197}Au(α, 9n)	77,3
^{193}Tl	^{197}Au(α, 8n)	67,6
	^{197}Au(τ, 7n)	46,4
^{194}Tl	^{197}Au(α, 7n)	59,6
	^{197}Au(τ, 6n)	38,4
^{195}Tl	^{197}Au(α, 6n)	50,3
	^{197}Au(τ, 5n)	29,2
^{196g}Tl	^{197}Au(α, 5n)	42,6
	^{197}Au(τ, 4n)	21,5
^{197}Tl	^{197}Au (α, 4n)	33,3
	^{197}Au(τ, 3n)	12,3
^{198g}Tl	^{197}Au(α, 3n)	32,6
^{199}Tl	^{197}Au(α, 2n)	17,1
^{200}Tl	^{201}Hg(p, 2n)...	9,53
	^{200}Hg(d, 2n)...	5,52
	^{197}Au(α, n)	9,95
^{201}Tl	^{202}Hg(p, 2n)...	9,05
	^{203}Tl(p, p2n)...	14,8

Окончание табл. 3

Радионуклид	Реакции образования	Энергетический порог реакции, МэВ
	^{202}Hg(d, 3n)...	11,3
^{202}Tl	^{202}Hg(p, n)...	2,16
	^{205}Tl(p, p3n)...	22,2
	^{202}Hg(d, 2n)...	4,42
^{199}Pb	^{203}Tl(p, 5n)...	33,7
^{200}Pb	^{203}Tl(p, 4n)...	24,7
	^{203}Tl*(p, 4n)	24,7
	^{205}Tl*(p, 6n)	39,0
^{201}Pb	^{205}Tl(p, 5n)...	31,7
	^{203}Tl*(p, 3n)	17,4
	^{205}Tl*(p, 5n)	31,7
^{202m}Pb	^{205}Tl(p, 4n)...	25,2
	^{203}Tl*(p, 2n)	10,9
	^{205}Tl*(p, 4n)	25,2
^{203}Pb	^{205}Tl(p, 3n)...	16,0
	^{203}Tl(d, 2n)...	4,02
^{204m}Pb	^{205}Tl(p, 2n)	9,81
^{199}Bi	^{209}Bi(p, p10n)	78,8
^{200}Bi	^{209}Bi(p, p9n)	70,8
^{201}Bi	^{209}Bi(p, p8n)	61,7
^{202}Bi	^{209}Bi(p, p7n)	54,0
^{203}Bi	^{209}Bi(p, p6n)	45,3
^{204}Bi	^{209}Bi(p, p5n)	38,0
^{205}Bi	^{206}Pb(p, 2n)...	11,6
	^{209}Bi(p, p4n)	29,6
	^{206}Pb(d, 3n)...	13,9
^{206}Bi	^{207}Pb(p, 2n)...	11,3
	^{209}Bi(p, p3n)	22,6
	^{206}Pb(d, 2n)...	6,84
^{207}Bi	^{208}Pb(p, 2n)...	10,7
	^{207}Pb(d, 2n)...	5,46
^{198}Po	^{209}Bi(p, 12n)	93,2
^{199}Po	^{209}Bi(p, 11n)	85,1
^{200}Po	^{209}Bi(p, 10n)	75,3
^{201}Po	^{209}Bi(p, 9n)	67,5
^{202}Po	^{209}Bi(p, 8n)	58,1
^{203}Po	^{209}Bi(p, 7n)	50,4
^{204}Po	^{209}Bi(p, 6n)	41,4
^{205}Po	^{209}Bi(p, 5n)	33,9
^{206}Po	^{209}Bi(p, 4n)	25,2
	^{206}Pb*(d, 4n)	36,2
^{207}Po	^{209}Bi(p, 3n)	18,1
	^{206}Pb*(α, 3n)	29,0
	^{207}Pb*(τ, 3n)	14,8
^{208}Po	^{209}Bi(p, 2n)	9,69
	^{208}Pb(α, 4n)...	34,8
	^{206}Pb*(α, 2n)	20,4
	^{207}Pb*(α, 3n)	27,3
	^{208}Pb*(α, 4n)	34,8
^{209}Po	^{208}Pb*(α, 3n)	27,7
^{210}Po	^{208}Pb(α, 2n)...	19,9
	^{207}Pb*(α, n)	12,4
	^{208}Pb*(α, 2n)	19,9
^{207}At	^{209}Bi(α, 6n)	51,9
^{208}At	^{209}Bi(α, 5n)	44,4
^{209}At	^{209}Bi(α, 4n)	35,9
^{210}At	^{209}Bi(α, 3n)	28,6
^{237}U	^{238}U*(α, αn)	6,26
^{233}Np	^{233}U*(α, p3n)	30,7
^{234}Np	^{233}U*(α, p2n)	24,5
^{235}Np	^{233}U*(α, pn)	17,4
^{236m}Np	^{233}U*(α, n)	11,6
	^{235}U*(α, p2n)	23,9
^{238}Np	^{235}U*(α, p)	11,6
	^{238}U*(α, p3n)	29,7
^{239}Np	^{238}U*(α, p2n)	23,4
^{233}Pu	^{233}U*(α, 4n)	33,6
^{234}Pu	^{233}U*(α, 3n)	25,6
	^{235}U*(α, 5n)	38,0
^{235}Pu	^{233}U*(α, 2n)	19,3
	^{235}U*(α, 4n)	31,6
^{236}Pu	^{233}U*(α, n)	11,8
	^{235}U*(α, 3n)	24,2
^{237}Pu	^{235}U*(α, 2n)	18,2
^{238}Pu	^{235}U*(α, n)	11,1

Таблица 4. Выход радионуклидов для толстой мишени в зависимости от энергии протонов (p), дейтронов (d), α-частиц (α) и гелия-3 (τ)

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_3Li(p)\,^7_4Be$ 53,3 сут [1]	
2	25,0–3
3	57,5–2
4	14,6–1
5	23,8–1
6	32,8–1
7	41,4–1
8	47,4–1
9	53,6–1
10	58,6–1
12	67,5–1
14	74,0–1
16	79,4–1
18	83,8–1
20	87,8–1
22	90,9–1
24	93,9–1
$_3Li(d)\,^7_4Be$ 53,3 сут [1]	
4	15,0–3
5	20,0–3
6	47,5–3
7	14,2–2
8	18,5–2
9	31,5–2
10	48,5–2
11	63,5–2
12	84,0–2
13	10,5–1
14	13,0–1
15	15,7–1
16	18,7–1
17	22,2–1
18	26,2–1
19	30,0–1
20	34,0–1
22	43,4–1
24	53,2–1
$_4Be(p)\,^7_4Be$ 53,3 сут [1]	
14	69,0–4
15	24,2–3
16	60,0–3
17	10,2–2
18	15,6–2
19	20,8–2
20	26,3–2
21	31,4–2
22	36,9–2
23	41,9–2
$_4Be(d)\,^7_4Be$ 53,3 сут [1]	
18	48,0–5
19	15,4–4
20	40,2–4
21	12,4–3
22	21,6–3
23	29,4–3
$_4Be(d)\,^{10}_4Be$ $1{,}59\cdot10^6$ лет [2]	
2	19,0–9
3	50,0–9
4	98,0–9
5	16,3–8
6	24,2–8
7	32,6–8
8	41,5–8
9	48,3–8
10	53,8–8
12	65,2–8
14	75,3–8
16	85,4–8
18	95,5–8
20	10,5–7
22	11,4–7
24	12,2–7
26	12,8–7
$_4Be(\alpha)\,^7_4Be$ 53,3 сут [1]	
32	84,0–5
33	20,0–4
34	36,0–4
35	57,2–4
36	84,4–4
37	13,0–3
38	22,8–3
39	34,8–3
40	46,8–3
41	59,3–3
42	71,9–3
43	84,4–3
44	96,4–3
$_4Be(\alpha)\,^{11}_6C$ 20,38 мин [3]	
17	64,5–1
18	72,6–1
19	84,6–1
20	11,7
21	16,5
22	24,2
23	34,7
24	48,0
25	62,9
26	80,6
27	10,5+1
28	13,4+1
29	16,2+1
30	19,4+1
31	23,2+1
32	26,8+1
33	30,9+1
34	34,9+1
36	43,6+1
38	52,0+1
40	60,3+1
42	68,6+1
44	77,0+1
46	85,5+1
$_4Be(\tau)\,^{11}_6C$ 20,38 мин [3]	
1	71,6–1
2	19,9
3	43,8
4	84,3
5	12,7+1
6	17,7+1
7	22,9+1
8	29,0+1
9	36,0+1
10	42,9+1
11	50,3+1
12	57,2+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
13	64,1+1
14	71,3+1
16	84,4+1
18	97,2+1
20	10,9+2
22	12,0+2
24	13,0+2
28	14,9+2
32	16,4+2
40	18,5+2
$_5B(p)\,^7_4Be$ 53,3 сут [1]	
1	30,0–3
2	10,8–2
3	19,7–2
4	28,3–2
5	36,9–2
6	46,7–2
7	54,6–2
8	61,6–2
10	70,9–2
12	76,8–2
14	83,0–2
16	94,6–2
18	11,2–1
20	14,6–1
21	17,1–1
22	19,6–1
23	22,1–1
$_5B(p)\,^{11}_6C$ 20,38 мин [4]	
4	71,0+1
5	21,0+2
6	34,4+2
7	48,6+2
8	63,5+2
9	76,7+2
10	93,5+2
11	10,7+3
12	12,3+3
14	15,8+3
16	18,8+3
18	21,5+3
20	24,1+3
22	26,5+3
24	28,8+3
$_5B(d)\,^7_4Be$ 53,3 сут [1]	
2	90,0–4
3	23,0–3
4	56,0–3
5	93,0–3
6	13,2–2
7	18,5–2
8	24,5–2
9	31,2–2
10	38,4–2
11	45,9–2
12	53,8–2
13	61,7–2
14	69,8–2
16	85,0–2
18	95,0–2
20	11,0–1
22	13,7–1
24	17,2–1
$_5B(d)\,^{11}_6C$ 20,38 мин [4]	
1	50,0
2	14,5+1
3	25,5+1
4	37,0+1
5	48,0+1
6	60,0+1
7	73,5+1
8	86,0+1
9	10,5+2
10	12,4+2
11	15,0+2
12	18,1+2
13	21,6+2
14	25,8+2
15	29,9+2
16	35,4+2
17	41,6+2
18	50,0+2
19	57,6+2
20	65,7+2
22	81,8+2
24	98,2+2
$_5B(\alpha)\,^{11}_6C$ 20,38 мин [4]	
17	12,0–1
18	32,0–1
19	40,0–1
20	58,0–1
21	82,0–1
22	10,4
23	12,9
24	15,4
25	18,1
26	20,8
27	23,9
28	26,8
29	30,2
30	33,7
31	38,4
32	43,2
33	49,4
34	56,3
35	64,4
36	75,0
37	89,2
38	10,1+1
40	12,1+1
42	16,1+1
44	20,6+1
46	24,1+1
$_5B(\alpha)\,^{13}_7N$ 9,97 мин [4]	
2	40,0–1
3	72–1
4	10,4
5	14,0
6	18,0
7	22,0
8	27,0
9	32,4
10	38,0
11	44,0
12	50,2
13	57,2
14	63,8
15	70,6
16	77,4
18	92,5

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	10,8+1
22	12,4+1
24	14,2+1
26	16,3+1
28	18,9+1
30	21,6+1
34	26,4+1
38	30,9+1
42	34,9+1
46	38,5+1
50	41,6+1
$_5B(\tau)\,^{11}_6C$ 20,38 мин [4]	
2	35,0−1
3	12,0
4	24,0
5	32,0
6	40,0
7	76,0
8	11,2+1
9	14,9+1
10	18,6+1
11	25,9+1
12	33,6+1
13	41,0+1
14	48,5+1
15	57,8+1
16	67,1+1
17	80,2+1
18	93,2+1
20	11,6+2
22	14,5+2
24	17,2+2
26	20,0+2
28	22,8+2
30	25,1+2
32	28,0+2
$_5B(\tau)\,^{13}_7N$ 9,97 мин [4]	
2	80,0−2
3	40,0−1
4	71,0−1
5	10,5
6	15,3
7	20,4
8	25,6
9	31,2
10	37,2
11	44,0
12	52,2
13	61,2
14	70,6
15	80,2
16	90,0
18	10,8+1
20	11,8+1
22	13,7+1
24	14,8+1
28	17,1+1
32	19,3+1
$_6C(p)\,^{11}_6C$ 20,38 мин [5]	
17	16,0
18	38,0
19	11,2+1
20	63,6+1
21	18,4+2
22	29,9+2
23	40,4+2
$_6C(p)\,^{13}_7N$ 9,97 мин [5]	
2	16,0−1
3	90,0−1
4	26,0
5	52,4
6	82,0
7	11,1+1
8	14,4+1
9	17,6+1
10	20,8+1
11	24,2+1
12	27,1+1
14	33,0+1
16	38,0+1
18	42,5+1
20	46,3+1
24	52,9+1
$_6C(d)\,^{11}_6C$ 20,38 мин [5]	
15	10,0−1
16	60,0−1
17	23,6
18	57,0
19	10,9+1
20	17,3+1
21	25,3+1
22	31,2+1
24	38,3+1
$_6C(d)\,^{13}_7N$ 9,97 мин [5]	
2	90,0
3	39,0+1
4	10,1+2
5	20,4+2
6	31,0+2
7	43,8+2
8	55,4+2
9	67,0+2
10	77,0+2
11	87,0+2
12	96,0+2
14	11,2+3
16	12,8+3
18	14,3+3
22	16,9+3
25	18,4+3
26	18,8+3
$_6C(\alpha)\,^{11}_6C$ 20,38 мин [5]	
28	50,0−1
29	12,0
30	21,0
31	36,1
32	52,9
33	78,0
34	11,8+1
35	16,2+1
36	22,6+1
37	30,6+1
38	39,8+1
39	49,2+1
40	59,7+1
41	70,7+1
42	82,8+1
43	95,3+1
44	10,9+2
45	12,1+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_6C(\alpha)\,^{13}_7N$ 9,97 мин [5]	
25	45,0−1
26	10,5
27	16,4
28	22,5
29	30,0
30	37,0
31	44,0
32	52,0
33	60,1
34	70,1
35	79,9
36	94,5
37	11,3+1
38	13,4+1
39	15,6+1
40	17,9+1
41	20,4+1
42	22,9+1
44	26,7+1
$_6C(\tau)\,^{11}_6C$ 20,38 мин [5]	
2	80,0
3	12,1+1
4	19,0+1
5	20,9+1
6	30,1+1
7	38,9+1
8	58,2+1
9	76,8+1
10	96,1+1
11	11,5+2
12	14,6+2
13	17,3+2
14	20,0+2
15	21,3+2
16	22,6+2
17	26,4+2
18	30,3+2
19	32,2+2
20	34,2+2
22	39,0+2
24	43,2+2
26	46,6+2
28	51,7+2
29	53,1+2
30	54,5+2
32	58,2+2
$_6C(\tau)\,^{13}_7N$ 9,97 мин [5]	
8	90,0
9	20,4+1
10	31,0+1
11	47,9+1
12	67,0+1
13	91,9+1
14	11,8+2
15	13,5+2
16	15,2+2
17	19,0+2
18	22,8+2
20	27,6+2
22	34,2+2
24	43,2+2
26	45,3+2
28	52,3+2
32	64,3+2
$_7N(p)\,^{11}_6C$ 20,38 мин [6]	
4	80,0
5	31,1+1
6	59,8+1
7	12,8+2
8	21,8+2
9	35,0+2
10	47,6+2
11	60,3+2
12	74,2+2
13	89,0+2
14	10,4+3
16	13,3+3
18	16,0+3
20	18,0+3
24	21,7+3
25	22,4+3
$_7N(p)\,^{13}_7N$ 9,97 мин [6]	
12	20,0+1
13	79,8+1
14	13,5+2
15	23,0+2
16	31,5+2
17	53,1+2
18	75,1+2
19	10,2+3
20	12,6+3
21	14,8+3
22	16,9+3
23	18,6+3
24	20,2+3
25	21,5+3
$_7N(d)\,^{11}_6C$ 20,38 мин [6]	
9	26,0
10	50,0
11	79,8
12	20,1+1
13	41,9+1
14	72,2+1
15	10,3+2
16	13,7+2
17	18,0+2
18	23,2+2
19	30,2+2
20	38,5+2
21	47,8+2
22	58,2+2
23	68,3+2
24	77,6+2
25	85,7+2
$_7N(d)\,^{13}_7N$ 9,97 мин [6]	
6	20,2
7	49,8
8	10,4+1
9	16,0+1
10	22,2+1
11	29,0+1
12	37,8+1
13	48,1+1
14	58,8+1
15	72,6+1
16	92,4+1
17	11,7+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
18	14,9+2
19	18,6+2
20	23,4+2
21	28,1+2
22	34,0+2
23	40,8+2
24	47,4+2
25	52,8+2
$_7N(\alpha)\,^{11}_6C$ 20,38 мин [6]	
31	17,0−1
32	57,1−1
33	10,5
34	16
35	21,3
36	26,6
37	31,6
38	36,5
39	41,2
40	45,6
41	49,7
42	53,4
44	59,0
46	63,5
$_7N(\alpha)\,^{13}_7N$ 9,97 мин [6]	
16	17,0
17	20,1
18	27,9
19	37,2
20	49,8
21	7,1,0
22	11,3+1
23	17,0+1
24	23,9+1
25	30,4+1
26	38,6+1
27	46,0+1
28	54,2+1
29	62,8+1
30	72,4+1
31	82,2+1
32	92,5+1
34	11,5+2
36	13,8+2
38	16,0+2
40	18,5+2
42	20,8+2
44	23,3+2
46	25,7+2
50	30,5+2
$_7N(\alpha)\,^{18}_9F$ 109,8 мин [6]	
7	30,0−3
8	54,9−3
9	10,4−2
10	14,6−2
11	20,0−2
12	26,5−2
13	33,3−2
14	41,0−2
15	48,8−2
16	57,8−2
17	66,0−2
18	74,8−2
19	83,3−2
20	92,6−2
22	11,0−1
26	13,3−1
34	16,1−1
42	17,8−1
50	18,9−1
$_7N(\tau)\,^{11}_6C$ 20,38 мин [6]	
15	50,3−1
16	16,4
17	30,2
18	48,5
19	77,4
20	12,0+1
21	19,2+1
22	28,5+1
23	37,8+1
24	47,3+1
25	56,8+1
26	66,7+1
27	77,5+1
28	88,1+1
30	11,0+2
32	13,6+2
$_7N(\tau)\,^{13}_7N$ 9,97 мин [6]	
1	62,2−1
2	12,4
3	21,8
4	31,1
5	42,9
6	52,2
7	63,4
8	73,3
9	92,0
10	98,2
11	11,1+1
12	12,4+1
14	14,8+1
16	18,0+1
18	22,2+1
20	26,7+1
22	32,0+1
24	37,8+1
26	43,5+1
28	49,2+1
30	56,4+1
32	65,3+1
$_8O(p)\,^{13}_7N$ 9,97 мин [5]	
7	22.5+1
8	60,0+1
9	10,7+2
10	16,5+2
11	24,0+2
12	32,9+2
13	43,1+2
14	51,8+2
15	59,4+2
16	65,8+2
17	71,8+2
18	77,2+2
20	86,6+2
22	96,0+2
25	10,8+3
26	11,1+3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_8O(p)\,^{18}_9F$ 109,8 мин [5]	
3	11,0−2
4	54,8−2
5	12,0−1
6	19,5−1
7	28,8−1
8	41,5−1
9	57,1−1
10	76,4−1
11	96,5−1
12	10,8
14	12,2
16	13,1
18	14,0
20	14,8
22	15,5
26	16,8
$_8O(d)\,^{13}_7N$ 9,97 мин [5]	
10	14,0
11	45,8
12	10,8+1
13	21,4+1
14	38,0+1
15	58,6+1
16	85,0+1
17	11,2+2
18	16,6+2
19	22,6+2
20	28,6+2
21	34,4+2
22	40,5+2
24	52,0+2
26	63,5+2
$_8O(d)\,^{18}_9F$ 109,8 мин [5]	
4	10,0−2
5	19,8−2
6	36,1−2
7	51,2−2
8	70,9−2
9	97,0−2
10	13,0−1
11	19,5−1
12	26,2−1
13	32,7−1
14	39,4−1
15	46,2−1
16	53,0−1
17	60,2−1
18	66,8−1
19	73,5−1
20	80,4−1
22	93,8−1
24	10,7
26	12,1
$_8O(\alpha)\,^{18}_9F$ (к.) 109,8 мин [5]	
21	40,0−1
22	95,1−1
23	17,0
24	25,2
25	34,5
26	44,0
27	58,2
28	76,5
29	94,0
30	11,5+1
31	13,8+1
32	16,8+1
33	20,1+1
34	23,8+1
35	27,7+1
36	32,2+1
38	40,7+1
40	48,1+1
42	55,5+1
46	66,7+1
50	73,4+1
$_8O(\tau)\,^{11}_6C$ 20,38 мин [5]	
13	83,0−1
14	14,3
15	23,4
16	33,2
17	54,2
18	10,8+1
19	17,0+1
20	22,9+1
21	30,0+1
22	38,3+1
23	47,5+1
24	55,5+1
25	63,9+1
26	72,3+1
27	80,0+1
28	86,8+1
30	10,5+2
32	12,2+2
$_8O(\tau)\,^{18}_9F$ (к.) 109, 8 мин [5]	
3	13,6
4	16,6
5	27,1
6	40,7
7	60,3
8	91,9
9	12,5+1
10	16,6+1
11	20,0+1
12	24,7+1
13	28,6+1
14	34,5+1
16	39,6+1
18	45,8+1
20	50,9+1
22	55,8+1
24	60,0+1
28	67,2+1
32	74,6+1
$_9F(p)\,^{18}_9F$ (к.) 109,8 мин [4]	
12	20,0−1
13	19,8
14	10,0+1
15	29,6+1
16	57,2+1
17	94,4+1
18	13,3+2
19	17,9+2
20	22,7+2
21	28,5+2
22	34,2+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
23	40,0+2
24	45,8+2
26	56,0+2
$_9F(d)\,^{18}_9F$(к.) 109,8 мин [4]	
6	30,0−1
7	55,2−1
8	13,0
9	22,5
10	32,5
11	50,4
12	77,0
13	11,0+1
14	15,1+1
15	19,3+1
16	24,2+1
17	29,8+1
18	36,0+1
19	43,2+1
20	51,8+1
21	61,9+1
22	73,5+1
23	88,5+1
24	10,5+2
26	13,7+2
$_9F(\alpha)\,^{18}_9F$ 109,8 мин [4]	
19	25,0−1
20	79,8−1
21	18,1
22	39,2
23	67,5
24	95,0
25	12,8+1
26	16,3+1
27	19,8+1
28	23,2+1
29	26,8+1
30	30,5+1
31	34,6+1
32	38,7+1
34	46,7+1
36	54,9+1
38	62,4+1
40	68,8+1
42	74,6+1
44	79,5+1
48	87,0+1
50	90,2+1
$_9F(\tau)\,^{18}_9F$ 109,8 мин	
2	14,7−1
3	21,4−1
4	28,1−1
5	36,2−1
6	46,9−1
7	59,0−1
8	71,1−1
9	85,8−1
10	10,0
11	11,1
12	13,1
13	14,7
14	16,1
15	18,1
16	20,0
17	22,1
18	24,8
19	28,1
20	32,2
21	36,2
22	40,0
23	44,9
24	52,3
25	59,0
26	65,7
27	73,7
28	83,1
30	99,8
32	11,4+1
$_{10}Ne(d)\,^{18}_9F$ 109,8 мин [7]	
3	40,7
4	12,7+1
5	26,8+1
6	45,4+1
7	64,0+1
8	81,4+1
10	10,7+2
12	12,6+2
14	14,0+2
16	15,1+2
20	16,6+2
24	17,5+2
$_{10}Ne(\tau)\,^{18}_9F$ 109,8 мин [7]	
6	69,7−3
7	65,0−2
8	18,9−1
9	41,4−1
10	76,1−1
11	14,8
12	23,8
13	37,0
14	55,3
15	75,5
16	10,6+1
17	13,9+1
18	17,2+1
19	22,0+1
20	24,7+1
21	28,7+1
22	32,6+1
24	40,3+1
26	47,3+1
28	53,8+1
30	59,6+1
34	70,0+1
38	79,4+1
42	87,2+1
50	98,2+1
$_{11}Na(d)\,^{22}_{11}Na$ 2,602 года [8]	
10	18,2−5
11	69,3−5
12	12,9−4
13	19,8−4
14	30,0−4
15	41,2−4
16	53,1−4
17	71,9−4
18	97,8−4
19	14,4−3
20	20,6−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
21	26,7−3
22	33,0−3
$_{11}Na(d)\,^{24}_{11}Na$ 15,0 ч [8]	
3	83,0−1
4	30,9
5	57,8
6	89,6
7	12,2+1
8	15,6+1
9	18,6+1
10	21,7+1
11	24,8+1
12	27,3+1
14	31,8+1
16	36,1+1
20	42,4+1
24	46,7+1
$_{11}Na(\alpha)\,^{18}_9F$ 109,8 мин [9]	
26	20,0−2
27	42,2−2
28	49,9−2
29	65,0−2
30	95,2−2
31	14,0−1
32	18,5−1
33	26,1−1
34	36,5−1
35	46,0−1
36	59,6−1
37	74,2−1
38	95,7−1
39	12,4
40	16,9
41	25,6
42	36,0
43	45,2
44	55,0
45	64,6
46	74,4
48	93,8
50	11,6+1
$_{11}Na(\tau)\,^{18}_9F$ 109,8 мин [9]	
6	52,6−2
7	94,8−2
8	14,7−1
9	19,0−1
10	29,5−1
11	41,1−1
12	64,2−1
13	91,6−1
14	12,2
15	14,7
16	18,4
17	21,3
18	25,3
19	29,1
20	33,7
21	38,5
22	43,8
23	49,2
24	54,8
25	60,8
26	67,0
27	73,2
28	79,6
30	91,5
32	10,4+1
36	12,8+1
$_{12}Mg(p)\,^{21}_{11}Na$ 22,47 с [10]	
8	22,0+1
9	12,2+3
10	47,4+3
11	10,6+4
12	17,6+4
13	24,2+4
14	30,0+4
15	35,3+4
16	40,4+4
18	50,4+4
20	60,7+4
22	71,7+4
24	83,5+4
26	95,8+4
$_{12}Mg(p)\,^{22}_{11}Na$ 2,602 года [11, 13]	
9	18,0−5
10	75,4−5
11	18,3−4
12	29,4−4
13	41,1−4
14	55,3−4
15	71,4−4
16	90,1−4
17	10,7−3
18	12,2−3
19	13,5−3
20	14,6−3
21	15,5−3
22	16,3−3
23	17,4−3
24	18,5−3
25	22,2−3
26	26,3−3
27	33,1−3
28	40,1−3
29	47,2−3
30	54,8−3
31	61,3−3
32	68,3−3
33	75,8−3
34	83,8−3
35	95,6−3
36	10,7−2
37	12,0−2
38	13,7−2
39	15,5−2
40	17,8−2
41	20,2−2
42	23,1−2
43	26,2−2
44	29,6−2
45	33,3−2
46	37,7−2
47	41,2−2
48	45,0−2
50	52,5−2
52	59,9−2
54	67,2−2
56	74,6−2
58	82,1−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
60	89,7−2
64	10,5−1
68	11,9−1
76	14,9−1
84	17,8−1
92	20,8−1
100	23,8−1
$_{12}Mg(p)^{24}_{11}Na$ 15,0 ч [10]	
18	16,8−4
19	10,8−3
20	41,6−2
21	10,6−1
22	21,9−1
23	41,7−1
24	72,2−1
25	11,3
26	16,5
$_{12}Mg(p)^{25}_{11}Na$ 60 с [10]	
16	69,3−3
17	73,2−1
18	22,5
19	54,0
20	12,0+1
21	23,8+1
22	41,5+1
23	66,9+1
24	10,2+2
25	14,6+2
26	20,2+2
27	26,8+2
28	34,2+2
$_{12}Mg(p)^{23}_{12}Mg$ 11,13 с [10]	
14	33,2−2
15	35,0+1
16	13,0+2
17	43,8+2
18	10,4+3
19	20,4+3
20	37,8+3
21	66,6+3
22	11,5+4
23	21,0+4
24	38,1+4
25	65,2+4
26	98,1+4
$_{12}Mg(p)^{24}_{13}Al$ 2,09 с [10]	
16	40,0+1
17	21,2+3
18	76,8+3
19	14,2+4
20	21,0+4
21	27,9+4
22	34,8+4
23	41,6+4
24	48,2+4
25	54,6+4
26	60,9+4
27	66,9+4
28	72,4+4
$_{12}Mg(d)^{18}_{9}F$ 109,8 мин [12]	
8	17,6−5
9	76,9−3
10	24,3−2
11	60,0−2
12	14,1−1
13	31,3−1
14	63,4−1
15	12,0
16	20,7
17	34,2
18	53,9
19	82,8
20	12,4+1
21	17,5+1
22	23,5+1
23	30,2+1
24	37,6+1
$_{12}Mg(d)^{22}_{11}Na$ 2,602 года [13]	
5	14,7−4
6	45,8−4
7	92,4−4
8	15,8−3
9	23,2−3
10	32,2−3
11	42,1−3
12	52,6−3
13	62,4−3
14	73,1−3
15	83,1−3
16	93,6−3
18	11,5−2
20	13,5−2
22	15,6−2
24	17,5−2
26	19,3−2
$_{12}Mg(d)^{24}_{11}Na$ 15,0 ч [10]	
8	43,6−3
9	24,7−1
10	52,2−1
11	83,1−1
12	11,7
13	15,5
14	19,6
15	24,0
16	28,8
17	33,9
18	39,2
19	44,6
20	49,6
22	59,3
$_{12}Mg(d)^{25}_{11}Na$ 60 с [10]	
6	19,7−3
7	26,8−1
8	19,8
9	56,2
10	11,2+1
11	17,9+1
12	25,1+1
13	32,4+1
14	39,6+1
15	46,8+1
16	53,7+1
17	60,4+1
18	66,9+1
20	79,0+1
22	89,6+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{12}Mg(d)^{27}_{12}Mg$ 9,46 мин [10]	
2	91,6−3
3	17,4
4	25,8+1
5	84,8+1
6	15,5+2
7	23,2+2
8	31,4+2
9	40,1+2
10	49,1+2
11	58,1+2
12	66,9+2
13	75,3+2
14	82,8+2
16	95,5+2
18	10,5+3
22	11,8+3
$_{12}Mg(d)^{25}_{13}Al$ 7,17 с [10]	
2	72,4−1
3	27,5+2
4	85,6+3
5	26,1+4
6	46,4+4
7	67,8+4
8	90,2+4
9	11,3+5
10	13,6+5
11	15,9+5
12	18,1+5
13	20,2+5
14	22,1+5
16	25,3+5
18	27,3+5
22	29,8+5
$_{12}Mg(\alpha)^{24}_{11}Na$ 15,0 ч [14]	
21	45,6−4
22	20,3−3
23	52,9−3
24	10,3−2
25	17,2−2
26	26,0−2
27	36,9−2
28	49,4−2
29	63,0−2
30	77,6−2
31	92,9−2
32	10,9−1
33	12,6−1
34	14,4−1
35	16,3−1
36	18,3−1
$_{12}Mg(\alpha)^{27}_{12}Mg$ 9,46 мин [14]	
20	39,0−4
21	80,5−3
22	38,0−2
23	99,2−2
24	19,4−1
25	32,5−1
26	49,4−1
27	70,2−1
28	95,0−1
29	12,2
30	14,9
31	17,6
32	20,1
34	25,0
36	29,5
$_{12}Mg(\alpha)^{28}_{12}Mg$ 21,2 ч [15, 19]	
20	40,7−5
21	64,8−5
22	10,0−4
23	13,7−4
24	17,4−4
25	25,9−4
26	35,5−4
27	52,9−4
28	69,6−4
29	86,2−4
30	10,8−3
31	13,5−3
32	17,8−3
33	21,0−3
34	25,9−3
35	30,0−3
36	36,6−3
37	41,0−3
38	46,0−3
39	53,1−3
40	61,3−3
41	68,0−3
42	74,4−3
43	81,6−3
44	88,6−3
45	95,5−3
46	10,2−2
48	11,8−2
50	13,3−2
52	14,9−2
56	18,1−2
60	21,3−2
64	24,6−2
68	27,9−2
72	31,3−2
80	37,9−2
88	44,3−2
96	50,3−2
104	55,9−2
112	60,9−2
128	69,1−2
144	75,4−2
160	80,4−2
$_{12}Mg(\alpha)^{28}_{13}Al$ 2,24 мин [14]	
6	13,3−3
7	52,7−1
8	79,1
9	13,8+1
10	23,2+1
11	31,6+1
12	43,4+1
13	53,7+1
14	68,2+1
15	81,1+1
16	97,9+1
17	11,2+2
18	13,2+2
19	14,9+2
20	16,7+2
22	19,9+2
24	23,6+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
26	28,3+2
28	34,1+2
30	40,6+2
32	47,0+2
34	53,6+2
36	60,0+2
$_{12}Mg(\alpha)^{29}_{13}Al$ 6,52 мин [14]	
6	50,0–4
7	14,3–2
8	21,2–1
9	52,0–1
10	13,9
11	22,0
12	38,3
13	54,1
14	77,4
15	10,3+1
16	13,2+1
17	16,0+1
18	19,2+1
19	21,6+1
20	24,4+1
22	28,4+1
24	31,5+1
28	36,7+1
32	42,5+1
36	49,0+1
$_{12}Mg(\alpha)^{27}_{14}Si$ 4,11 с [14]	
6	33,7–1
7	17,2+1
8	27,6+2
9	72,0+2
10	10,7+3
11	15,8+3
12	23,1+3
13	30,2+3
14	40,1+3
15	49,2+3
16	62,4+3
17	73,7+3
18	88,9+3
20	11,4+4
22	13,5+4
24	15,3+4
28	18,3+4
32	22,4+4
36	24,7+4
$_{12}Mg(\tau)^{18}_{9}F$ 109,8 мин [9]	
16	30,2–3
17	10,1–2
18	17,9–2
19	27,0–2
20	36,8–2
21	47,1–2
22	58,0–2
23	70,3–2
24	85,8–2
25	10,5–1
26	14,2–1
27	24,1–1
28	47,0–1
29	68,5–1
30	92,8–1
31	11,6
32	13,9
$_{12}Mg(\tau)^{20}_{9}F$ 10,97 с [14]	
6	22,3–3
7	13,4–2
8	83,1–2
9	16,2–1
10	93,2–1
11	15,1
12	21,3
13	27,5
14	33,9
15	40,4
16	46,9
17	53,0
18	59,1
19	63,1
20	70,1
21	76,2
22	85,5
23	89,1
24	97,6
25	10,8+1
26	12,2+1
27	14,9+1
28	16,3+1
29	18,5+1
30	23,3+1
31	28,2+1
32	35,0+1
33	41,8+1
34	53,6 +1
35	64,8+1
36	80,4+1
37	95,6+1
38	11,6+2
39	13,9+2
40	16,5+2
$_{12}Mg(\tau)^{22}_{12}Mg$ 3,86 с [14]	
10	65,4–2
11	45,2–1
12	15,1
13	28,5
14	48,8
15	81,5
16	12,3+1
17	23,4+1
18	38,8+1
19	71,0+1
20	10,9+2
21	15,5+2
22	24,9+2
23	32,8+2
24	47,1+2
25	59,8+2
26	78,7+2
27	95,8+2
28	12,0+3
29	14,3+3
30	17,1+3
31	19,9+3
32	22,8+3
34	28,7+3
36	34,0+3
38	38,6+3
40	43,5+3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{12}Mg(\tau)^{23}_{12}Mg$ 11,33 с [14]	
6	15,2–1
7	62,0+1
8	17,3+2
9	48,2+2
10	10,2+3
11	17,1+3
12	25,1+3
13	33,5+3
14	42,0+3
15	50,4+3
16	58,8+3
17	66,6+3
18	74,5+3
20	89,2+3
22	10,3+4
24	11,6+4
28	14,1+4
32	16,4+4
36	18,6+4
40	21,0+4
$_{12}Mg(\tau)^{27}_{12}Mg$ 9,46 мин [14]	
6	43,0–4
7	35,6–2
8	53,4–1
9	10,8
10	20,0
11	31,5
12	46,4
13	61,7
14	84,6
15	10,6+1
16	13,3+1
17	16,1+1
18	19,0+1
19	22,1+1
20	25,3+1
22	31,7+1
24	32,3+1
26	38,2+1
28	43,7+1
30	48,9+1
32	53,7+1
36	63,0+1
40	72,1+1
$_{12}Mg(\tau)^{24}_{13}Al$ 2,09 с [14]	
6	82,2–3
7	14,0–1
8	82,5–1
9	11,5
10	22,7
11	31,4
12	42,1
13	51,6
14	66,9
15	81,4
16	99,5
17	12,1+1
18	13,7+1
19	15,2+1
20	18,2+1
21	21,4+1
22	27,3+1
23	33,4+1
24	46,9+1
25	58,4+1
26	81,3+1
27	10,0+2
28	13,8+2
29	16,7+2
30	21,9+2
31	25,5+2
32	32,5+2
33	38,0+2
34	46,0+2
35	53,0+2
36	62,5+2
37	71,1+2
38	82,2+2
39	95,2+2
40	11,0+3
$_{12}Mg(\tau)^{25}_{13}Al$ 7,17 с [14]	
6	24,0–1
7	14,8+2
8	14,3+3
9	32,0+3
10	59,6+3
11	88,5+3
12	12,4+4
13	15,9+4
14	20,0+4
15	24,1+4
16	28,6+4
17	20,1+4
18	37,7+4
20	47,0+4
22	55,9+4
23	59,3+4
24	63,9+4
28	76,1+4
32	85,7+4
40	99,8+4
$_{12}Mg(\tau)^{28}_{13}Al$ 2,24 мин [14]	
6	18,2–3
7	81,0–1
8	38,3
9	88,0
10	15,0+1
11	23,4+1
12	29,1+1
13	34,4+1
14	42,0+1
15	48,7+1
16	53,3+1
18	62,3+1
20	68,6+1
24	76,3+1
28	82,1+1
32	87,4+1
40	95,9+1
$_{12}Mg(\tau)^{26}_{14}Si$ 2,21 с [14]	
6	77,8–1
7	50,5+1
8	55,6+2
9	11,5+3
10	23,6+3
11	33,8+3
12	43,3+3
13	52,7+3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
14	61,7+3
15	71,2+3
16	78,2+3
18	91,8+3
20	10,2+4
22	11,0+4
24	11,7+4
26	12,3+4
28	12,9+4
30	13,5+4
32	14,1+4
36	15,1+4
40	15,9+4
$_{13}Al(p)^{7}_{4}Be$ 53,3 сут [16]	
26	12,0–6
27	49,8–6
28	11,6–5
29	22,8–5
30	40,3–5
31	65,0–5
32	93,3–5
33	13,1–4
34	18,2–4
35	22,6–4
36	31,6–4
37	38,2–4
38	49,8–4
39	58,8–4
40	73,5–4
41	87,4–4
42	10,3–3
43	11,7–3
44	13,8–3
45	15,5–3
46	17,9–3
47	19,9–3
48	22,6–3
50	27,9–3
52	33,8–3
54	40,2–3
56	47,4–3
58	55,3–3
59	59,3–3
60	63,8–3
62	73,2–3
64	83,3–3
66	94,1–3
70	11,8–2
$_{13}Al(p)^{22}_{11}Na$ 2,602 года [16]	
28	58,0–6
29	32,5–5
30	97,7–5
31	16,0–4
32	41,3–4
33	65,5–4
34	11,1–3
35	14,5–3
36	23,7–3
37	30,2–3
38	42,9–3
39	53,3–3
40	68,3–3
41	81,6–3
42	97,2–3
43	11,2–2
44	12,8–2
45	14,3–2
46	16,1–2
48	19,5–2
50	22,7–2
52	25,7–2
54	28,6–2
58	33,9–2
62	38,9–2
66	43,8–2
70	48,6–2
$_{13}Al(p)^{24}_{11}Na$ 15,00 ч [16]	
30	23,3–3
31	41,0–3
32	72,1–3
33	16,5–2
34	27,7–2
35	44,0–2
36	73,0–2
37	10,0–1
38	15,1–1
39	19,5–1
40	28,1–1
41	34,2–1
42	47,8–1
43	57,0–1
44	75,4–1
45	88,5–1
46	11,6
47	13,4
48	16,6
49	19,2
50	23,5
51	27,0
52	32,1
53	36,4
54	42,5
55	48,0
56	54,6
57	61,6
58	67,9
59	74,8
60	82,5
62	97,9
64	11,4+1
66	13,1+1
70	16,5+1
$_{13}Al(p)^{23}_{12}Mg$ 11,33 с [10]	
14	62,6
15	22,8+1
16	50,5+1
17	10,1+2
18	18,0+2
19	30,3+2
20	49,1+2
21	77,6+2
22	11,8+3
23	17,8+3
24	26,4+3
25	38,1+3
26	54,0+3
27	76,1+3
28	10,7+4
29	15,1+4
30	21,3+4
$_{13}Al(p)^{25}_{13}Al$ 7,17 с [17]	
10	40,0+1
11	10,0+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
12	25,8+2
13	34,5+2
14	74,5+2
15	10,2+3
16	16,0+3
17	20,5+3
18	28,0+3
19	34,2+3
20	43,1+3
21	51,4+3
22	60,2+3
23	69,2+3
24	76,1+3
26	89,2+3
30	11,1+4
$_{13}Al(p)^{27}_{14}Si$ 4,11 с [10]	
6	45,8
7	92,4+2
8	56,9+3
9	17,6+4
10	37,7+4
11	67,4+4
12	10,6+5
13	15,4+5
14	20,7+5
15	26,1+5
16	31,5+5
17	36,8+5
18	41,6+5
20	50,0+5
22	56,5+5
$_{13}Al(d)^{7}_{4}Be$ 53,3 сут [18]	
20	10,0–7
21	10,5–6
22	37,0–6
23	61,0–6
24	12,0–5
25	17,5–5
26	28,3–5
27	33,5–5
28	56,0–5
29	71,6–5
30	98,9–5
31	12,0–4
32	16,3–4
33	19,2–4
34	25,4–4
35	29,7–4
36	38,3–4
37	44,7–4
38	55,8–4
39	66,6–4
40	78,4–4
41	90,0–4
42	10,6–3
43	12,1–3
44	14,0–3
45	16,2–3
46	18,0–3
48	22,5–3
50	27,2–3
52	32,0–3
$_{13}Al(d)^{22}_{11}Na$ 2,602 года [18]	
20	10,0–7
21	10,5–6
22	30,0–6
23	45,0–6
24	92,0–6
25	12,5–5
26	22,3–5
27	27,5–5
28	46,5–5
29	57,6–5
30	86,6–5
31	10,4–4
32	14,8–4
33	17,5–4
34	25,2–4
35	30,0–4
36	42,7–4
37	50,5–4
38	70,6–4
39	87,0–4
40	11,5–3
41	13,8–3
42	18,2–3
43	22,0–3
44	27,1–3
45	32,0–3
46	38,4–3
47	44,3–3
48	52,2–3
49	59,3–3
50	68,2–3
51	76,2–3
52	85,8–3
$_{13}Al(d)^{24}_{11}Na$ 15,00 ч [18, 20]	
12	80,0–3
13	22,0–2
14	62,5–2
15	16,5–1
16	37,3–1
17	67,5–1
18	12,4
19	18,9
20	28,5
21	39,5
22	52,0
23	65,0
24	80,3
25	94,3
26	11,1+1
27	12,5+1
28	14,1+1
29	15,5+1
30	17,0+1
32	19,7+1
34	22,2+1
38	26,6+1
42	30,6+1
46	34,4+1
50	38,2+1
58	45,4+1
66	53,4+1
74	62,2+1
82	72,0+1
90	83,0+1
98	94,7+1
106	10,8+2
114	12,2+2
122	13,7+2
138	16,9+2
154	20,6+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
170	23,9+2
186	26,4+2
202	28,3+2
$_{13}Al(\alpha)\,^{7}_{4}Be$ 53,3 сут [18]	
34	21,0–6
35	28,9–6
36	40,0–6
37	56,4–6
38	79,0–6
39	10,3–5
40	13,8–5
41	18,2–5
42	24,0–5
43	31,3–5
44	40,6–5
45	51,2–5
46	61,3–5
47	69,4–5
48	75,0–5
49	10,3–4
50	13,9–4
51	17,3–4
52	20,6–4
53	23,6–4
54	26,8–4
55	31,0–4
56	35,2–4
57	39,4–4
58	45,2–4
59	51,2–4
60	56,7–4
61	62,8–4
62	69,9–4
63	77,5–4
64	85,8–4
65	94,8–4
66	10,2–3
68	12,8–3
70	14,1–3
72	17,0–3
74	18,9–3
76	21,5–3
78	24,5–3
80	27,0–3
84	34,2–3
88	42,5–3
92	51,5–3
96	61,2–3
100	71,8–3
104	83,2–3
106	89,5–3
$_{13}Al(\alpha)\,^{22}_{11}Na$ 2,602 года [18]	
34	12,0–6
35	17,2–6
36	26,5–6
37	42,6–6
38	70,0–6
39	11,7–5
40	19,8–5
41	34,7–5
42	61,4–5
43	88,1–5
44	12,5–4
45	18,1–4
46	25,4–4
47	33,4–4
48	42,0–4
49	51,8–4
50	60,3–4
51	71,2–4
52	81,3–4
53	94,0–4
54	10,4–3
56	12,6–3
58	14,8–3
60	16,6–3
62	18,9–3
66	22,6–3
70	25,9–3
74	29,0–3
82	35,2–3
90	42,6–3
98	52,0–3
106	62,8–3
114	76,2–3
122	90,4–3
$_{13}Al(\alpha)\,^{24}_{11}Na$ 15,00 ч [18]	
34	23,0–6
35	32,3–6
36	52,3–6
37	10,5–5
38	51,4–5
39	10,7–4
40	59,0–4
41	16,5–3
42	42,9–3
43	72,7–3
44	10,4–2
45	14,8–2
46	19,6–2
47	26,5–2
48	35,0–2
49	45,5–2
50	59,4–2
51	77,4–2
52	10,0–1
53	12,8–1
54	16,0–1
55	20,2–1
56	24,6–1
57	30,2–1
58	36,8–1
59	44,3–1
60	52,5–1
61	61,7–1
62	72,2–1
63	81,5–1
64	95,0–1
65	10,7
66	12,2
68	14,8
70	18,2
72	21,2
74	24,8
78	31,6
82	38,5
86	45,6
90	52,9
94	60,1
98	67,5
102	74,8
106	82,1
114	99,0
122	11,7+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{13}Al(d)\,^{27}_{12}Mg$ 9,46 мин [10]	
5	17,2–4
6	94,7–2
7	24,9–1
8	54,2–1
9	14,0
10	31,3
11	62,9
12	11,6+1
13	20,0+1
14	32,2+1
15	48,3+1
16	69,0+1
17	94,1+1
18	12,3+2
19	15,6+2
20	19,2+2
21	23,1+2
22	27,2+2
$_{13}Al(\alpha)\,^{28}_{12}Mg$ 20,93 ч [15]	
26	59,2–6
27	19,2–5
28	37,0–5
29	55,2–5
30	81,4–5
31	12,3–4
32	18,9–4
33	26,5–4
34	36,4–4
35	49,2–4
36	65,5–4
37	86,1–4
38	10,9–3
39	14,2–3
40	18,4–3
41	22,7–3
42	27,9–3
43	33,8–3
44	40,0–3
45	47,2–3
46	55,0–3
48	72,6–3
50	92,8–3
52	11,3–2
54	13,4–2
56	15,5–2
60	19,5–2
64	23,3–2
68	26,9–2
76	33,7–2
84	40,2–2
92	46,4–2
100	52,4–2
116	63,4–2
132	73,6–2
148	82,7–2
164	90,9–2
$_{13}Al(\alpha)\,^{28}_{13}Al$ 2,24 мин [14]	
22	16,4–3
23	13,6–1
24	11,4
25	29,2
26	53,7
27	84,1
28	11,9+1
29	15,8+1
30	20,1+1
31	24,5+1
32	28,9+1
34	37,3+1
$_{13}Al(\alpha)\,^{29}_{13}Al$ 6,52 мин [10]	
10	31,1–4
11	67,2–3
12	18,1–2
13	43,9–2
14	84,0–2
15	13,5–1
16	19,7–1
17	27,1–1
18	36,4–1
19	47,5–1
20	63,2–1
21	87,7–1
22	12,6
23	19,2
24	30,6
25	47,5
26	70,4
27	99,4
28	13,5+1
29	17,3+1
30	21,2+1
31	25,1+1
32	29,0+1
34	36,5+1
$_{13}Al(\alpha)\,^{30}_{15}P$ 2,5 мин [10]	
7	62,2–3
8	10,2+1
9	60,6+1
10	15,9+2
11	31,4+2
12	50,3+2
13	68,7+2
14	84,7+2
15	97,6+2
16	10,7+3
20	12,6+3
28	14,0+3
36	15,4+3
$_{13}Al(\tau)\,^{18}_{9}F$ 109,8 мин [9]	
16	45,0–3
17	75,2–3
18	11,2–2
19	17,0–2
20	26,1–2
21	34,2–2
22	41,8–2
23	51,1–2
24	62,8–2
25	76,2–2
26	92,7–2
27	11,4–1
28	14,8–1
29	20,8–1
30	31,6–1
31	44,0–1
32	56,4–1
33	68,6–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
34	80,6−1
36	10,4
$_{13}Al(\tau)^{22}_{11}Na$ 2,602 года [21]	
3	40,7−8
4	51,8−8
5	74,0−8
6	17,4−7
7	38,1−7
8	78,4−7
9	16,2−6
10	32,5−6
11	58,6−6
12	99,5−6
13	15,4−5
14	23,3−5
15	34,7−5
16	48,9−5
17	56,7−5
18	84,3−5
19	10,6−4
20	13,1−4
21	15,8−4
22	18,9−4
23	21,8−4
24	24,7−4
26	30,5−4
28	36,3−4
30	41,4−4
34	48,6−4
$_{13}Al(\tau)^{24}_{11}Na$ 15,0 ч [21]	
20	51,8−5
21	17,8−4
22	58,1−4
23	15,5−3
24	32,4−3
25	71,2−3
26	13,6−2
27	23,3−2
28	36,8−2
29	59,9−2
30	91,8−2
31	12,8−1
32	15,7−1
$_{13}Al(\tau)^{27}_{12}Mg$ 9,46 мин [14]	
16	37,9−4
17	63,8−3
18	18,0−2
19	37,0−2
20	67,4−2
21	12,1−1
22	21,0−1
23	35,6−1
24	58,2−1
25	89,9−1
26	13,2
27	18,1
28	24,8
29	32,3
30	41,0
31	51,0
32	62,0
33	74,8
34	88,8
35	10,4+1
36	11,8+1
38	14,5+1
$_{13}Al(\tau)^{28}_{13}Al$ 2,24 мин [14]	
6	15,3−2
7	26,3−1
8	76,1
9	19,0+1
10	47,6+1
11	11,1+2
12	19,3+2
13	29,8+2
14	43,5+2
15	57,8+2
16	72,0+2
17	86,5+2
18	10,2+3
19	11,7+3
20	13,0+3
22	15,6+3
24	18,0+3
26	20,1+3
28	22,1+3
32	25,9+3
36	29,7+3
40	33,8+3
$_{13}Al(\tau)^{27}_{14}Si$ 4,11 с [14]	
6	50,2−2
7	54,0−1
8	49,9
9	98,0
10	15,2+1
11	14,5+2
12	41,2+2
13	54,5+2
14	71,5+2
15	88,0+2
16	10,5+3
17	12,2+3
18	14,2+3
19	16,0+3
20	18,1+3
21	20,0+3
22	22,6+3
23	24,4+3
24	28,6+3
25	31,1+3
26	37,9+3
27	41,9+3
28	53,1+3
29	65,2+3
30	77,1+3
31	89,5+3
32	11,0+4
34	14,7+4
36	18,3+4
40	20,7+4
$_{14}Si(p)^{24}_{11}Na$ 15,03 ч [160]	
40	49,8−2
41	71,2−2
42	85,0−2
43	10,1−1
44	11,8−1
45	13,9−1
46	16,2−1
47	18,8−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
48	21,9−1
49	25,2−1
50	29,1−1
51	33,4−1
52	38,4−1
54	48,8−1
56	60,4−1
58	71,8−1
60	82,9−1
62	97,4−1
64	11,6
66	13,6
68	15,8
70	18,3
72	21,1
74	24,1
76	27,4
80	34,8
84	43,9
88	53,7
92	64,0
96	76,2
100	89,9
104	10,3+1
108	11,7+1
112	13,3+1
116	14,8+1
124	18,4+1
132	21,8+1
140	25,5+1
148	29,2+1
156	32,8+1
164	37,5+1
172	42,1+1
180	46,4+1
$_{14}Si(p)^{28}_{12}Mg$ 20,93 ч [160]	
40	29,0−3
41	35,0−3
42	38,4−3
43	43,8−3
44	50,6−3
45	57,5−3
46	65,4−3
47	74,5−3
48	83,6−3
49	94,1−3
50	10,5−2
52	12,2−2
54	14,2−2
56	16,3−2
58	18,4−2
60	20,2−2
64	24,5−2
68	29,0−2
72	34,6−2
76	39,7−2
80	45,3−2
84	51,3−2
92	63,6−2
100	78,5−2
108	93,8−2
116	11,4−1
124	13,1−1
132	15,0−1
140	17,5−1
148	19,7−1
164	26,2−1
180	31,9−1
$_{14}Si(p)^{25}_{13}Al$ 7,17 с [10]	
8	30,6−1
9	40,2+1
10	70,6+2
11	25,7+3
12	58,2+3
13	10,6+4
14	17,1+4
15	25,0+4
16	34,7+4
17	45,9+4
18	58,3+4
19	71,0+4
20	83,3+4
22	10,2+5
24	11,3+5
28	12,2+5
$_{14}Si(p)^{28}_{13}Al$ 2,24 мин [10]	
13	23,5−3
14	30,1−1
15	82,4−1
16	19,2
17	36,5
18	66,5
19	17,3+1
20	36,8+1
21	66,4+1
22	10,4+2
23	14,7+2
24	19,0+2
25	23,1+2
26	27,0+2
28	34,2+2
$_{14}Si(p)^{27}_{14}Si$ 4,11 с [10]	
17	94,1−1
18	31,4+1
19	93,2+3
20	23,7+4
21	37,5+4
22	50,8+4
23	64,4+4
24	79,9+4
25	98,2+4
26	12,0+5
27	14,4+5
28	17,0+5
$_{14}Si(d)^{29}_{13}Al$ 6,52 мин [10]	
6	10,8−3
7	33,4−1
8	87,6−1
9	14,7
10	21,0
11	27,5
12	33,9
14	43,1
16	46,5
18	47,8
$_{14}Si(d)^{29}_{15}P$ 4,09 с [10]	
2	11,3−1
3	24,5+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
4	67,2+3
5	23,6+4
6	40,9+4
7	58,2+4
8	75,0+4
9	90,7+4
10	10,5+5
12	12,8+5
14	15,2+5
16	18,3+5
18	23,0+5
20	30,1+5
22	40,4+5
$_{14}Si(\alpha)^{29}_{13}Al$ 6,52 мин [14]	
16	13,0–4
17	21,6–3
18	18,5–2
19	51,9–2
20	10,3–1
21	17,3–1
22	26,0–1
23	36,6–1
24	48,9–1
25	62,9–1
26	78,5–1
27	95,4–1
28	11,4
29	13,3
30	15,2
31	17,1
32	19,0
$_{14}Si(\alpha)^{30}_{15}P$ 2,5 мин [14]	
12	80,9–3
13	85,9–1
14	55,8
15	14,4+1
16	27,2+1
17	43,6+1
18	63,1+1
19	85,5+1
20	11,2+2
21	14,3+2
22	18,0+2
23	22,4+2
24	27,3+2
25	32,9+2
26	39,2+2
27	46,3+2
28	54,1+2
29	62,7+2
30	72,1+2
32	93,2+2
$_{14}Si(\tau)^{23}_{12}Mg$ 11,33 с [14]	
18	18,0–3
19	75,2–1
20	38,7
21	26,5+1
22	87,7+1
23	19,1+2
24	34,1+2
25	53,2+2
26	75,7+2
27	10,0+3
28	12,6+3
29	15,3+3
30	18,0+3
32	23,6+3
34	28,7+3
36	33,1+3
$_{14}Si(\tau)^{28}_{13}Al$ 2,24 мин [14]	
6	66,6–4
7	30,0–2
8	96,1–2
9	24,0–1
10	43,6–1
11	73,0–1
12	10,9
13	15,6
14	21,9
15	30,9
16	43,4
17	60,9
18	85,5
19	12,0+1
20	16,7+1
21	23,0+1
22	31,6+1
23	42,7+1
24	56,5+1
25	73,0+1
26	92,2+1
27	11,4+2
28	13,9+2
$_{14}Si(\tau)^{26}_{14}Si$ 2,21 с [14]	
14	76,4–2
15	16,2
16	12,6+1
17	37,4+1
18	81,7+1
19	15,1+2
20	25,0+2
21	38,0+2
22	54,5+2
23	74,7+2
24	98,5+2
25	12,6+3
26	15,8+3
27	19,3+3
28	23,0+3
30	30,8+3
32	38,6+3
34	45,7+3
36	52,0+3
37	53,3+3
38	58,5+3
$_{14}Si(\tau)^{29}_{15}P$ 4,08 с [14]	
4	32,4–1
5	25,0+1
6	12,3+2
7	74,0+2
8	19,8+3
9	34,5+3
10	51,3+3
11	72,0+3
12	96,3+3
13	12,0+4
14	15,5+4
15	18,5+4
16	22,6+4
17	26,2+4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
18	30,7+4
20	39,6+4
22	49,3+4
24	59,4+4
26	69,9+4
28	80,5+4
30	90,7+4
34	10,8+5
38	11,6+5
$_{14}Si(\tau)^{30}_{16}S$ 1,21 с [14]	
6	14,8–1
7	13,5+1
8	65,0+2
9	10,3+3
10	15,4+3
11	20,0+3
12	25,7+3
13	31,0+3
14	37,0+3
15	42,7+3
16	48,6+3
18	60,1+3
20	71,1+3
22	81,5+3
26	99,2+3
30	11,2+4
38	13,1+4
$_{15}P(p)^{24}_{11}Na$ 15,03 ч [160]	
50	60,8–2
51	78,2–2
52	10,1–1
53	12,7–1
54	16,0–1
55	20,2–1
56	24,6–1
57	29,8–1
58	35,8–1
59	43,0–1
60	51,4–1
61	58,3–1
62	66,8–1
63	76,3–1
64	87,0–1
65	98,3–1
66	11,2
68	13,9
70	17,3
72	20,4
74	24,2
76	28,5
78	33,4
80	38,9
82	44,8
84	51,3
86	57,8
88	65,4
90	72,4
92	80,3
94	88,6
96	97,0
100	11,8+1
104	13,9+1
108	16,2+1
112	18,8+1
116	21,6+1
124	27,2+1
132	33,5+1
140	39,7+1
148	46,7+1
156	53,2+1
164	58,9+1
172	67,4+1
180	75,1+1
$_{15}P(p)^{28}_{12}Mg$ 20,93 ч [160]	
50	14,7–3
51	25,9–3
52	35,2–3
53	42,6–3
54	47,9–3
55	53,6–3
56	62,8–3
57	68,6–3
58	81,4–3
59	92,4–3
60	10,4–2
62	13,3–2
64	17,4–2
66	21,1–2
68	31,8–2
70	42,2–2
72	52,9–2
74	66,2–2
76	76,2–2
78	91,0–2
80	10,3–1
84	13,5–1
88	16,8–1
92	20,6–1
96	24,6–1
104	33,9–1
112	44,5–1
120	54,6–1
128	64,9–1
136	75,0–1
144	85,1–1
152	95,1–1
160	10,5
$_{16}S(p)^{24}_{11}Na$ 15,03 ч [160]	
42	61,0–4
43	10,3–3
44	18,1–3
45	28,6–3
46	45,3–3
47	66,8–3
48	10,1–2
49	14,8–2
50	22,1–2
52	29,7–2
54	39,8–2
56	53,0–2
58	69,2–2
60	88,2–2
62	10,9–1
64	13,4–1
66	16,2–1
68	19,4–1
72	27,7–1
76	37,8–1
80	51,6–1
84	67,4–1
88	89,2–1
92	11,6
96	14,7
100	18,8
104	22,8
108	27,8

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
116	38,9
124	53,7
132	69,2
140	86,9
148	10,3+1
156	12,1+1
164	13,4+1
180	14,7+1
$_{16}S(p)\,^{28}_{12}Mg$ 20,93 ч [160]	
54	29,6−4
55	40,7−4
56	59,2−4
57	96,2−4
58	12,6−3
59	14,1−3
60	17,0−3
61	18,8−3
62	22,8−3
63	26,9−3
64	29,3−3
66	34,8−3
68	42,2−3
70	53,3−3
72	64,4−3
74	79,9−3
76	94,7−3
78	11,2−2
80	13,0−2
84	16,7−2
88	21,0−2
92	26,3−2
96	31,5−2
104	44,8−2
112	62,9−2
120	85,8−2
128	10,8−1
136	13,0−1
144	15,3−1
152	17,4−1
160	19,5−1
$_{15}P(\alpha)\,^{34m}_{17}Cl$ 32,06 мин [22]	
10	15,1
11	25,5
12	39,5
13	56,2
14	78,0
15	10,7+1
16	14,1+1
17	18,6+1
18	23,8+1
19	30,3+1
20	36,0+1
24	39,6+1
28	42,2+1
44	45,3+1
$_{16}S(p)\,^{34m}_{17}Cl$ 32,06 мин [22]	
7	25,1−1
8	39,8−1
9	60,2−1
10	11,0
11	16,9
12	28,1
13	40.8
14	53,3
16	68,2
18	78,0
20	86,3
22	92,7
$_{16}S(d)\,^{34m}_{17}Cl$ 32.06 мин [22]	
5	30,0−2
6	34,8−2
7	62,2−2
8	81,7−2
9	12,6−1
10	21,0−1
11	23,1−1
12	27,2−1
13	37,5−1
14	46,2−1
15	57,8−1
16	75,2−1
17	91,2−1
18	10,9
19	13,4
20	15,8
21	18,6
22	21,8
24	27,8
$_{16}S(\alpha)\,^{34m}_{17}Cl$ 32,06 мин [22]	
20	24,0
21	47,4
22	75,8
23	10,8+1
24	14,5+1
25	19,0+1
26	24,5+1
27	30,8+1
28	37,6+1
29	46,0+1
30	55,6+1
31	64,1+1
32	72,8+1
33	83,3+1
34	92,3+1
36	10,6+2
40	12,8+2
48	14,5+2
$_{16}S(\tau)\,^{34m}_{17}Cl$ 32,06 мин [22]	
4	29,0−1
5	58,1−1
6	95,7−1
7	14,5
8	21,0
9	22,9
10	37,2
11	48,6
12	59,2
13	71,0
14	81,1
16	98,6
20	11,9+1
24	13,1+1
32	14,2+1
$_{17}Cl(p)\,^{24}_{11}Na$ 15,03 ч [160]	
50	13,3−2
51	14,8−2
52	16,8−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
53	19,1−2
54	21,5−2
55	24,1−2
56	27,0−2
58	33,7−2
60	41,7−2
62	51,5−2
64	63,5−2
66	77,0−2
68	92,8−2
70	11,3−1
72	13,6−1
74	16,3−1
76	19,7−1
80	28,9−1
84	40,2−1
88	55,0−1
92	73,3−1
96	97,0−1
100	12,9
104	16,4
108	20.6
112	25,6
116	31,2
120	37,5
124	44,8
132	60,8
140	77,6
148	94,8
156	10,9+1
164	12,4+1
172	14,0+1
180	14,8+1
$_{17}Cl(p)\,^{28}_{12}Mg$ 20,93 ч [160]	
60	15,0−4
61	36,0−4
62	66,7−4
63	14,2−3
64	27,3−3
65	33,1−3
66	40,2−3
67	46,4−3
68	51,6−3
69	60,1−3
70	72,2−3
71	80,7−3
72	88,9−3
74	11,7−2
76	14,1−2
78	17,4−2
80	22,9−2
82	28,2−2
84	33,7−2
88	45,5−2
92	57,4−2
96	75,5−2
100	93,2−2
104	11,7−1
108	13,5−1
116	18,7−1
124	24,8−1
132	31,3−1
140	39,3−1
148	47,2−1
156	54,1−1
164	62,8−1
172	70,6−1
180	78,4−1
$_{17}Cl(p)\,^{34m}_{17}Cl$ 32,06 мин [22]	
14	21,0
15	11,2+1
16	21,4+1
17	41,0+1
18	67,5+1
19	10,2+2
20	15,4+2
21	22,2+2
22	30,6+2
23	38,6+2
$_{17}Cl(d)\,^{38}_{17}Cl$ 37,18 мин [22]	
2	80,5−1
3	54,8
4	15,0+1
5	24,7+1
6	36,0+1
7	42,2+1
8	57,2+1
9	67,8+1
10	77,2+1
12	96,0+1
14	11,5+2
16	13,1+2
18	14,8+2
20	16,3+2
22	17,7+2
23	18,3+2
$_{17}Cl(\alpha)\,^{34m}_{17}Cl$ 32.06 мин [22]	
22	30.0−1
23	62,4−1
24	13,5
25	20.0
26	28,0
27	39,2
28	53,8
29	75,3
30	10.1+1
31	12,7+1
32	15.0+1
33	17,8+1
34	21.0+1
35	24,3+1
36	28,2+1
38	35,2+1
40	41,0+1
42	46,8+1
44	54,1+1
48	67,4+1
$_{17}Cl(\tau)\,^{34m}_{17}Cl$ 32,06 мин [22]	
8	50.0−2
9	40,2−1
10	75,7−1
11	10,4
12	12,9
13	16,4
14	19,6
15	21,6
16	25,0
18	30,2
20	36
24	44,5

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
28	52,4
32	58,2
$_{17}Cl(\tau)^{38}_{17}Cl$ 37,18 мин [22]	
11	30,0–2
12	20,0–1
13	38,2–1
14	71,7–1
15	10,5
16	15,0
17	20,2
18	25,6
19	31,0
20	37,5
21	44,8
22	52,5
23	60,1
24	67,5
25	75,0
26	83,7
28	10,3+1
30	13,2+1
32	16,2+1
$_{18}Ar(p)^{24}_{11}Na$ 15,03 ч [160]	
60	45,0–3
61	53,6–3
62	63,0–3
63	79,1–3
64	84,4–3
65	97,0–3
66	11,1–2
67	12,6–2
68	14,1–2
69	15,9–2
70	18,0–2
72	22,0–2
74	26,9–2
76	32,7–2
78	39,2–2
80	47,9–2
82	56,6–2
84	66,8–2
86	78,8–2
88	92,7–2
90	10,9–1
92	12,6–1
94	14,4–1
96	16,5–1
100	21,2–1
104	26,5–1
108	33,2–1
112	41,5–1
116	50,9–1
120	61,2–1
124	71,9–1
128	85,6–1
132	10,3
140	14,0
148	18,6
156	23,8
164	29,9
172	37,7
180	43,2
$_{18}Ar(p)^{28}_{12}Mg$ 20,93 ч [160]	
40	10,7–3
42	14,3–3
44	19,2–3
46	24,8–3
48	31,1–3
50	38,7–3
52	43,0–3
54	53,3–3
56	62,3–3
58	72,2–3
60	84,7–3
64	10,9–2
68	13,9–2
72	17,7–2
76	22,3–2
80	28,0–2
84	34,3–2
88	41,6–2
92	49,7–2
96	60,3–2
100	72,9–2
104	85,8–2
108	10,2–1
112	12,2–1
116	14,3–1
120	16,8–1
124	19,4–1
132	26,3–1
140	34,1–1
148	44,0–1
156	54,5–1
164	67,9–1
172	80,8–1
180	96,4–1
$_{18}Ar(p)^{38}_{16}S$ 2,87 ч [163]	
30	46,6–5
31	11,4–4
32	21,1–4
33	61,2–4
34	15,3–3
35	31,0–3
36	53,5–3
37	85,2–3
38	12,7–2
39	18,2–2
40	25,6–2
41	34,4–2
42	45,5–2
43	58,9–2
44	75,0–2
45	93,0–2
46	11,4–1
47	13,8–1
48	16,3–1
49	19,0–1
50	21,6–1
$_{18}Ar(\alpha)^{42}_{19}K$ 12,36 ч [23]	
18	23,7–2
19	66,6–2
20	13,6–1
21	28,6–1
22	47,4–1
23	70,7–1
24	96,2–1
25	12,4
26	15,9
27	19,8
28	23,7
30	31,7
32	39,2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{18}Ar(\alpha)^{43}_{19}K$ 22,6 ч [23]	
9	81,4–3
10	15,5–2
11	30,3–2
12	46,2–2
13	67,7–2
14	90,6–2
15	12,4–1
16	15,9–1
17	19,8–1
18	26,4–1
19	31,4–1
20	37,0–1
22	47,8–1
24	57,4–1
28	67,2–1
36	73,3–1
44	75,0–1
$_{20}Ca(p)^{38}_{19}K$ 7,71 мин [24]	
18	88,9
19	28,7+1
20	56,2+1
21	93,3+1
22	14,2+2
23	20,3+2
24	27,6+2
25	36,3+2
26	46,4+2
27	57,6+2
28	70,3+2
29	84,5+2
30	10,0+3
31	11,8+3
32	13,8+3
33	15,9+3
34	18,2+3
36	23,5+3
38	29,6+3
40	36,5+3
$_{19}K(p)^{24}_{11}Na$ 15,03 ч [160]	
30	90,0–4
31	12,3–3
32	14,2–3
33	16,8–3
34	20,1–3
35	23,8–3
36	28,2–3
37	33,4–3
38	38,6–3
39	45,2–3
40	53,0–3
41	60,0–3
42	68,1–3
43	76,6–3
44	86,0–3
45	95,0–3
46	10,6–2
48	13,0–2
50	15,4–2
52	18,4–2
54	22,1–2
56	26,6–2
58	32,1–2
60	38,5–2
64	52,8–2
68	68,8–2
72	89,8–2
76	11,6–1
80	14,7–1
84	18,3–1
88	23,0–1
92	27,9–1
96	33,8–1
100	41,7–1
104	49,3–1
108	58,8–1
112	70,0–1
116	82,4–1
124	11,1
132	14,4
140	18,8
148	23,9
156	30,0
164	37,1
172	45,2
180	54,9
$_{19}K(p)^{28}_{12}Mg$ 20,93 ч [160]	
70	14,7–5
71	23,8–5
72	38,3–5
73	51,3–5
74	73,2–5
75	10,4–4
76	17,3–4
77	29,6–4
78	47,5–4
80	60,8–4
82	78,7–4
84	12,6–3
86	14,9–3
88	17,8–3
90	21,5–3
92	27,4–3
96	40,0–3
100	57,1–3
104	78,4–3
108	10,7–2
112	13,9–2
116	18,2–2
120	23,3–2
124	29,3–2
128	36,0–2
132	44,2–2
140	63,6–2
148	82,0–2
156	10,0–1
164	12,0–1
172	13,4–1
180	15,0–1
$_{20}Ca(p)^{42}_{19}K$ 12,36 ч [161]	
16	45,0–6
17	18,0–5
18	10,8–4
19	33,2–4
20	47,2–4
21	84,4–4
22	11,0–3
23	13,5–3
24	15,6–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{20}Ca(p)^{43}_{19}K$ 22,6 ч [161]	
14	62,0–6
15	19,0–5
16	41,8–5
17	74,1–5
18	12,8–4
19	25,6–4
20	73,2–4
21	16,3–3
22	25,4–3
23	34,3–3
24	43,2–3
$_{20}Ca(d)^{42}_{19}K$ 12,36 ч [161]	
4	12,6–4
5	39,0–4
6	10,8–3
7	21,8–3
8	37,2–3
9	57,6–3
10	83,2–3
11	11,5–2
12	15,1–2
13	19,3–2
14	23,0–2
16	27,5–2
18	31,3–2
20	36,7–2
22	46,3–2
24	64,4–2
$_{20}Ca(d)^{43}_{19}K$ 22,6 ч [161]	
10	80,0–6
11	37,2–5
12	57,4–5
13	10,6–4
14	16,6–4
15	22,3–4
16	31,8–4
17	42,2–4
18	58,2–4
19	93,8–4
20	17,9–3
21	29,2–3
22	40,4–3
23	51,3–3
24	62,1–3
$_{21}Sc(p)^{42}_{19}K$ 12,36 ч [25]	
34	84,5–3
35	12,3–2
36	18,0–2
37	25,5–2
38	36,0–2
39	48,8–2
40	66,3–2
41	89,0–2
42	12,5–1
43	18,4–1
44	26,2–1
45	37,6–1
46	52,8–1
47	71,0–1
48	95,9–1
49	12,6
50	16,1
51	20,1
52	25,7
53	31,8
54	38,6
55	45,7
56	53,5
57	62,6
58	69,4
60	87,9
62	10,6+1
64	12,7+1
66	14,8+1
68	16,9+1
70	19,0+1
74	23,2+1
78	26,9+1
86	32,4+1
$_{21}Sc(p)^{43}_{19}K$ 22,6 ч [25]	
24	35,6–3
25	51,0–3
26	74,8–3
27	10,7–2
28	15,5–2
29	20,8–2
30	28,2–2
31	38,2–2
32	50,9–2
33	65,4–2
34	83,0–2
35	10,4–1
36	12,8–1
37	15,6–1
38	18,5–1
39	21,8–1
40	25,4–1
41	29,4–1
42	33,7–1
44	43,5–1
46	54,8–1
48	67,5–1
50	82,0–1
52	97,8–1
54	11,4
56	13,3
58	15,0
60	17,2
64	21,3
72	29,4
80	35,9
88	40,4
$_{21}Sc(p)^{44m}_{21}Sc$ 2,44 сут [25]	
20	25,6
21	32,8
22	48,6
23	67,2
24	88,5
25	10,7+1
26	12,6+1
28	16,2+1
30	19,2+1
32	21,4+1
36	25,1+1
44	31,1+1
60	40,6+1
76	49,0+1
92	57,1+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{21}Sc(p)^{44}_{21}Sc$ 3,92 ч [25]	
18	29,2+1
19	44,5+1
20	70,1+1
21	10,1+2
22	14,2+2
23	19,2+2
24	24,9+2
25	30,0+2
26	35,8+2
28	46,1+2
30	55,4+2
32	61,8+2
36	71,7+2
44	87,5+2
52	10,2+3
68	12,9+3
84	15,6+3
$_{21}Sc(p)^{44}_{22}Ti$ 47,3 года [25, 26]	
14	28,7–6
15	77,7–6
16	15,4–5
17	25,7–5
18	40,2–5
19	60,6–5
20	85,7–5
21	11,3–4
22	14,6–4
23	17,2–4
24	22,6–4
25	27,0–4
26	34,6–4
27	41,0–4
28	50,2–4
29	58,4–4
30	68,3–4
31	77,7–4
32	87,6–4
34	10,7–3
36	12,6–3
38	14,4–3
40	16,3–3
44	19,7–3
48	22,8–3
56	27,6–3
72	34,5–3
88	41,1–3
$_{21}Sc(p)^{45}_{22}Ti$ 3,09 ч [25]	
4	47,4
5	99,0
6	19,5+1
7	36,3+1
8	63,8+1
9	92,3+1
10	13,0+2
11	17,2+2
12	21,1+2
13	24,9+2
14	28,1+2
18	34,1+2
22	37,7+2
26	40,1+2
34	43,3+2
50	47,1+2
66	50,3+2
98	56,4+2
$_{21}Sc(d)^{44}_{22}Ti$ 47,3 года [26]	
17	25,0–6
18	63,8–6
19	12,6–5
20	22,6–5
21	34,5–5
22	54,0–5
23	78,1–5
24	10,6–4
$_{21}Sc(\alpha)^{44m}_{21}Sc$ 2,44 сут [27]	
22	39,8–3
23	11,5–2
24	22,5–2
25	37,6–2
26	58,3–2
27	97,7–2
28	11,3–1
29	14,0–1
30	18,8–1
31	22,7–1
32	28,3–1
33	33,5–1
34	38,9–1
36	49,5–1
38	59,4–1
40	68,3–1
42	76,0–1
44	82,5–1
$_{21}Sc(\alpha)^{44}_{21}Sc$ 3,92 ч [27]	
20	79,1–3
21	19,3–2
22	41,9–2
23	12,3–1
24	24,1–1
25	41,0–1
26	60,7–1
27	85,5–1
28	11,6
29	14,6
30	19,1
31	23,2
32	28,1
33	32,8
34	37,5
36	46,4
38	54,3
40	61,0
44	70,3
$_{21}Sc(\alpha)^{46}_{21}Sc$ 83,8 сут [27]	
24	18,5–5
25	32,2–5
26	55,5–5
27	84,1–5
28	12,6–4
29	20,0–4
30	32,6–4
31	52,0–4
32	80,3–4
33	11,8–3
34	17,4–3
35	22,0–3
36	31,6–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
37	39,0−3
38	51,2−3
39	61,3−3
40	75,4−3
41	88,0−3
42	10,3−2
44	13,5−2
$_{21}Sc(\alpha)^{47}_{21}Sc$ 3,40 сут [27]	
12	88,8−5
13	22,4−4
14	43,7−4
15	77,5−4
16	12,7−3
17	20,0−3
18	28,2−3
19	39,3−3
20	52,5−3
21	69,2−3
22	91,7−3
23	11,8−2
24	15,3−2
25	18,3−2
26	24,7−2
27	29,5−2
28	37,7−2
29	44,8−2
30	54,6−2
31	63,5−2
32	74,3−2
33	85,0−2
34	94,8−2
36	11,4−1
40	14,4−1
44	16,2−1
$_{21}Sc(\alpha)^{47}_{23}V$ 32,6 мин [27]	
14	13,1−1
15	40,2−1
16	90,4−1
17	19,6
18	38,3
19	63,0
20	93,7
21	12,2+1
22	17,8+1
23	22,3+1
24	29,5+1
25	36,0+1
26	43,5+1
27	50,9+1
28	58,1+1
29	65,6+1
30	71,8+1
32	83,9+1
33	90,0+1
36	10,2+2
44	12,0+2
$_{21}Sc(\alpha)^{48}_{23}V$ 15,98 сут [27]	
6	48,1−5
7	23,4−4
8	77,8−4
9	18,7−3
10	37,5−3
11	73,4−3
12	13,2−2
13	23,5−2
14	36,8−2
15	55,8−2
16	78,6−2
17	10,1−1
18	12,0−1
19	13,3−1
20	14,1−1
22	15,3−1
24	15,9−1
28	16,4−1
36	17,5−1
44	17,7−1
$_{22}Ti(p)^{43}_{19}K$ 22.6 ч [28]	
38	24,0−4
39	20,0−3
40	77,8−3
41	15,2−2
42	22,6−2
43	29,1−2
44	49,6−2
45	65,0−2
46	92,3−2
47	11,5−1
48	14,4−1
49	16,9−1
50	19,6−1
$_{22}Ti(p)^{43}_{21}Sc$ 3,89 ч [28]	
10	51,6−3
11	35,0−2
12	15,3−1
13	28,7−1
14	46,9−1
15	69,7−1
16	93,1−1
17	12,6
18	15,9
19	19,2
20	22,2
21	25,2
22	27,9
23	30,6
24	33,9
25	37,0
26	40,8
27	44,5
28	48,3
29	52,2
30	55,8
31	58,9
32	62,4
33	65,8
34	69,9
35	73,1
36	83,2
37	94,0
38	10,6+1
39	11,8+1
40	13,8+1
41	15,6+1
42	18,0+1
44	22,7+1
46	27,8+1
48	33,2+1
50	38,8+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{22}Ti(p)^{44m}_{21}Sc$ 2,44 сут [28]	
10	33,3−5
11	18,0−4
12	81,8−4
13	18,6−3
14	34,7−3
15	55,3−3
16	83,4−3
17	13,4−2
18	20,1−2
19	26,7−2
20	34,5−2
21	42,8−2
22	52,4−2
23	70,2−2
24	10,9−1
25	13,8−1
26	22,3−1
27	28,2−1
28	39,3−1
29	48,3−1
30	61,4−1
31	73,0−1
32	87,8−1
34	11,7
36	14,7
38	17,6
42	23,0
46	28,1
50	33,1
$_{22}Ti(p)^{44}_{21}Sc$ 3,92 ч [28]	
10	10,2−2
11	65,0−2
12	18,6−1
13	35,4−1
14	55,6−1
15	76,8−1
16	99,3−1
17	13,0
18	16,3
19	19,2
20	22,8
21	26,0
22	31,2
23	43,6
24	56,3
25	70,0
26	11,6+1
27	15,0+1
28	20,8+1
29	25,6+1
30	32,4+1
31	38,5+1
32	45,3+1
34	58,3+1
36	70,2+1
38	80,8+1
42	98,9+1
50	12,5+2
$_{22}Ti(p)^{46}_{21}Sc$ 83,8 сут [28]	
10	48,1−5
11	16,3−4
12	27,8−4
13	37,7−4
14	47,0−4
15	58,0−4
16	75,5−4
17	10,4−3
18	15,3−3
19	20,8−3
20	28,2−3
21	37,3−3
22	47,2−3
23	58,1−3
24	72,2−3
25	90,2−3
26	10,5−2
27	12,5−2
28	14,6−2
29	17,2−2
30	19,7−2
31	23,4−2
32	27,1−2
33	33,0−2
34	38,8−2
35	47,5−2
36	56,4−2
37	68,8−2
38	81,2−2
39	96,5−2
40	11,2−1
41	13,0−1
42	14,9−1
44	18,8−1
46	23,0−1
48	27,4−1
50	31,8−1
$_{22}Ti(p)^{47}_{21}Sc$ 3,40 сут [28]	
10	24,4−4
11	10,1−3
12	22,2−3
13	38,4−3
14	57,0−3
15	74,6−3
16	95,6−3
17	14,1−2
18	20,6−2
19	32,4−2
20	49,2−2
21	74,3−2
22	10,7−1
23	14,9−1
24	20,1−1
25	26,2−1
26	33,6−1
27	42,3−1
28	51,3−1
29	62,5−1
30	73,8−1
31	87,0−1
32	10,0
34	12,9
36	15,6
38	18,3
40	21,0
42	23,7
46	29,3
50	34,8
$_{22}Ti(p)^{48}_{21}Sc$ 43,8 ч [28]	
18	14,4−4
19	42,0−4
20	91,4−4
21	17,4−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
22	28,2−3
23	44,6−3
24	63,6−3
25	90,8−3
26	12,4−2
27	16,7−2
28	21,6−2
29	27,3−2
30	33,9−2
31	41,4−2
32	48,8−2
33	57,5−2
34	66,5−2
35	76,0−2
36	86,4−2
38	11,1−1
40	14,1−1
42	17,6−1
44	21,6−1
46	26,0−1
48	30,7−1
50	35,2−1
$^{}_{22}Ti(p)^{48}_{23}V$ 15,98 сут [28]	
8	32,8−2
9	81,7−2
10	17,1−1
11	30,7−1
12	49,4−1
13	72,5−1
14	10,0
15	13,3
16	16,0
18	19,4
20	21,6
24	24,3
32	28,1
48	33,8
$^{46}_{22}Ti(d)^{44m}_{21}Sc$ 2,44 сут [27]	
4	74,0−6
5	64,0−5
6	22,9−4
7	59,0−4
8	12,1−3
9	22,5−3
10	36,2−3
11	53,4−3
12	77,9−3
13	10,4−2
14	13,6−2
15	16,7−2
16	19,6−2
18	24,8−2
20	28,4−2
22	30,2−2
24	31,2−2
$^{46}_{22}Ti(d)^{44}_{21}Sc$ 3,92 ч [27]	
2	36,3−4
3	24,3−3
4	76,5−3
5	20,3−2
6	47,2−2
7	94,2−2
8	17,0−1
9	28,6−1
10	44,0−1
11	60,7−1
12	77,8−1
13	90,6−1
14	10,4
16	12,5
20	15,0
24	16,7
$^{46}_{22}Ti(d)^{46}_{21}Sc$ 83,8 сут [27]	
4	11,8−6
5	45,8−6
6	10,8−5
7	22,8−5
8	42,6−5
9	72,9−5
10	12,2−4
11	18,8−4
12	29,5−4
13	46,5−4
14	68,9−4
15	10,0−3
16	13,8−3
17	18,7−3
18	24,2−3
19	30,9−3
20	38,4−3
21	46,8−3
22	57,0−3
23	67,6−3
24	78,4−3
$^{46}_{22}Ti(d)^{47}_{23}V$ 32,6 мин [27]	
2	16,7−1
3	54,1−1
4	14,6
5	32,6
6	63,4
7	10,2+1
8	15,2+1
9	21,0+1
10	24,6+1
12	32,7+1
14	39,5+1
16	44,9+1
20	53,3+1
24	59,9+1
$^{47}_{22}Ti(d)^{44m}_{21}Sc$ 2,44 сут [27]	
12	23,7−4
13	92,9−4
14	22,6−3
15	48,6−3
16	80,9−3
17	12,9−2
18	18,4−2
19	25,1−2
20	32,8−2
21	41,3−2
22	50,0−2
23	60,0−2
24	69,2−2
$^{47}_{22}Ti(d)^{44}_{21}Sc$ 3,92 ч [27]	
6	20,0−4
7	84,8−4
8	21,1−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
9	43,7−3
10	78,7−3
11	16,7−2
12	31,3−2
13	59,0−2
14	10,3−1
15	16,7−1
16	25,5−1
17	36,4−1
18	50,1−1
19	66,4−1
20	85,6−1
21	10,7
22	13,2
23	15,8
24	19,0
$^{47}_{22}Ti(d)^{47}_{21}Sc$ 3,40 сут [27]	
3	25,9−5
4	55,5−5
5	97,4−5
6	16,3−4
7	23,6−4
8	34,4−4
9	57,8−4
10	10,0−3
11	19,3−3
12	35,4−3
13	57,2−3
14	88,3−3
15	12,6−2
16	17,4−2
17	23,2−2
18	29,4−2
19	36,4−2
20	44,6−2
21	53,2−2
22	62,3−2
24	84,4−2
$^{47}_{22}Ti(d)^{47}_{23}V$ 32,6 мин [27]	
7	20,4−1
8	98,4−1
9	25,2
10	49,8
11	85,0
12	13,9+1
13	20,2+1
14	28,8+1
15	38,2+1
16	48,5+1
17	59,0+1
18	68,3+1
20	84,3+1
22	95,6+1
24	10,4+2
$^{47}_{22}Ti(d)^{48}_{23}V$ 15,98 сут [27]	
2	34,0−5
3	44,4−4
4	14,2−3
5	28,9−3
6	53,2−3
7	87,3−3
8	12,6−2
9	17,0−2
10	21,1−2
11	24,5−2
12	27,6−2
14	32,3−2
16	36,4−2
20	43,5−2
24	49,0−2
$^{46}_{22}Ti(d)^{46}_{21}Sc$ 83,8 сут [27]	
2	11,1−5
3	63,0−5
4	24,8−4
5	59,0−4
6	11,0−3
7	18,3−3
8	28,3−3
9	41,8−3
10	56,6−3
11	76,0−3
12	97,6−3
13	12,1−2
14	14,3−2
16	17,4−2
20	20,4−2
24	22,0−2
$^{48}_{22}Ti(d)^{48}_{23}V$ 15,98 сут [27]	
8	78,1−4
9	85,0−3
10	21,5−2
11	54,3−1
12	10,9−1
13	17,8−1
14	26,9−1
15	37,0−1
16	48,1−1
17	60,2−1
18	72,2−1
19	84,0−1
20	96,2−1
22	11,6
24	13,0
$^{49}_{22}Ti(d)^{46}_{21}Sc$ 83,8 сут [27]	
6	44,4−7
7	10,2−6
8	21,1−6
9	50,0−5
10	13,2−5
11	25,7−5
12	46,7−5
13	78,8−5
14	12,4−4
15	18,8−4
16	27,1−4
17	37,9−4
18	51,3−4
19	65,7−4
20	81,5−4
22	10,8−3
24	12,6−3
$^{49}_{22}Ti(d)^{47}_{21}Sc$ 3,40 сут [27]	
2	48,1−6
3	18,5−5
4	45,5−5
5	19,1−4
6	47,5−4
7	12,6−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
8	26,7–3
9	54,2–3
10	93,3–3
11	13,4–2
12	17,4–2
13	21,1–2
14	24,6–2
16	30,4–2
20	38,4–2
24	43,8–2
$^{50}_{22}Ti(d)^{47}_{21}Sc$ 3,40 сут [27]	
6	33,3–5
7	82,8–5
8	16,6–4
9	29,2–4
10	47,7–4
11	76,1–4
12	11,2–3
13	20,7–3
14	37,8–3
15	75,0–3
16	13,0–2
17	20,1–2
18	28,4–2
19	37,3–2
20	46,0–2
22	62,9–2
24	79,9–2
$_{22}Ti(\alpha)^{48}_{23}V$(к.) 15,98 сут [29]	
14	59,2–4
15	88,5–4
16	12,6–3
17	17,0–3
18	22,2–3
19	28,6–3
20	36,3–3
21	46,0–3
22	57,7–3
23	71,0–3
24	84,4–3
25	10,0–2
26	11,6–2
27	13,2–2
28	15,2–2
29	17,5–2
30	19,7–2
32	24,0–2
34	28,6–2
36	33,6–2
40	44,0–2
44	53,9–2
$_{22}Ti(\alpha)^{48}_{24}Cr$ 21,56 ч [30]	
24	29,6–3
25	45,4–3
26	66,6–3
27	90,7–3
28	11,8–2
29	14,9–2
30	17,8–2
32	20,4–2
34	24,6–2
36	29,3–2
38	34,3–2
40	39,2–2
44	49,6–2
48	61,0–2
52	73,6–2
56	84,4–2
60	98,4–2
64	11,6–1
72	14,9–1
80	18,4–1
96	23,4–1
112	26,4–1
114	30,0–1
176	32,0–1
$_{22}Ti(\alpha)^{51}_{24}Cr$ 27,7 сут [30]	
10	64,8–3
11	11,8–2
12	18,5–2
13	25,7–2
14	33,9–2
15	41,1–2
16	48,7–2
17	57,2–2
18	66,8–2
19	75,0–2
20	81,8–2
22	91,8–2
24	99,0–2
28	11,3–1
32	12,0–1
36	12,8–1
40	13,5–1
44	14,0–1
48	14,5–1
64	15,2–1
128	16,0–1
192	16,3–1
$_{22}Ti(\tau)^{44m}_{21}Sc$ 2,44 сут [30]	
6	20,4–5
7	46,6–5
8	88,8–5
9	15,0–4
10	21,6–4
11	29,2–4
12	34,8–4
13	44,8–4
14	51,1–4
15	85,0–4
16	13,0–3
17	19,2–3
18	25,9–3
19	33,6–3
20	42,5–3
21	53,4–3
22	66,0–3
23	81,8–3
24	10,0–2
25	11,8–2
26	13,7–2
27	15,7–2
28	18,0–2
29	20,5–2
30	23,3–2
32	29,6–2
34	39,8–2
36	50,3–2
38	59,7–2
40	70,3–2
42	89,3–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
43	10,3–1
44	11,8–1
45	13,9–1
46	16,4–1
47	19,4–1
48	22,6–1
50	28,8–1
52	36,3–1
54	43,6–1
56	51,8–1
58	58,9–1
60	66,6–1
62	73,2–1
64	79,2–1
66	85,8–1
68	92,0–1
72	10,7
76	12,3
80	14,0
84	15,4
88	17,0
96	20,3
104	24,0
112	27,6
128	35,1
144	43,9
160	49,8
$_{22}Ti(\tau)^{46}_{21}Sc$ 83,8 сут [30]	
12	59,2–5
13	56,5–5
14	81,4–5
15	13,3–4
16	19,2–4
17	26,0–4
18	34,0–4
19	42,0–4
20	51,8–4
21	69,0–4
22	89,2–4
23	11,4–3
24	14,4–3
25	17,4–3
26	20,8–3
27	24,6–3
28	28,4–3
30	36,3–3
32	44,0–3
34	51,8–3
36	60,2–3
38	69,2–3
40	78,0–3
42	88,6–3
44	98,0–3
48	11,8–2
52	13,5–2
56	16,8–2
60	20,4–2
64	25,0–2
68	29,2–2
72	34,4–2
76	38,8–2
80	44,0–2
84	50,0–2
88	56,7–2
92	64,3–2
96	73,3–2
104	88,2–2
112	10,4–1
120	11,9–1
128	13,7–1
136	15,6–1
144	17,7–1
152	19,6–1
160	21,7–1
$_{22}Ti(\tau)^{47}_{21}Sc$ 3,40 сут [30]	
8	33,3–4
9	39,6–4
10	48,1–4
11	67,0–4
12	88,8–4
13	11,0–3
14	13,7–3
15	16,6–3
16	20,0–3
17	24,1–3
18	28,8–3
19	33,9–3
20	39,5–3
22	50,7–3
24	63,6–3
26	78,5–3
28	95,1–3
30	11,6–2
32	13,9–2
34	16,6–2
36	20,0–2
38	24,1–2
40	30,3–2
42	38,4–2
44	47,4–2
46	58,8–2
48	72,5–2
50	85,7–2
52	99,9–2
56	13,0–1
60	16,6–1
64	20,5–1
68	24,4–1
72	29,5–1
80	40,3–1
88	52,3–1
104	79,8–1
112	96,3–1
120	11,6
128	13,6
144	17,5
160	21,4
$_{22}Ti(\tau)^{48}_{21}Sc$ 43,8 ч [30]	
8	61,4–4
9	69,3–4
10	78,0–4
11	87,3–4
12	98,0–4
13	10,8–3
14	11,7–3
15	12,9–3
16	14,3–3
17	15,8–3
18	17,7–3
19	19,8–3
20	22,2–3
22	28,3–3
24	37,0–3
26	47,7–3
28	61,4–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
30	72,9–3
32	88,8–3
34	11,0–2
36	13,7–2
38	16,4–2
40	20,0–2
42	23,2–2
44	28,1–2
48	37,7–2
52	47,0–2
56	57,7–2
60	70,0–2
64	82,5–2
68	97,2–2
76	12,6–1
84	15,3–1
92	18,3–1
100	22,9–1
108	27,2–1
116	32,2–1
132	44,4–1
148	54,3–1
164	65,5–1
$_{22}Ti(\tau)^{48}_{23}V$ 15,98 сут [30]	
10	77,7–4
11	15,2–3
12	26,6–3
13	40,3–3
14	55,1–3
15	66,8–3
16	73,6–3
17	89,7–3
18	11,1–2
19	14,1–2
20	18,5–2
21	26,3–2
22	37,0–2
23	46,2–2
24	57,7–2
25	69,6–2
26	83,6–2
28	10,8–1
30	13,6–1
32	17,4–1
34	21,8–1
36	26,5–1
38	31,9–1
40	37,0–1
44	45,4–1
48	53,0–1
56	65,6–1
64	76,1–1
72	84,9–1
80	92,9–1
96	10,7
128	12,3
160	13,9
$_{22}Ti(\tau)^{48}_{24}Cr$ 21,56 ч [30]	
10	16,6–3
11	23,2–3
12	31,8–3
13	42,7–3
14	55,5–3
15	72,9–3
16	90,6–3
17	11,2–2
18	13,4–2
20	17,0–2
21	19,6–2
22	22,8–2
23	25,0–2
24	30,7–2
26	40,7–2
28	52,4–2
30	67,5–2
32	85,1–2
34	10,9–1
36	12,9–1
40	17,0–1
44	20,1–1
52	24,1–1
68	29,1–1
100	33,9–1
132	36,2–1
164	37,7–1
$_{22}Ti(\tau)^{31}_{24}Cr$ 27,7 сут [30]	
6	42,2–3
7	52,6–3
8	63,5–3
9	77,0–3
10	92,5–3
11	11,3–2
12	13,6–2
13	16,2–2
14	19,3–2
15	22,8–2
16	26,6–2
17	31,0–2
18	35,9–2
20	46,0–2
22	55,4–2
24	62,5–2
32	76,1–2
40	84,3–2
48	91,2–2
64	10,0–1
96	11,4–1
160	12,2–1
$_{23}V(p)^{34m}_{17}Cl$ 32,06 мин [31]	
46	56,9–5
47	80,8–5
48	11,7–3
49	19,8–3
50	35,3–3
51	51,7–3
52	70,2–3
53	94,8–3
54	11,8–2
55	14,5–2
56	17,6–2
57	21,0–2
58	24,5–2
60	32,4–2
62	41,3–2
64	50,9–2
66	60,0–2
68	72,5–2
70	83,2–2
72	97,7–2
76	12,6–1
80	15,9–1
84	19,9–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{23}V(p)^{38}_{17}Cl$ 37,18 мин [31]	
36	40,8–5
37	16,1–4
38	31,9–4
39	73,0–4
40	11,6–3
41	16,0–3
42	24,6–3
43	31,3–3
44	41,7–3
45	50,0–3
46	62,3–3
47	73,0–3
48	87,6–3
50	11,7–2
52	15,0–2
54	18,8–2
56	22,9–2
58	27,2–2
60	31,8–2
62	36,7–2
66	46,9–2
70	57,5–2
74	69,6–2
76	77,0–2
78	86,0–2
80	98,1–2
82	12,6–1
84	18,6–1
$_{23}V(p)^{39}_{17}Cl$ 56,2 мин [31]	
56	37,6–5
57	12,0–4
58	26,9–4
59	55,0–4
60	98,2–4
61	16,6–3
62	24,4–3
63	32,0–3
64	47,7–3
65	63,0–3
66	79,2–3
67	10,0–2
68	12,0–2
69	14,4–2
70	17,0–2
71	19,7–2
72	23,1–2
73	26,4–2
74	30,3–2
76	38,9–2
78	49,1–2
80	61,6–2
82	78,2–2
84	10,9–1
$_{23}V(p)^{42}_{19}K$ 12,36 ч [31]	
48	25,4–4
49	90,0–4
50	26,4–3
51	63,0–3
52	12,3–2
53	21,2–2
54	33,4–2
55	48,4–2
56	65,6–2
57	86,0–2
58	10,7–1
59	12,5–1
60	15,4–1
61	17,3–1
62	20,3–1
64	25,1–1
66	29,8–1
68	34,6–1
70	39,3–1
72	44,0–1
76	53,2–1
80	62,1–1
84	72,7–1
$_{23}V(p)^{43}_{19}K$ 22,6 ч [31]	
46	13,4–4
47	66,0–4
48	21,0–3
49	48,6–3
50	92,5–3
51	15,4–2
52	23,1–2
53	32,5–2
54	43,7–2
55	56,5–2
56	71,5–2
57	88,8–2
58	10,7–1
59	12,4–1
60	14,9–1
61	17,2–1
62	19,8–1
64	24,9–1
66	30,1–1
68	35,4–1
70	40,8–1
72	46,2–1
76	57,1–1
80	68,1–1
84	81,2–1
$_{23}V(p)^{47}_{20}Ca$ 4,55 сут [31]	
40	25,0–6
41	62,0–6
42	12,9–5
43	29,5–5
44	56,0–5
45	93,4–5
46	14,5–4
47	21,3–4
48	30,6–4
49	42,6–4
50	54,3–4
51	70,2–4
52	87,8–4
53	10,8–3
54	13,3–3
55	15,9–3
56	19,1–3
57	22,2–3
58	26,3–3
59	28,0–3
60	35,0–3
62	45,4–3
64	57,7–3
66	71,8–3
68	87,9–3
70	10,6–2
72	12,6–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
74	14,8–2
76	17,3–2
80	22,9–2
84	29,2–2
$_{23}V(p)^{43}_{21}Sc$ 3,89 ч [31]	
24	95,9–4
25	18,7–3
26	33,2–3
27	55,4–3
28	86,6–3
29	12,4–2
30	17,5–2
31	24,1–2
32	32,5–2
33	43,2–2
34	55,8–2
35	70,0–2
36	84,5–2
37	11,3–1
38	14,1–1
39	17,1–1
40	19,7–1
41	20,2–1
42	30,4–1
43	35,6–1
44	40,9–1
45	48,5–1
46	57,0–1
47	65,0–1
48	73,1–1
49	84,0–1
50	91,5–1
51	98,0–1
52	11,8
53	12,6
54	14,4
55	16,6
56	17,9
57	22,4
58	25,6
60	32,3
62	39,5
64	51,4
66	61,5
68	77,2
70	94.5
72	11,4+1
74	13,7+1
76	16,7+1
78	20,2+1
80	24,0+1
$_{23}V(p)^{44m}_{21}Sc$ 2,44 сут [31]	
24	64,0–5
25	13,0–4
26	32,0–4
27	62,5–4
28	11,5–3
29	12,3–3
30	17,5–3
31	20,9–3
32	24,2–3
33	27,9–3
34	31,7–3
36	39,7–3
38	48,7–3
40	56,5–3
42	65,0–3
44	75,8–3
46	87,6–3
48	99,4–3
49	12,8–2
50	15,8–2
51	18,7–2
52	21,3–2
53	29,4–2
54	36,6–2
55	44,3–2
56	51,6–2
57	62,8–2
58	78,0–2
59	92,2–2
60	11,1–1
61	13,0–1
62	16,2–1
63	18,6–1
64	22,7–1
65	26,1–1
66	31,4–1
67	36,0–1
68	42,6–1
70	56,4–1
72	73,6–1
74	92,0–1
76	11,5
78	13,6
80	16,3
$_{23}V(p)^{44}_{21}Sc$ 3,92 ч [31]	
54	87,4–4
55	52,0–3
56	18,1–2
57	45,4–2
58	91,8–2
59	17,7–1
60	30,8–1
61	50,8–1
62	79,2–1
63	11,7
64	16,1
65	21,2
66	27,4
67	34,5
68	42,4
69	50,3
70	61,0
71	70,5
72	83,0
74	10,8+1
76	13,5+1
78	16,4+1
80	19,4+1
$_{23}V(p)^{46}_{21}Sc$ 83,8 сут [31]	
24	74,0–5
25	15,5–4
26	23,3–4
27	33,9–4
28	48,1–4
29	65,3–4
30	87,7–4
31	11,2–3
32	14,3–3
33	19,2–3
34	25,3–3
35	34,8–3
36	48,0–3
37	71,0–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
38	10,3–2
39	14,8–2
40	20,2–2
41	26,8–2
42	34,9–2
43	44,5–2
44	54,6–2
45	65,2–2
46	77,5–2
47	89,8–2
48	10,2–1
50	12,7–1
52	15,0–1
56	17,9–1
60	19,2–1
68	21,8–1
76	26,3–1
84	35,1–1
$_{23}V(p)^{47}_{21}Sc$ 3,40 сут [31, 32]	
20	79,6–4
21	25,0–3
22	65,6–3
23	13,0–2
24	23,4–2
25	38,4–2
26	58,2–2
27	84,2–2
28	11,6–1
29	15,4–1
30	20,0–1
31	25,3–1
32	31,0–1
33	37,2–1
34	44,2–1
35	51,0–1
36	57,8–1
38	70,6–1
40	82,2–1
44	10,2
52	13,0
60	14,7
68	17,0
76	21,5
84	29,6
$_{23}V(p)^{48}_{21}Sc$ 43,8 ч [31, 32]	
36	33,3–5
37	90,0–5
38	21,5–4
39	41,5–4
40	71,8–4
41	11,8–3
42	18,6–3
43	29,3–3
44	43,9–3
45	63,4–3
46	88,8–3
47	11,5–2
48	14,1–2
49	16,5–2
50	19,2–2
51	22,9–2
52	26,6–2
53	36,0–2
54	45,4–2
55	54,8–2
56	64,2–2
57	73,4–2
58	83,4–2
60	10,4–1
62	12,5–1
64	14,9–1
66	17,5–1
68	20,4–1
70	23,7–1
72	27,3–1
76	35,8–1
80	46,0–1
84	55,8–1
$_{23}V(p)^{45}_{22}Ti$ 3,09 ч [31]	
42	22,0–2
43	40,0–2
44	67,6–2
45	10,8–1
46	16,2–1
47	24,3–1
48	36,5–1
49	52,6–1
50	84,7–1
51	12,0
52	17,0
53	23,2
54	29,6
55	31,5
56	46,4
57	55,5
58	67,7
59	78,6
60	93,6
62	12,2+1
64	15,1+1
66	18,1+1
68	20,9+1
72	25,8+1
76	30,4+1
80	35,1+1
84	40,3+1
$_{23}V(p)^{47}_{23}V$ 32,6 мин [31]	
42	58,5
43	82,2
44	10,8+1
45	13,1+1
46	15,3+1
47	17,6+1
48	19,9+1
49	22,3+1
50	25,6+1
51	27,5+1
52	32,4+1
53	36,2+1
54	42,3+1
55	48,7+1
56	58,7+1
57	68,0+1
58	83,4+1
59	10,0+2
60	11,7+2
61	13,7+2
62	16,0+2
63	18,2+2
64	21,1+2
66	26,9+2
68	33,3+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
70	40,3+2
72	47,7+2
74	55,4+2
76	63,4+2
80	79,8+2
84	96,5+2
$_{23}V(p)^{48}_{23}V$ (к.) 15,98 сут [31, 32]	
20	17,0–4
21	24,7–4
22	35,2–4
23	48,3–4
24	64,4–4
25	85,0–4
26	10,6–3
27	12,8–3
28	14,9–3
29	18,2–3
30	24,2–3
31	34,6–3
32	50,9–3
33	69,7–3
34	94,2–3
35	12,2–2
36	16,1–2
37	21,1–2
38	27,9–2
39	38,2–2
40	52,4–2
41	76,0–2
42	10,2–1
43	13,0–1
44	16,3–1
45	20,2–1
46	24,9–1
47	30,3–1
48	36,6–1
49	44,1–1
50	52,0–1
51	60,2–1
52	71,0–1
53	80,5–1
54	94,2–1
56	12,3
58	15,5
60	18,9
62	22,5
64	26,1
68	33,5
72	40,6
76	46,9
80	52,6
84	57,7
$_{23}V(p)^{48}_{23}V$ 15,98 сут [31, 32]	
20	17,0–4
21	24,7–4
22	35,2–4
23	48,3–4
24	64,4–4
25	85,0–4
26	10,6–3
27	12,8–3
28	14,9–3
29	18,2–3
30	24,2–3
31	34,6–3
32	50,8–3
33	69,4–3
34	93,9–3
35	12,2–2
36	16,0–2
37	21,1–2
38	27,8–2
39	38,1–2
40	52,2–2
41	75,7–2
42	10,1–1
43	12,8–1
44	16,1–1
45	19,7–1
46	24,5–1
47	29,5–1
48	35,7–1
49	41,2–1
50	50,0–1
51	57,2–1
52	67,8–1
53	75,9–1
54	89,5–1
56	11,7
58	14,7
60	18,0
62	21,5
64	25,1
68	32,4
72	39,4
76	45,7
80	51,3
84	56,3
$_{23}V(p)^{48}_{24}Cr$ 21,56 ч [31, 32]	
32	21,3–4
33	35,5–4
34	54,9–4
35	82,4–4
36	11,4–3
37	14,4–3
38	18,7–3
39	27,2–3
40	40,3–3
41	62,8–3
42	11,3–2
43	19,3–2
44	31,4–2
45	49,2–2
46	74,4–2
47	11,3–1
48	16,8–1
49	23,9–1
50	33,1–1
51	44,8–1
52	56,3–1
53	71,4–1
54	84,4–1
56	11,4
58	14,3
60	16,5
68	19,6
76	22,0
84	25,5
$_{23}V(p)^{49}_{24}Cr$ 41,4 мин [31]	
18	34,0–1
19	58,5–1
20	86,5–1
21	11,7

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
22	15,4
23	19,8
24	24,4
25	30,1
26	35,9
27	42,5
28	49,5
29	63,6
30	92,1
31	15,8+1
32	27,9+1
33	45,2+1
34	67,7+1
35	97,0+1
36	13,1+2
37	17,2+2
38	21,2+2
39	25,8+2
40	30,0+2
42	39,1+2
44	47,8+2
46	55,6+2
48	62,4+2
50	68,3+2
52	73,3+2
60	88,9+2
68	10,1+3
84	11,9+3
$_{23}V(p)^{51}_{24}Cr$ 27,7 сут [31, 32, 33]	
4	10,1–2
5	37,5–2
6	97,3–2
7	20,1–1
8	31,4–1
9	46,0–1
10	64,0–1
11	83,4–1
12	10,6
13	12,6
14	14,3
16	16,7
18	18,4
20	19,5
24	21,2
32	23,4
40	25,4
56	28,4
$_{23}V(d)^{48}_{24}Cr$ 21,5 ч [30]	
50	34,0–3
51	56,8–3
52	88,8–3
53	14,0–2
54	20,2–2
55	27,0–2
56	34,4–2
57	42,8–2
58	51,4–2
59	63,5–2
60	77,7–2
61	89,0–2
62	10,1–1
64	13,6–1
66	17,8–1
68	22,9–1
70	28,1–1
72	32,2–1
76	39,8–1
80	48,5–1
84	56,3–1
92	67,3–1
100	75,3–1
$_{23}V(d)^{49}_{24}Cr$ 41,4 мин [30]	
30	15,2–1
31	38,0–1
32	69,6–1
33	10,0
34	14,0
35	18,8
36	25,2
37	37,3
38	59,5
39	84,0
40	11,3+1
41	15,1+1
42	20,2+1
43	24,8+1
44	29,0+1
45	34,8+1
46	40,7+1
48	52,9+1
50	66,6+1
52	80,7+1
56	10,7+2
60	13,7+2
64	16,2+2
68	18,8+2
76	23,3+2
84	27,3+2
92	31,2+2
100	35,2+2
$_{23}V(d)^{51}_{24}Cr$ 27,7 сут [30]	
6	29,6–2
7	74,0–2
8	10,5–1
9	13,5–1
10	20,0–1
11	26,5–1
12	31,8–1
13	42,6–1
14	57,4–1
15	81,4–1
16	99,9–1
18	13,0
20	16,1
22	19,2
24	21,9
28	25,4
36	30,3
52	36,2
68	40,7
84	44,8
100	48,3
$_{23}V(\alpha)^{44m}_{21}Sc$ 2,44 сут [34]	
68	60,0–6
69	28,0–5
70	10,0–4
71	25,0–4
72	51,4–4
73	10,0–3
74	18,2–3
75	30,4–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
76	46,6–3
77	67,0–3
78	92,5–3
79	12,6–2
80	16,6–2
81	22,4–2
82	28,2–2
83	34,0–2
84	39,9–2
85	48,8–2
86	57,7–2
87	66,6–2
88	75,5–2
90	92,2–2
92	11,9–1
94	13,5–1
96	15,5–1
100	18,6–1
104	21,6–1
108	24,6–1
112	27,9–1
116	31,7–1
120	36,3–1
$_{23}V(\alpha)^{46}_{21}Sc$ 83,8 сут [34]	
46	37,4–5
47	63,3–5
48	10,1–4
49	15,6–4
50	23,6–4
51	32,7–4
52	44,8–4
53	60,5–4
54	78,5–4
55	10,0–3
56	12,3–3
57	15,1–3
58	18,2–3
59	21,0–3
60	24,0–3
62	30,3–3
64	36,6–3
66	41,9–3
70	52,5–3
74	62,1–3
78	71,4–3
82	81,4–3
86	95,1–3
90	11,6–2
94	14,5–2
98	18,1–2
102	22,5–2
106	27,3–2
110	32,4–2
114	37,7–2
118	42,9–2
122	48,1–2
$_{23}V(\alpha)^{47}_{21}Sc$ 3,40 сут [34]	
32	30,0–5
33	90,0–5
34	23,2–4
35	51,0–4
36	10,4–3
37	13,2–3
38	21,9–3
39	30,2–3
40	39,5–3
41	48,0–3
42	57,8–3
43	67,8–3
44	75,8–3
46	92,0–3
48	10,7–2
52	13,3–2
56	15,6–2
60	17,8–2
64	20,4–2
68	23,7–2
70	26,3–2
72	29,2–2
74	34,8–2
76	39,6–2
78	48,2–2
80	57,4–2
82	69,4–2
84	81,7–2
86	93,0–2
88	11,0–1
90	12,3–1
92	14,1–1
96	17,3–1
100	20,5–1
104	23,6–1
108	26,7–1
112	29,9–1
116	33,4–1
120	37,1–1
$_{23}V(\alpha)^{48}_{21}Sc$ 43,8 ч [34]	
46	60,0–6
47	10,8–5
48	19,0–5
49	32,0–5
50	52,8–5
51	75,0–5
52	10,7–4
53	15,2–4
54	21,9–4
55	30,2–4
56	41,7–4
57	58,5–4
58	80,3–4
59	10,6–3
60	13,9–3
61	18,4–3
62	24,3–3
63	31,2–3
64	39,6–3
65	50,0–3
66	62,9–3
67	77,0–3
68	96,5–3
69	11,2–2
70	13,0–2
71	15,4–2
72	17,9–2
73	20,3–2
74	22,7–2
76	29,2–2
78	35,8–2
80	43,5–2
82	51,8–2
84	60,2–2
86	68,9–2
88	76,8–2
90	86,5–2
94	10,3–1
98	11,9–1
102	13,3–1
106	14,8–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
110	16,6–1
114	18,7–1
118	21,2–1
122	23,5–1
$_{23}V(\alpha)^{48}_{23}V$ (к.) 15,98 сут [34]	
50	10,0–5
51	40,0–5
52	14,0–4
53	38,0–4
54	10,3–3
55	18,4–3
56	31,5–3
57	50,0–3
58	77,0–3
59	10,6–2
60	14,0–2
61	18,0–2
62	22,6–2
63	28,2–2
64	34,1–2
65	39,8–2
66	45,9–2
67	52,0–2
68	58,5–2
70	72,2–2
72	86,5–2
74	99,0–2
78	12,5–1
82	14,9–1
86	17,2–1
90	19,3–1
98	23,3–1
106	28,6–1
114	35,0–1
122	41,6–1
$_{23}V(\alpha)^{51}_{24}Cr$ (к.) 27,7 сут [34]	
34	12,9–4
35	20,7–4
36	34,5–4
37	57,6–4
38	96,8–4
39	16,2–3
40	25,8–3
41	39,6–3
42	57,9–3
43	79,0–3
44	10,5–2
45	13,7–2
46	17,9–2
47	22,6–2
48	27,9–2
49	34,5–2
50	43,0–2
51	53,3–2
52	65,0–2
53	79,2–2
54	95,8–2
55	11,6–1
56	13,8–1
57	16,2–1
58	19,0–1
60	24,5–1
62	29,5–1
64	34,4–1
66	39,6–1
68	43,8–1
70	49,1–1
74	57,9–1
78	66,1–1
82	74,0–1
90	89,4–1
98	10,3
106	11,4
122	13,5
$_{23}V(\alpha)^{52}_{25}Mn$ 5,67 сут [34]	
26	15,4–3
27	31,0–3
28	58,0–3
29	10,1–2
30	16,2–2
31	25,5–2
32	38,5–2
33	57,0–2
34	79,7–2
35	10,6–1
36	13,6–1
37	17,3–1
38	21,0–1
39	24,5–1
40	29,3–1
41	32,3–1
42	36,4–1
43	41,0–1
44	45,5–1
46	53,0–1
48	61,3–1
50	69,2–1
52	76,5–1
54	83,0–1
58	93,9–1
62	10,1
70	11,0
86	12,1
118	13,0
$_{23}V(\alpha)^{54}_{25}Mn$ 312,3 сут [34]	
4	55,5–5
5	10,6–4
6	17,8–4
7	27,2–4
8	38,8–4
9	55,0–4
10	76,0–4
11	10,2–3
12	13,4–3
13	17,1–3
14	22,5–3
15	27,5–3
16	32,5–3
17	37,7–3
18	42,9–3
20	50,0–3
22	53,4–3
30	59,5–3
38	62,4–3
54	65,1–3
86	68,0–3
$_{23}V(\tau)^{46}_{21}Sc$ 83,8 сут [21]	
15	22,5–7
16	99,2–7
17	21,8–6
18	36,2–6
19	55,4–6

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	82,3–6
21	11,9–5
22	18,5–5
23	30,7–5
24	49,2–5
25	76,6–5
26	10,9–4
27	15,1–4
28	19,4–4
29	23,6–4
30	27,8–4
31	32,0–4
32	36,2–4
34	44,7–4
$_{23}V(\tau)^{48}_{23}V$ 15,98 сут [21]	
24	74,0–5
25	58,5–4
26	15,2–3
27	32,3–3
28	55,0–3
29	85,5–3
30	11,8–2
31	15,2–2
32	18,6–2
33	22,0–2
34	25,4–2
$_{23}V(\tau)^{51}_{24}Cr$ (к.) 27,7 сут [21]	
18	20,0–3
19	56,2–3
20	10,7–2
21	18,0–2
22	27,4–2
23	39,2–2
24	54,8–2
25	72,5–2
26	92,9–2
27	11,6–1
28	14,0–1
29	16,4–1
30	18,7–1
31	21,1–1
32	23,5–1
34	28,3–1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{23}V(\tau)^{52}_{25}Mn$ 5,67 сут [21]	
5	37,0–5
6	16,6–4
7	31,1–4
8	53,3–4
9	93,6–4
10	22,2–3
11	51,8–3
12	96,9–3
13	15,9–2
14	24,6–2
15	34,4–2
16	46,2–2
17	59,2–2
18	74,6–2
19	88,5–2
20	10,2–1
22	12,5–1
26	15,6–1
30	17,6–1
34	18,5–1
$_{24}Cr(p)^{52}_{25}Mn$ 5,67 сут [36]	
7	59,2–3
8	19,2–2
9	50,3–2
10	11,4–1
11	25,5–1
12	41,7–1
13	53,8–1
14	74,7–1
15	90,6–1
16	10,7
17	12,2
18	13,9
19	15,4
20	17,1
22	20,3
24	23,5
$_{24}Cr(p)^{54}_{25}Mn$ 312,3 сут [35]	
5	14,4–5
6	44,4–5

Энергия частиц, МэВ	Выход радионуклида, МБк /(мкА· ч)
7	11,0–4
8	19,4–4
9	30,1–4
10	50,9–4
11	68,8–4
12	84,4–4
14	10,9–3
16	12,8–3
18	14,4–3
20	15,7–3
22	17,0–3
24	18,0–3
28	19,7–3
$_{24}Cr(d)^{48}_{23}V$ 15,98 сут [37]	
3	33,3–5
4	11,1–4
5	31,4–4
6	62,9–4
7	11,1–3
8	17,4–3
9	25,5–3
10	33,3–3
11	40,9–3
12	48,4–3
14	60,9–3
16	72,5–3
18	78,0–3
20	83,3–3
22	88,4–3
$_{24}Cr(d)^{51}_{24}Cr$ (к.) 27,7 сут [33, 37]	
3	13,0–3
4	36,3–3
5	65,9–3
6	10,0–2
7	13,1–2
8	16,7–2
9	20,0–2
10	23,0–2
12	28,7–2
14	33,9–2
16	38,7–2
18	43,4–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	48,0–2
22	52,4–2
$_{24}Cr(d)^{52}_{25}Mn$ 5,67 сут [36]	
9	31,1–2
10	64,4–2
11	11,6–1
12	17,6–1
13	25,0–1
14	34,6–1
15	45,5–1
16	57,0–1
17	70,2–1
18	82,7–1
20	11,1
22	14,1
24	16,2
$_{24}Cr(d)^{54}_{25}Mn$ 312, 3 сут [35]	
3	22,2–4
4	41,1–4
5	62,2–4
6	89,9–4
7	12,2–3
8	16,0–3
9	20,3–3
10	25,7–3
11	29,7–3
12	34,5–3
14	43,7–3
16	52,2–3
18	61,0–3
20	69,8–3
22	76,4–3
24	84,1–3
26	91,6–3
$_{24}Cr(\alpha)^{52}_{25}Mn$ 5,67 сут.[36]	
19	74,0–4
20	14,8–3
21	23,7–3
22	33,3–3
23	45,1–3
24	52,6–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
25	67,3–3
26	81,4–3
27	96,2–3
28	11,2–2
29	13,2–2
30	14,9–2
31	17,2–2
32	19,3–2
34	23,6–2
36	28,1–2
38	32,5–2
40	37,0–2
44	44,8–2
48	50,9–2
$_{24}Cr(\alpha)^{54}_{25}Mn$ 312,3 сут [35]	
14	88,8–5
15	11,7–4
16	21,1–4
17	28,9–4
18	40,0–4
19	53,3–4
20	69,9–4
21	91,0–4
22	12,5–3
23	17,2–3
24	22,9–3
25	30,4–3
26	39,0–3
27	50,1–3
28	62,9–3
29	75,8–3
30	87,2–3
32	11,2–2
34	13,6–2
36	16,2–2
40	20,2–2
44	22,2–2
48	23,4–2
$_{24}Cr(\alpha)^{52}_{26}Fe$ 8,28 ч [38]	
19	35,2–4
20	64,8–4
21	96,2–4
22	14,8–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
23	22,6–3
24	32,6–3
25	44,0–3
26	58,8–3
27	75,1–3
28	93,4–3
29	11,5–2
30	13,6–2
32	17,8–2
34	21,8–2
36	25,4–2
40	30,7–2
44	34,7–2
48	36,5–2
$_{24}Cr(\tau)^{51}_{24}Cr$ (к.) 27,7 сут [21]	
6	55,5–4
7	92,5–4
8	14,8–3
9	20,7–3
10	29,2–3
11	38,8–3
12	49,4–3
13	59,9–3
14	72,2–3
15	85,7–3
16	10,1–2
17	11,7–2
18	13,3–2
19	14,6–2
20	16,8–2
22	21,0–2
24	25,4–2
26	29,8–2
28	34,0–2
30	38,4–2
32	42,8–2
34	47,2–2
$_{24}Cr(\tau)^{52}_{25}Mn$ 5,67 сут [21]	
8	36,6–4
9	37,4–4
10	38,1–4
11	40,3–4
12	45,1–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
13	51,4–4
14	65,5–4
15	97,3–4
16	14,9–3
17	23,9–3
18	31,8–3
19	44,4–3
20	77,0–3
21	13,3–2
22	21,3–2
23	32,9–2
24	48,2–2
25	70,5–2
26	95,8–2
27	12,1–1
28	14,5–1
29	17,0–1
30	19,4–1
32	24,1–1
34	26,6–1
$_{24}Cr(\tau)\,^{54}_{25}Mn$ 312,3 сут [21]	
6	37,0–5
7	57,4–5
8	94,4–5
9	14,1–4
10	18,3–4
11	25,5–4
12	32,9–4
13	41,8–4
14	51,2–4
15	61,8–4
16	73,4–4
17	85,1–4
18	97,5–4
20	12,3–3
22	14,8–3
24	17,3–3
26	19,9–3
28	22,4–3
30	25,0–3
32	27,7–3
34	30,3–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{24}Cr(\tau)\,^{52}_{26}Fe$ 8,28 ч [38]	
15	18,5–3
16	22,2–3
17	25,9–3
18	35,2–3
19	38,8–3
20	48,1–3
21	64,8–3
22	83,2–3
23	10,7–2
24	12,8–2
25	15,9–2
26	19,1–2
27	23,1–2
28	28,3–2
29	34,8–2
30	43,8–2
31	55,5–2
32	61,1–2
33	82,3–2
34	97,7–2
36	12,9–1
38	15,7–1
42	20,4–1
46	23,7–1
50	25,7–1
$_{25}Mn(p)\,^{54}_{25}Mn$ 312,3 сут [35]	
10	14,8–4
11	51,8–4
12	12,6–3
13	24,4–3
14	49,6–3
15	97,7–3
16	16,4–2
17	25,9–2
18	36,9–2
19	47,4–2
20	57,8–2
21	68,4–2
22	78,6–2
23	89,2–2
24	99,8–2

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{25}Mn(\alpha)\,^{56}_{27}Co$ 78,76 сут [39]	
26	14,8–5
27	37,0–5
28	14,8–4
29	22,2–4
30	48,1–4
31	76,2–4
32	11,8–3
33	17,4–3
34	23,5–3
35	31,9–3
36	40,3–3
37	51,9–3
38	61,9–3
39	76,9–3
40	88,4–3
41	10,7–2
42	12,1–2
44	15,4–2
46	20,1–2
$_{25}Mn(\alpha)\,^{57}_{27}Co$ 270,9 сут [39]	
14	29,6–5
15	71,4–4
16	12,0–3
17	20,8–3
18	29,0–3
19	41,4–3
20	51,8–3
21	67,8–3
22	82,0–3
24	11,3–2
26	14,5–2
28	17,5–2
30	20,2–2
34	24,6–2
36	26,0–2
44	29,2–2
$_{25}Mn(\alpha)\,^{58}_{27}Co$ 70,78 сут [39]	
6	16,6–5
7	88,8–5
8	20,4–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
9	58,5–4
10	15,9–3
11	33,7–3
12	59,2–3
13	92,7–3
14	11,6–2
15	14,9–2
16	17,7–2
18	21,6–2
20	24,7–2
28	29,7–2
44	31,7–2
$_{25}Mn(\alpha)\,^{54}_{25}Mn$ 312,3 сут [39]	
17	16,0–6
18	83,0–6
19	24,7–5
20	57,2–5
21	11,7–4
22	20,7–4
23	32,7–4
24	48,0–4
25	66,5–4
26	88,4–4
27	11,4–3
28	14,4–3
29	17,8–3
30	21,6–3
31	25,6–3
32	29,9–3
34	38,7–3
36	47,9–3
38	57,1–3
40	65,5–3
42	74,9–3
44	84,3–3
$_{25}Mn(\alpha)\,^{56}_{25}Mn$ 2,58 ч [39]	
26	16,0–5
27	98,6–4
28	30,1–3
29	68,1–3
30	13,2–2
31	23,4–2
32	37,9–2

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
33	58,5–2
34	87,0–2
35	12,6–1
36	17,7–1
37	24,7–1
38	34,2–1
39	46,3–1
40	61,1–1
41	78,7–1
42	99,2–1
43	12,3
44	14,9
$_{26}Fe(p)\,^{48}_{23}V$(к.) 15,98 сут [40]	
42	10,0–5
43	44,5–5
44	21,0–4
45	61,0–4
46	16,5–3
47	41,3–3
48	80,6–3
49	13,0–2
50	19,4–2
51	26,2–2
52	34,1–2
53	41,8–2
54	51,1–2
55	60,2–2
56	69,5–2
57	79,1–2
58	88,9–2
60	10,8–1
62	12,8–1
64	14,6–1
66	16,4–1
70	19,1–1
$_{26}Fe(p)\,^{51}_{24}Cr$ 27,7 сут [32, 40]	
24	11,0–5
25	72,0–5
26	54,2–4
27	13,7–3
28	28,3–3
29	51,8–3
30	85,7–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
31	13,6–2
32	19,6–2
33	26,8–2
34	36,4–2
35	48,4–2
36	61,1–2
37	79,2–2
38	10,1–1
39	12,2–1
40	15,5–1
41	18,8–1
42	22,6–1
43	26,5–1
44	31,1–1
46	41,0–1
48	52,1–1
50	64,3–1
52	77,2–1
54	90,6–1
58	11,5
62	13,4
66	15,2
70	16,5
$_{26}Fe(p)\,^{52}_{25}Mn$ 5,67 сут [40]	
20	11,0–4
21	61,0–4
22	35,1–3
23	92,5–3
24	18,5–2
25	35,2–2
26	60,1–2
27	94,0–2
28	13,9–1
29	19,0–1
30	25,7–1
31	33,8–1
32	41,7–1
33	50,6–1
34	59,8–1
35	68,8–1
36	77,6–1
37	86,2–1
38	94,4–1
40	11,0
42	12,3
46	14,6

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
50	16,5
54	18,4
58	20,2
62	23,2
66	28,1
70	35,0
$_{26}Fe(p)^{54}_{25}Mn$ 312,3 сут [32, 40]	
18	33,3–5
19	57,8–5
20	88,8–5
21	11,9–4
22	15,2–4
23	18,7–4
24	22,6–4
25	26,1–4
26	31,1–4
27	46,0–4
28	96,9–4
29	18,2–3
30	34,2–3
31	68,8–3
32	11,6–2
33	16,2–2
34	23,7–2
35	31,0–2
36	38,8–2
37	47,2–2
38	56,1–2
39	65,5–2
40	75,1–2
42	95,4–2
44	11,6–1
46	13,8–1
48	15,8–1
50	17,8–1
54	21,4–1
58	24,8–1
62	27,8–1
70	33,9–1
$_{26}Fe(p)^{52}_{26}Fe$ 8,28 ч [32]	
28	45,5–4
29	17,0–3
30	52,3–3
31	11,8–2
32	22,8–2
33	38,7–2
34	61,6–2
35	92,2–2
36	13,1–1
37	18,0–1
38	23,2–1
39	29,8–1
40	36,2–1
41	43,6–1
42	51,7–1
43	60,0–1
44	68,9–1
45	78,2–1
46	88,9–1
48	11,2
50	13,7
$_{26}Fe(p)^{55}_{26}Fe$ 2,72 года [41]	
10	14,8–5
11	12,0–4
12	48,1–4
13	10,4–3
14	19,8–3
15	33,0–3
16	51,4–3
17	75,0–3
18	10,5–2
19	14,0–2
20	18,3–2
21	23,2–2
22	28,8–2
23	34,9–2
24	41,3–2
25	48,0–2
26	55,1–2
28	68,6–2
30	81,1–2
32	92,0–2
36	10,9–1
40	11,7–1
$_{26}Fe(p)^{55}_{27}Co$ 17,54 ч [32, 41]	
16	13,1–2
17	11,0–1
18	39,2–1
19	77,0–1
20	12,9
21	19,3
22	27,9
23	37,8
24	49,5
25	61,9
26	76,3
27	90,7
28	10,6+1
30	13,0+1
34	16,2+1
38	18,2+1
42	19,7+1
50	22,1+1
$_{26}Fe(p)^{56}_{27}Co$ 78,76 сут [40]	
8	63,3–3
9	12,8–2
10	23,2–2
11	39,3–2
12	61,1–2
13	91,3–2
14	12,7–1
15	16,8–1
16	21,0–1
17	24,4–1
18	27,9–1
20	32,1–1
22	35,2–1
24	37,6–1
28	40,7–1
36	44,1–1
44	46,4–1
60	50,2–1
$_{26}Fe(p)^{57}_{27}Co$ 270,9 сут [32, 40]	
4	11,0–5
5	30,0–5
6	66,3–5
7	12,8–4
8	22,9–4
9	35,0–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
10	51,5–4
11	71,3–4
12	92,8–4
13	11,9–3
14	14,1–3
15	16,5–3
16	18,0–3
18	21,0–3
20	23,2–3
24	26,7–3
28	30,0–3
36	35,7–3
44	39,6–3
60	43,8–3
$_{26}Fe(p)^{58}_{27}Co$ 70,78 сут [32, 40]	
8	59,8–7
9	14,5–6
10	32,9–6
11	69,5–6
12	11,5–5
13	15,7–5
14	20,7–5
15	26,2–5
16	31,4–5
18	36,3–5
20	38,8–5
24	42,2–5
28	44,4–5
32	45,9–5
36	47,4–5
40	48,1–5
$_{26}Fe(d)^{52}_{25}Mn$ 5,67 сут [36]	
7	17,8–4
8	48,8–4
9	90,3–4
10	14,2–3
11	21,9–3
12	31,5–3
13	40,7–3
14	49,0–3
15	57,3–3
16	64,7–3
18	78,1–3
20	89,6–3
22	10,1–2
24	11,2–2
$_{26}Fe(d)^{54}_{25}Mn$ 312,3 сут [35]	
5	14,8–4
6	33,3–4
7	63,6–4
8	10,4–3
9	15,8–3
10	21,9–3
11	29,5–3
12	36,8–3
13	44,4–3
14	51,8–3
15	59,4–3
16	66,8–3
17	74,5–3
18	81,6–3
20	96,3–3
22	11,1–2
24	12,6–2
$^{54}_{26}Fe(d)^{55}Co$ 17,54 ч [42]	
4	10,5–3
5	72,7–3
6	28,2–2
7	67,4–2
8	11,3–1
9	16,0–1
10	20,5–1
11	24,8–1
12	28,8–1
13	32,4–1
14	36,0–1
16	41,4–1
18	44,7–1
20	46,5–1
22	47,2–1
$_{26}Fe(d)^{56}_{27}Co$ 78,76 сут [43]	
9	45,0–4
10	25,0–3
11	63,0–3
12	14,4–2
13	25,5–2
14	40,3–2
15	57,3–2
16	74,0–2
17	90,4–2
18	10,7–1
19	12,4–1
20	14,1–1
22	17,4–1
24	20,8–1
$_{26}Fe(d)^{57}_{27}Co$ 270, 9-сут [43]	
4	15,2–3
5	33,3–3
6	57,7–3
7	88,8–3
8	12,6–2
9	16,6–2
10	20,1–2
11	24,6–2
12	28,1–2
14	34,3–2
16	38,8–2
20	44,0–2
24	45,5–2
$^{54}_{26}Fe(\alpha)^{55}_{26}Fe$ 2,72 года [44]	
27	20,0–7
28	70,0–7
29	16,0–6
30	33,0–6
31	63,0–6
32	11,0–5
33	17,8–5
34	27,1–5
35	39,3–5
36	54,7–5
37	73,8–5
38	96,9–5
39	12,4–4
40	15,6–4
41	18,9–4
42	22,2–4
44	25,2–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{54}_{26}Fe(\alpha)^{55}_{27}Co$ (к.) 17,54 ч [44]	
19	60,0–7
20	28,0–6
21	96,0–6
22	19,0–5
23	33,5–5
24	58,5–5
25	92,0–5
26	13,7–4
27	20,5–4
28	30,4–4
29	47,6–4
30	78,4–4
31	12,8–3
32	20,7–3
33	33,3–3
34	48,5–3
35	70,3–3
36	98,4–3
37	13,4–2
38	17,9–2
39	23,6–2
40	30,7–2
41	38,4–2
42	46,1–2
43	52,8–2
44	61,5–2
$^{56}_{26}Fe(\alpha)^{55}_{27}Co$ (к.) 17,54 ч [45]	
40	30,0–7
41	47,2–5
42	13,1–4
43	25,2–4
44	41,3–4
45	61,4–4
46	87,0–4
47	12,1–3
48	16,3–3
49	21,9–3
50	29,1–3
51	38,2–3
52	50,0–3
53	64,5–3
54	82,7–3
55	10,5–2
56	13,2–2
57	16,4–2
58	20,4–2
59	25,1–2
60	30,8–2
61	37,6–2
62	45,7–2
63	54,9–2
64	65,3–2
$^{54}_{26}Fe(\alpha)^{56}_{27}Co$ 78,76 сут [44]	
14	50,0–8
15	11,0–7
16	14,0–6
17	72,0–6
18	25,1–5
19	61,3–5
20	12,8–4
21	23,6–4
22	40,5–4
23	61,2–4
24	86,3–4
25	11,4–3
26	14,7–3
27	18,0–3
28	21,9–3
29	26,0–3
30	29,8–3
32	38,0–3
34	45,6–3
36	52,0–3
40	61,8–3
44	66,2–3
$^{56}_{26}Fe(\alpha)^{56}_{27}Co$ 78,76 сут [45]	
40	10,7–5
41	22,8–5
42	44,1–5
43	73,0–5
44	11,3–4
45	16,7–4
46	23,7–4
47	33,4–4
48	47,0–4
49	65,3–4
50	88,8–4
51	12,2–3
52	16,2–3
53	21,2–3
54	27,2–3
55	34,6–3
56	42,1–3
57	50,0–3
58	61,1–3
59	71,5–3
60	83,9–3
62	10,9–2
64	13,6–2
66	16,4–2
68	19,1–2
70	21,7–2
$^{54}_{26}Fe(\alpha)^{57}_{27}Co$ 270,9 сут [44]	
8	37,0–6
9	90,6–6
10	18,5–5
11	35,6–5
12	62,9–5
13	92,7–5
14	14,1–4
15	19,0–4
16	24,8–4
17	30,2–4
18	35,5–4
20	46,6–4
22	54,8–4
24	62,8–4
32	68,8–4
48	72,6–4
$^{56}_{26}Fe(\alpha)^{57}_{27}Co$ 270,9 сут [45]	
28	23,8–5
29	84,0–5
30	20,4–4
31	39,6–4
32	69,2–4
33	10,8–3
34	16,6–3
35	22,6–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
36	31,4–3
37	40,5–3
38	51,6–3
39	65,0–3
40	76,9–3
41	90,0–3
42	10,5–2
44	13,5–2
46	16,4–2
48	19,0–2
52	23,0–2
56	26,3–2
64	31,8–2
$^{56}_{26}Fe(\alpha)^{58}_{27}Co$ 70,78 сут [45]	
18	70,5–4
19	16,2–3
20	31,6–3
21	51,7–3
22	79,9–3
23	11,1–2
24	15,3–2
25	20,2–2
26	25,3–2
27	30,9–2
28	36,5–2
29	42,2–2
30	48,0–2
32	59,4–2
34	69,9–2
36	79,0–2
38	86,6–2
40	92,1–2
48	10,6–1
64	12,3–1
$^{54}_{26}Fe(\alpha)^{56}_{28}Ni$ 6,10 сут [44]	
19	40,0–6
20	12,2–5
21	25,1–5
22	43,2–5
23	65,5–5
24	95,5–5
25	13,0–4
26	17,1–4
27	21,9–4
28	27,3–4
29	33,5–4
30	40,4–4
31	47,8–4
32	55,9–4
33	64,2–4
34	72,6–4
36	87,9–4
40	11,3–3
44	12,9–3
$^{56}_{26}Fe(\alpha)^{56}_{28}Ni$ 6,10 сут [45]	
38	10,0–7
39	10,8–6
40	34,0–6
41	75,0–6
42	13,7–5
43	21,6–5
44	35,4–5
45	51,0–5
46	72,8–5
47	99,0–5
48	13,2–4
49	17,2–4
50	21,4–4
51	26,2–4
52	32,0–4
53	38,0–4
54	45,3–4
55	52,2–4
56	60,6–4
57	68,5–4
58	77,1–4
60	94,0–4
62	11,1–3
64	12,7–3
$^{54}_{26}Fe(\alpha)^{57}_{28}Ni$ 36,16 ч [44]	
6	22,2–5
7	78,0–5
8	22,6–4
9	51,0–4
10	10,1–3
11	18,6–3
12	31,9–3
13	46,4–3
14	67,6–3
15	92,2–3
16	12,1–2
17	15,1–2
18	17,9–2
20	23,4–2
24	29,3–2
32	33,4–2
48	37,0–2
$^{56}_{26}Fe(\alpha)^{57}_{28}Ni$ 36,16 ч [45]	
28	20,0–6
29	38,0–5
30	49,5–4
31	16,3–3
32	38,0–3
33	69,0–3
34	11,1–2
35	15,8–2
36	22,0–2
37	28,6–2
38	36,4–2
39	44,6–2
40	53,3–2
41	62,0–2
42	71,8–2
44	90,4–2
48	12,2–1
52	14,4–1
56	16,2–1
60	17,6–1
64	19,0–1
$_{26}Fe(\tau)^{52}_{25}Mn$ 5,67 сут [21]	
10	74,0–5
11	10,7–4
12	15,2–4
13	21,6–4
14	29,6–4
15	37,9–4
16	48,1–4
17	61,2–4
18	83,2–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
19	10,3–3
20	15,1–3
21	19,7–3
22	24,8–3
23	30,2–3
24	35,9–3
25	41,4–3
26	47,3–3
28	57,7–3
30	65,0–3
34	75,2–3
$_{26}Fe(\tau)^{54}_{25}Mn$ 312,3 сут [21]	
12	66,6–6
13	14,7–5
14	26,6–5
15	41,0–5
16	59,9–5
17	81,3–5
18	11,2–4
19	15,7–4
20	21,8–4
21	30,2–4
22	41,4–4
23	53,6–4
24	67,8–4
25	82,5–4
26	97,7–4
28	12,8–3
30	15,9–3
32	18,9–3
34	21,8–3
$_{26}Fe(\tau)^{56}_{27}Co$ 78,76 сут [21]	
18	11,1–4
19	16,8–4
20	27,4–4
21	63,0–4
22	12,2–3
23	21,2–3
24	34,4–3
25	51,0–3
26	72,2–3
27	99,0–3
28	12,7–2
29	15,8–2
30	18,8–2
31	21,8–2
32	24,8–2
34	30,7–2
$_{26}Fe(\tau)^{57}_{27}Co$ 270,9 сут [21]	
8	37,0–5
9	19,0–4
10	48,1–4
11	85,0–4
12	13,7–3
13	21,0–3
14	31,6–3
15	44,6–3
16	59,9–3
17	76,6–3
18	93,2–3
19	11,0–2
20	12,7–2
21	14,4–2
22	16,1–2
24	19,4–2
26	22,3–2
30	27,1–2
34	29,8–2
$_{26}Fe(\tau)^{58}_{27}Co$ 70,78 сут [21]	
8	74,0–5
9	16,5–4
10	32,2–4
11	53,4–4
12	80,7–4
13	10,6–3
14	13,5–3
15	16,4–3
16	19,0–3
18	24,1–3
20	28,9–3
22	34,0–3
26	43,4–3
30	50,3–3
34	53,5–3
$^{56}_{26}Fe(\alpha)^{56}_{28}Ni$ 6,10 сут [46]	
20	25,5–5
21	67,7–5
22	13,1–4
23	21,8–4
24	32,8–4
25	46,5–4
26	62,2–4
27	79,7–4
28	99,0–4
29	12,0–3
30	14,3–3
31	16,8–3
32	19,2–3
$_{26}Fe(\tau)^{57}_{28}Ni$ 36,16 ч [21]	
8	16,6–4
9	19,3–3
10	55,5–3
11	11,1–2
12	17,8–2
13	25,7–2
14	36,1–2
15	49,6–2
16	66,6–2
17	85,3–2
18	10,6–1
19	12,6–1
20	14,5–1
22	17,8–1
26	22,7–1
30	25,7–1
34	27,5–1
$_{27}Co(p)^{48}_{23}V$ 15,98 сут [162]	
70	16,3–4
71	48,4–4
72	98,6–4
73	17,1–3
74	28,4–3
75	41,8–3
76	60,9–3
77	85,0–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
78	11,2–2
79	14,7–2
80	18,9–2
82	29,8–2
84	44,8–2
86	64,7–2
88	89,8–2
90	12,0–1
92	15,6–1
94	19,4–1
96	23,6–1
98	28,0–1
100	32,6–1
$_{27}Co(p)^{53}_{23}V$ 1,55 мин [162]	
70	11,9–2
71	33,4–2
72	68,9–2
73	12,6–1
74	21,0–1
75	30,4–1
76	43,9–1
77	59,1–1
78	79,4–1
79	10,2
80	12,9
81	15,7
82	19,4
83	23,7
84	27,7
86	38,1
88	51,2
90	67,2
92	86,5
94	10,9+1
96	13,7+1
98	16,9+1
100	20,7+1
$_{27}Co(p)^{48}_{24}Cr$ 21,56 ч [162]	
64	22,3–5
65	31,6–5
66	46,8–5
67	76,4–5
68	13,6–4
69	20,6–4
70	31,5–4
71	46,1–4
72	68,4–4
73	97,4–4
74	14,0–3
75	19,4–3
76	26,4–3
77	35,3–3
78	45,6–3
79	57,4–3
80	73,3–3
81	89,8–3
82	11,1–2
83	13,2–2
84	16,0–2
86	22,0–2
88	29,3–2
90	37,6–2
92	47,8–2
96	67,0–2
100	88,8–2
$_{27}Co(p)^{51}_{24}Cr$ 27,7 сут [162]	
64	29,0–4
65	45,2–4
66	76,4–4
67	13,6–3
68	31,9–3
69	64,7–3
70	10,9–2
71	17,7–2
72	26,1–2
73	37,4–2
74	51,0–2
75	69,2–2
76	87,5–2
77	11,1–1
78	13,9–1
79	17,2–1
80	20,6–1
82	28,9–1
84	38,9–1
86	50,6–1
88	50,6–1
90	77,4–1
92	92,0–1
94	10,7
96	12,3
98	13,9
100	15,5
$_{27}Co(p)^{51}_{25}Mn$ 45,9 мин [162]	
58	58,5–3
59	25,0–2
60	53,8–2
61	11,2–1
62	20,1–1
63	33,1–1
64	50,4–1
65	71,6–1
66	94,2–1
67	12,4
68	16,0
69	20,1
70	25,2
72	37,8
74	55,0
76	78,5
78	11,1+1
80	15,7+1
82	22,7+1
84	32,1+1
86	43,4+1
88	55,8+1
90	68,8+1
92	82,5+1
96	11,1+2
100	14,0+2
$_{27}Co(p)^{52m}_{25}Mn$ 21,3 мин [162]	
52	11,6–2
53	68,0–2
54	37,0–1
55	67,8–1
56	11,1
57	16,8
58	25,7
59	39,7
60	59,3
61	93,0
62	14,4+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
63	22,6+1
64	34,3+1
65	48,1+1
66	66,8+1
67	85,4+1
68	11,0+2
69	13,4+2
70	16,2+2
71	19,2+2
72	22,1+2
74	28,7+2
76	35,7+2
78	42,9+2
80	50,0+2
84	64,0+2
88	77,6+2
92	90,8+2
96	10,4+3
100	11,7+3
$_{27}Co(p)^{52}_{25}Mn$ 5,59 сут [162]	
46	29,2−4
47	77,3−4
48	14,1−3
49	20,5−3
50	28,8−3
51	40,3−3
52	54,2−3
53	77,4−3
54	10,5−2
55	13,8−2
56	18,4−2
57	24,6−2
58	33,5−2
59	46,4−2
60	65,2−2
61	92,8−2
62	12,4−1
63	16,7−1
64	21,5−1
65	27,3−1
66	34,8−1
67	42,7−1
68	52,5−1
69	63,5−1
70	74,5−1
72	99,6−1
74	12,7
76	15,5
78	18,4
80	21,2
84	26,7
88	32,0
92	37,2
96	42,3
100	47,0
$_{27}Co(p)^{54}_{25}Mn$ 312,3 сут [40, 162]	
22	70,0−7
23	10,1−6
24	15,0−6
25	28,4−6
26	85,0−6
27	18,8−5
28	38,2−5
29	70,0−5
30	13,2−4
31	23,1−4
32	40,5−4
33	87,0−4
34	16,2−3
35	28,4−3
36	45,0−3
37	64,4−3
38	87,1−3
39	11,2−2
40	14,0−2
41	17,0−2
42	20,2−2
44	26,9−2
46	33,9−2
48	41,1−2
50	48,3−2
52	55,4−2
54	62,4−2
56	69,3−2
60	82,0−2
64	92,6−2
68	10,2−1
76	12,6−1
84	15,8−1
92	19,7−1
100	23,9−1
$_{27}Co(p)^{56}_{25}Mn$ 2,58 ч [162]	
28	20,1−4
29	73,0−4
30	24,5−3
31	88,5−3
32	22,4−2
33	37,6−2
34	57,4−2
35	85,3−2
36	12,0−1
37	16,4−1
38	21,9−1
39	28,1−1
40	35,6−1
41	47,7−1
42	64,8−1
43	87,0−1
44	12,0
45	16,9
46	23,4
47	31,7
48	41,9
50	66,8
52	96,6
54	13,4+1
56	18,2+1
58	23,6+1
60	30,3+1
64	45,2+1
68	62,1+1
72	80,5+1
76	99,9+1
84	14,1+2
92	18,5+2
100	23,2+2
$_{27}Co(p)^{52}_{26}Fe$ 8,28 ч [162]	
58	54,1−5
59	71,0−4
60	67,1−3
61	13,7−2
62	23,6−2
63	36,5−2
64	53,2−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
65	73,6−2
66	86,1−2
67	12,2−1
68	15,3−1
69	18,8−1
70	22,5−1
71	26,9−1
72	31,2−1
74	41,4−1
76	52,8−1
78	64,6−1
80	76,4−1
84	99,2−1
88	12,0
92	14,0
100	18,0
$_{27}Co(p)^{53}_{26}Fe$ 8,53 мин [162]	
40	47,6−3
41	20,0−2
42	91,0−2
43	42,5−1
44	24,6
45	55,8
46	10,7+1
47	17,4+1
48	26,9+1
49	38,8+1
50	54,6+1
51	70,4+1
52	88,9+1
53	10,9+2
54	13,1+2
56	18,8+2
58	25,2+2
60	32,8+2
62	40,7+2
64	49,4+2
68	66,7+2
72	83,1+2
76	97,9+2
80	11,2+3
84	12,6+3
92	15,4+3
100	18,3+3
$_{27}Co(p)^{55}_{26}Fe$ 2,72 года [11]	
20	66,6−4
21	80,0−4
22	99,9−4
23	12,8−3
24	15,9−3
25	18,8−3
26	22,2−3
27	26,0−3
28	30,3−3
30	40,0−3
32	51,1−3
34	64,7−3
36	79,2−3
38	91,0−3
40	10,7−2
42	12,1−2
44	13,9−2
46	16,1−2
48	18,1−2
50	20,6−2
52	23,2−2
54	26,0−2
56	29,4−2
60	37,1−2
64	46,0−2
68	56,5−2
72	68,4−2
76	81,5−2
80	89,2−2
84	11,2−1
92	14,7−1
$_{27}Co(p)^{55}_{27}Co$ (к.) 17,64 ч [162]	
42	40,1−5
43	18,5−4
44	89,5−4
45	46,7−3
46	25,8−2
47	36,9−2
48	52,8−2
49	73,4−2
50	98,8−2
51	12,9−1
52	16,8−1
53	22,1−1
54	28,6−1
55	37,5−1
56	48,8−1
57	64,7−1
58	84,8−1
59	10,8
60	13,7
61	17,0
62	20,9
64	30,4
66	41,3
68	52,8
70	67,1
72	80,0
74	95,8
78	12,5+1
82	15,4+1
86	18,2+1
94	23,5+1
102	28,4+1
$_{27}Co(p)^{56}_{27}Co$ 78,76 сут [32, 40, 47]	
28	40,7−5
29	10,3−4
30	20,7−4
31	33,0−4
32	49,2−4
33	67,0−4
34	90,6−4
35	12,4−3
36	16,8−3
37	23,2−3
38	35,7−3
39	56,7−3
40	88,5−3
41	13,3−2
42	19,6−2
43	28,0−2
44	39,4−2
45	53,8−2
46	69,8−2
47	86,8−2
48	10,6−1
49	12,4−1
50	14,7−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
51	16,8–1
52	19,1–1
54	23,7–1
56	28,2–1
58	32,7–1
60	37,0–1
64	44,8–1
68	53,3–1
72	61,0–1
76	68,5–1
80	75,5–1
84	82,3–1
92	95,0–1
100	10,7
$_{27}Co(p)^{57}_{27}Co$ 270,9 сут [32, 40, 47]	
18	16,3–4
19	30,0–4
20	51,8–4
21	77,0–4
22	10,9–3
23	18,0–3
24	30,3–3
25	51,5–3
26	88,6–3
27	14,3–2
28	22,3–2
29	33,5–2
30	47,4–2
31	63,0–2
32	82,8–2
33	10,3–1
34	12,5–1
35	13,7–1
36	17,1–1
38	21,8–1
40	26,5–1
42	30,8–1
44	34,8–1
48	40,5–1
52	45,6–1
60	54,8–1
68	65,5–1
76	75,1–1
84	83,7–1
100	98,8–1
$_{27}Co(p)^{58m}_{27}Co$ 9,15 ч [162]	
12	30,0–3
13	14,8–2
14	79,0–2
15	47,8–1
16	26,8
17	65,3
18	12,5+1
19	20,6+1
20	31,7+1
21	46,4+1
22	62,6+1
23	80,0+1
24	99,2+1
25	11,9+2
26	14,2+2
28	19,0+2
30	23,7+2
32	27,9+2
36	35,6+2
44	49,0+2
52	61,2+2
60	72,4+2
68	82,9+2
76	92,8+2
84	10,2+3
100	12,1+3
$_{27}Co(p)^{58}_{27}Co$ 70,78 сут [32, 47]	
12	92,5–4
13	56,0–3
14	16,5–2
15	37,5–2
16	72,3–2
17	12,6–1
18	19,7–1
19	27,8–1
20	37,3–1
21	47,3–1
22	57,6–1
23	68,4–1
24	79,3–1
25	90,1–1
26	10,1
28	12,2
32	15,6
36	18,4
40	20,8
44	23,2
52	28,6
60	34,0
68	39,1
76	44,0
84	48,8
100	57,9
$_{27}Co(p)^{56}_{28}Ni$ 6,10 сут [32, 47]	
38	12,6–5
39	80,0–5
40	28,4–4
41	55,2–4
42	96,0–4
43	14,4–3
44	21,0–3
45	29,1–3
46	38,2–3
47	48,5–3
48	59,2–3
49	72,2–3
50	84,7–3
51	10,3–2
52	11,6–2
53	12,2–2
54	15,1–2
55	17,0–2
56	18,9–2
58	22,9–2
60	27,0–2
62	31,1–2
64	34,9–2
68	42,0–2
72	48,2–2
76	54,2–2
84	65,7–2
92	76,7–2
100	87,6–2
$_{27}Co(p)^{57}_{28}Ni$ 36,16 ч [32, 47]	
24	14,8–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
25	66,0–4
26	29,2–3
27	98,0–3
28	31,7–2
29	65,3–2
30	12,1–1
31	18,8–1
32	27,9–1
33	38,4–1
34	51,4–1
35	66,1–1
36	83,1–1
37	10,0
38	12,0
39	13,9
40	15,8
42	19,4
44	22,7
46	25,4
48	29,6
52	36,6
56	42,3
60	47,1
68	55,0
84	67,7
100	78,4
$_{27}Co(d)^{46}_{21}Sc$ 83,8 сут [46]	
64	10,0–7
65	30,0–7
66	11,0–6
67	28,0–6
68	60,0–6
69	10,9–5
70	18,3–5
71	28,0–5
72	40,4–5
73	55,9–5
74	74,8–5
75	97,2–5
76	12,4–4
77	15,4–4
78	19,1–4
79	23,2–4
80	28,0–4
81	33,7–4
82	40,2–4
83	47,4–4
84	55,6–4
85	64,5–4
86	74,5–4
88	97,3–4
90	12,4–3
$_{27}Co(d)^{47}_{21}Sc$ 3,351 сут [46]	
48	20,0–6
49	32,9–6
50	54,0–6
51	87,0–6
52	13,9–5
53	21,0–5
54	31,6–5
55	43,1–5
56	58,8–5
57	79,5–5
58	10,5–4
59	14,1–4
60	19,1–4
61	25,8–4
62	34,3–4
63	45,1–4
64	57,9–4
65	74,8–4
66	95,4–4
67	12,4–3
68	15,7–3
69	19,8–3
70	24,7–3
71	30,7–3
72	37,7–3
73	45,4–3
74	54,0–3
75	62,9–3
76	72,7–3
77	82,4–3
78	93,4–3
80	11,6–2
82	14,0–2
84	16,8–2
86	19,8–2
88	23,2–2
90	26,7–2
$_{27}Co(d)^{48}_{23}V$ 15,974 сут [46]	
64	11,0–6
65	36,3–6
66	12,0–5
67	28,8–5
68	56,7–5
69	94,2–5
70	13,7–4
71	19,9–4
72	27,6–4
73	37,7–4
74	50,0–4
75	66,0–4
76	82,1–4
77	10,3–3
78	12,9–3
79	16,0–3
80	19,5–3
81	23,8–3
82	29,5–3
83	37,8–3
84	47,8–3
85	55,0–3
86	63,2–3
87	75,1–3
88	88,2–3
89	10,2–2
90	11,8–2
$_{27}Co(d)^{51}_{24}Cr$ (к.) 27,702 сут [46]	
32	37,0–6
33	92,2–6
34	22,8–5
35	81,8–5
36	18,3–4
37	34,5–4
38	55,7–4
39	84,2–4
40	12,5–3
41	18,2–3
42	25,5–3
43	35,0–3
44	48,7–3
45	66,0–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА ч)	Энергия частиц, МэВ	Выход радионуклида, МБк /(мкА· ч)
46	90,9–3	73	21,8–1	68	97,2–2
47	11,7–2	74	25,8–1	72	11,1–1
48	15,2–2	75	30,3–1	76	12,6–1
49	19,0–2	76	35,1–1	80	14,3–1
50	23,6–2	78	45,8–1	84	16,1–1
51	29,0–2	80	57,8–1	92	20,1–1
52	34,1–2	82	70,9–1	100	24,8–1
53	40,1–2	84	85,0–1		
54	46,4–2	86	99,7–1	$_{27}Co(d)^{56}_{25}Mn$	
56	59,4–2	88	11,5	2,578 сут [46]	
58	72,8–2	90	13,1		
60	86,4–2	92	14,7	6	26,9–4
64	11,2–1	96	18,3	7	61,0–4
68	13,5–1	100	21,9	8	14,4–3
72	15,7–1			9	35,0–3
76	18,1–1	$_{27}Co(d)^{54}_{25}Mn$		10	79,2–3
80	21,2–1	312,16 сут [46]		11	13,3–2
84	26,1–1			12	22,3–2
88	32,3–1	28	30,0–6	13	35,5–2
92	39,7–1	29	86,0–6	14	52,6–2
100	57,6–1	30	18,9–5	15	88,5–2
		31	35,0–5	16	14,5–1
$_{27}Co(d)^{52}_{25}Mn$		32	61,8–5	17	24,3–1
5,591 сут [46]		33	10,4–4	18	39,6–1
		34	18,0–4	19	63,0–1
50	25,0–4	35	28,5–4	20	96,5–1
51	44,5–4	36	47,8–4	21	14,3
52	76,5–4	37	75,8–4	22	20,2
53	11,8–3	38	12,1–3	23	27,2
54	18,2–3	39	19,5–3	24	35,5
55	25,5–3	40	29,8–3	25	43,0
56	34,6–3	41	44,0–3	26	50,1
57	45,1–3	42	61,0–3	27	57,8
58	56,9–3	43	80,0–3	28	65,9
59	76,2–3	44	10,3–2	29	74,0
60	99,9–3	45	12,7–2	30	83,2
61	13,2–2	46	15,6–2	32	10,1+1
62	17,6–2	47	19,0–2	36	12,5+1
63	23,0–2	48	21,9–2	40	15,2+1
64	29,4–2	49	25,8–2	44	17,8+1
65	38,2–2	50	29,0–2	48	20,4+1
66	48,7–2	52	36,6–2	52	23,4+1
67	62,5–2	54	44,6–2	56	26,9+1
68	78,3–2	56	52,6–2	60	31,1+1
69	99,2–2	58	60,5–2	64	36,6+1
70	12,1–1	60	68,2–2	68	43,1+1
71	14,9–1	62	75,7–2	72	50,3+1
72	18,1–1	64	83,0–2	76	58,1+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
80	66,1+1	15	79,0–4	59	93,2–2
84	74,0+1	16	11,8–3	60	11,2–1
92	90,5+1	17	17,9–3	61	13,4–1
100	10,7+2	18	25,6–3	62	16,0–1
		19	36,5–3	63	19,0–1
$_{27}Co(d)^{52}_{26}Fe$		20	49,1–3	64	22,4–1
8,275 ч [46]		21	62,4–3	65	26,4–1
		22	76,9–3	66	30,8–1
58	45,9–5	23	93,8–3	67	35,8–1
59	88,2–5	24	11,2–2	68	41,5–1
60	15,9–4	25	13,3–2	69	47,8–1
61	26,8–4	26	15,4–2	70	55,1–1
62	44,9–4	27	17,6–2	71	63,0–1
63	65,9–4	28	19,6–2	72	71,3–1
64	92,4–4	29	21,8–2	73	80,5–1
65	12,7–3	30	23,9–2	74	90,1–1
66	17,3–3	32	28,6–2	76	11,1
67	22,9–3	34	33,2–2	78	13,4
68	29,8–3	36	38,0–2	80	15,9
69	37,8–3	40	47,8–2	82	18,6
70	48,3–3	44	57,9–2	84	21,3
71	60,0–3	48	68,1–2	86	24,0
72	74,7–3	52	78,6–2	88	26,5
73	90,8–3	56	89,0–2	92	32,0
74	11,2–2	60	99,5–2	96	37,9
75	13,5–2	68	12,0–1	100	43,1
76	16,4–2	76	14,1–1		
77	19,8–2	84	16,1–1	$_{27}Co(d)^{56}_{27}Co$	
78	23,6–2	100	19,7–1	78,76 сут [46]	
79	28,3–2				
80	33,4–2			32	39,0–6
81	39,0–2	$_{27}Co(d)^{55}_{27}Co$ (к.)		33	21,0–5
82	45,1–2	17,54 ч [46]		34	55,4–5
83	51,5–2			35	10,0–4
84	58,3–2	44	11,6–4	36	16,8–4
86	72,7–2	45	41,3–4	37	27,0–4
88	88,2–2	46	14,7–3	38	40,3–4
90	10,5–1	47	31,0–3	39	58,6–4
		48	59,9–3	40	83,1–4
$_{27}Co(d)^{59}_{26}Fe$		49	91,2–3	41	11,8–3
44,52 сут [46]		50	13,0–2	42	15,9–3
		51	17,4–2	43	21,8–3
8	15,9–5	52	22,6–2	44	29,0–3
9	28,5–5	53	28,0–2	45	39,6–3
10	51,0–5	54	35,7–2	46	52,8–3
11	92,2–5	55	43,5–2	47	69,4–3
12	16,2–4	56	53,4–2	48	90,6–3
13	29,5–4	57	65,1–2	49	11,1–2
14	49,5–4	58	77,7–2		

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
50	13,3–2
51	15,5–2
52	18,0–2
53	23,9–2
54	29,9–2
55	37,0–2
56	44,8–2
57	53,6–2
58	62,7–2
59	72,5–2
60	83,0–2
62	10,5–1
64	12,8–1
66	15,2–1
68	17,7–1
70	20,1–1
72	22,5–1
76	27,4–1
80	32,2–1
84	38,3–1
88	43,4–1
92	48,6–1
100	59,5–1
	$_{27}Co(d)\,^{57}_{27}Co$ 271,5 сут [46]
20	50,0–6
21	12,9–5
22	34,5–5
23	89,6–5
24	24,1–4
25	34,2–4
26	50,0–4
27	73,0–4
28	10,5–3
29	16,2–3
30	24,5–3
31	37,3–3
32	56,8–3
33	84,8–3
34	12,5–2
35	17,7–2
36	24,5–2
37	31,8–2
38	39,5–2
39	48,8–2
40	58,9–2
41	72,1–2
42	84,2–2
44	11,0–1
46	13,6–1
48	16,7–1
50	19,5–1
52	22,6–1
54	25,5–1
56	28,4–1
60	34,3–1
64	40,2–1
68	46,2–1
72	52,4–1
76	58,6–1
80	64,9–1
84	71,1–1
92	83,5–1
100	95,5–1
	$_{27}Co(d)\,^{58}_{27}Co$ 70,79 сут [46]
14	80,0–5
15	10,1–3
16	30,7–3
17	61,8–3
18	11,1–2
19	19,6–2
20	31,2–2
21	49,0–2
22	77,5–2
23	10,9–1
24	15,0–1
25	19,8–1
26	25,0–1
27	30,8–1
28	37,5–1
29	44,1–1
30	52,4–1
31	59,8–1
32	68,3–1
33	76,1–1
34	84,8–1
36	10,1
38	11,8
40	13,4
44	16,6
48	19,7
50	21,2
54	24,3
58	27,3
66	33,8
74	39,6
82	45,0
90	50,2
98	55,1
100	56,3
	$_{27}Co(d)\,^{60}_{27}Co$ 5,273 года [46]
4	50,0–6
5	88,8–5
6	35,9–4
7	89,0–4
8	14,8–3
9	20,7–3
10	26,1–3
11	31,4–3
12	36,5–3
14	45,7–3
16	54,4–3
17	58,3–3
18	62,1–3
22	75,4–3
26	86,8–3
34	11,3–2
42	13,1–2
50	14,5–2
66	16,9–2
82	18,7–2
98	20,4–2
100	20,6–2
	$_{27}Co(d)\,^{56}_{28}Ni$ 6,10 сут [46]
40	20,0–6
41	35,2–6
42	60,0–6
43	11,2–5
44	18,7–5
45	31,8–5
46	51,4–5
47	79,8–5
48	11,9–4
49	18,2–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
50	27,2–4
51	38,6–4
52	53,6–4
53	72,3–4
54	92,4–4
55	11,7–3
56	14,5–3
57	17,9–3
58	21,2–3
59	25,2–3
60	29,2–3
61	33,8–3
62	38,7–3
63	43,8–3
64	49,0–3
66	59,6–3
68	70,4–3
70	80,9–3
74	10,2–2
78	12,5–2
82	14,7–2
86	16,8–2
90	18,6–2
	$_{27}Co(d)\,^{57}_{28}Ni$ 36,16 ч [46]
28	10,5–5
29	11,2–4
30	57,7–4
31	16,9–3
32	37,1–3
33	72,9–3
34	12,6–2
35	20,4–2
36	31,2–2
37	45,1–2
38	62,7–2
39	84,3–2
40	11,1–1
41	14,2–1
42	17,9–1
43	22,0–1
44	26,4–1
45	31,3–1
46	36,4–1
47	41,9–1
48	47,5–1
49	53,2–1
50	58,9–1
51	64,6–1
52	70,2–1
54	81,4–1
56	92,7–1
60	11,4
64	13,6
68	15,6
72	17,5
76	19,5
82	22,4
90	26,4
98	30,2
100	31,1
	$_{27}Co(\alpha)\,^{42}_{19}K$ 12,36 ч [48]
108	29,6–5
109	43,6–5
110	65,2–5
111	93,3–5
112	13,3–4
113	17,7–4
114	23,2–4
115	29,8–4
116	37,7–4
117	45,7–4
118	56,7–4
119	67,5–4
120	81,8–4
121	95,7–4
122	11,3–3
123	13,2–3
124	15,3–3
125	17,8–3
126	20,3–3
128	26,2–3
130	33,8–3
132	42,0–3
134	54,6–3
136	63,3–3
138	79,8–3
140	90,5–3
142	10,9–2
144	12,5–2
146	14,2–2
148	16,3–2
150	18,1–2
152	20,6–2
156	25,9–2
160	32,2–2
164	39,7–2
168	48,4–2
172	58,3–2
176	69,4–2
178	75,1–2
180	81,5–2
	$_{27}Co(\alpha)\,^{43}_{19}K$ 22,6 ч [48]
132	74,0–6
133	18,5–5
134	35,2–5
135	59,2–5
136	92,5–5
137	13,4–4
138	19,3–4
139	26,6–4
140	35,9–4
141	46,4–4
142	59,0–4
143	73,4–4
144	90,3–4
145	10,8–3
146	11,8–3
147	14,8–3
148	17,2–3
149	20,0–3
150	22,6–3
152	28,3–3
154	34,0–3
156	41,1–3
158	47,0–3
160	54,6–3
162	61,4–3
164	69,7–3
166	77,3–3
168	87,2–3
172	10,7–2
176	13,3–2
180	15,8–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{27}Co(\alpha)^{44m}_{21}Sc$ 2,44 сут [48]		$_{27}Co(\alpha)^{44}_{21}Sc$ 3,92 ч [48]		$_{27}Co(\alpha)^{46}_{21}Sc$ 83,8 сут [48]	
80	25,9–5	94	41,4–4	80	14,8–6
81	33,6–5	95	56,7–4	81	22,6–6
82	42,6–5	96	75,2–4	82	33,7–6
83	52,3–5	97	98,8–4	83	48,0–6
84	62,9–5	98	12,7–3	84	66,6–6
85	71,6–5	99	16,1–3	85	88,8–6
86	81,0–5	100	19,8–3	86	11,6–5
88	10,4–4	101	23,9–3	87	14,8–5
90	12,9–4	102	28,1–3	88	18,9–5
92	15,9–4	103	32,2–3	89	21,4–5
94	18,8–4	104	36,7–3	90	27,9–5
96	22,9–4	105	41,4–3	91	33,8–5
98	27,8–4	106	46,2–3	92	39,6–5
100	34,4–4	107	51,6–3	93	46,6–5
102	44,3–4	108	59,2–3	94	53,6–5
104	55,5–4	109	66,5–3	95	60,6–5
106	68,8–4	110	74,2–3	96	67,6–5
107	76,7–4	111	81,6–3	97	76,2–5
108	84,7–4	112	90,0–3	98	85,0–5
110	10,6–3	114	11,2–2	100	10,3–4
112	13,1–3	116	13,5–2	102	12,2–4
114	16,1–3	118	16,6–2	104	14,5–4
116	19,7–3	120	20,0–2	106	16,6–4
118	23,7–3	122	24,2–2	108	19,3–4
120	28,5–3	124	28,4–2	110	21,8–4
122	33,7–3	126	34,0–2	112	24,7–4
124	39,8–3	128	40,0–2	114	27,6–4
126	46,2–3	130	46,1–2	116	31,2–4
128	53,8–3	132	50,5–2	118	34,9–4
130	61,4–3	134	60,2–2	120	39,3–4
132	71,1–3	136	67,8–2	122	44,2–4
134	81,3–3	138	76,7–2	124	49,8–4
136	91,6–3	140	85,8–2	126	57,3–4
140	11,4–2	144	10,7–1	128	64,9–4
144	14,0–2	148	13,2–1	130	74,7–4
148	16,9–2	152	16,1–1	132	84,6–4
152	20,4–2	156	19,4–1	134	96,8–4
156	24,7–2	160	23,2–1	136	10,9–3
160	30,0–2	164	28,0–1	140	13,9–3
164	36,3–2	168	32,4–1	144	17,4–3
168	43,5–2	172	40,0–1	148	21,5–3
172	51,9–2	176	47,8–1	152	26,1–3
176	61,6–2	180	55,7–1	156	31,4–3
180	72,7–2			160	37,2–3
				164	43,6–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
168	50,4–3	134	11,2–2	140	24,1–2
172	57,8–3	136	12,5–2	144	29,2–2
176	65,8–3	138	14,0–2	148	35,2–2
180	74,3–3	142	17,2–2	152	42,2–2
		146	20,5–2	156	50,2–2
$_{27}Co(\alpha)^{47}_{21}Sc$ 3,40 сут [48]		150	24,1–2	160	59,1–2
		154	28,0–2	164	68,9–2
		158	32,1–2	168	79,5–2
70	14,8–5	166	41,5–2	172	90,8–2
71	20,4–5	174	52,5–2	180	11,5–1
72	26,5–5	182	65,1–2		
73	33,3–5				
74	40,7–5	$_{27}Co(\alpha)^{48}_{23}V$ 15,98 сут [48]		$_{27}Co(\alpha)^{51}_{24}Cr$ (к.) 27,7 сут [48]	
75	47,5–5				
76	55,3–5			74	15,2–4
77	64,1–5	84	18,5–5	75	21,5–4
78	74,0–5	85	24,5–5	76	28,5–4
79	84,9–5	86	32,7–5	77	38,6–4
80	97,2–5	87	43,6–5	78	52,2–4
81	11,1–4	88	59,2–5	79	70,1–4
82	12,6–4	89	84,0–5	80	92,8–4
83	14,2–4	90	11,7–4	81	12,2–3
84	15,9–4	91	16,3–4	82	16,2–3
85	17,9–4	92	22,6–4	83	22,2–3
86	20,0–4	93	29,5–4	84	29,6–3
88	24,4–4	94	38,2–4	85	38,5–3
90	29,6–4	95	48,5–4	86	47,1–3
92	36,0–4	96	60,3–4	87	56,9–3
94	43,3–4	97	72,2–4	88	67,0–3
96	51,0–4	98	85,0–4	89	79,2–3
98	59,6–4	99	10,2–3	90	92,0–3
100	71,2–4	100	12,0–3	91	10,7–2
102	83,6–4	101	14,1–3	92	12,4–2
104	10,1–3	102	16,5–3	93	14,2–2
106	11,8–3	103	19,3–3	94	16,2–2
108	14,0–3	104	22,1–3	95	18,6–2
110	16,7–3	106	28,2–3	96	20,8–2
112	20,1–3	108	35,3–3	98	25,7–2
114	23,9–3	110	43,2–3	100	30,8–2
116	28,3–3	112	51,2–3	102	38,5–2
118	33,6–3	114	59,8–3	104	45,6–2
120	40,0–3	116	69,6–3	106	53,4–2
122	47,0–3	118	79,0–3	108	61,4–2
124	55,2–3	120	89,9–3	110	69,5–2
126	64,8–3	124	11,2–2	112	78,0–2
128	74,5–3	128	13,7–2	114	86,6–2
130	86,6–3	132	16,6–2	118	10,4–1
132	98,0–3	136	20,0–2	122	12,3–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
126	14,2–1
130	16,2–1
134	18,3–1
142	23,0–1
150	28,6–1
158	35,0–1
166	42,2–1
174	49,6–1
182	55,3–1
	$_{27}Co(\alpha)^{52}_{25}Mn$ 5,67 сут [48]
66	36,3–4
67	79,4–4
68	12,2–3
69	21,1–3
70	35,0–3
71	47,8–3
72	65,1–3
73	86,3–3
74	11,0–2
75	13,3–2
76	16,3–2
77	19,8–2
78	23,7–2
79	27,7–2
80	32,3–2
81	36,1–2
82	42,0–2
84	53,2–2
86	63,5–2
88	74,5–2
90	85,6–2
94	10,7–1
98	12,6–1
102	14,4–1
106	16,1–1
110	17,9–1
114	19,9–1
118	22,4–1
122	25,7–1
126	29,7–1
130	34,4–1
134	39,5–1
138	45,1–1
142	50,9–1
150	63,3–1
158	76,3–1
166	89,9–1
174	10,4
182	11,6
	$_{27}Co(\alpha)^{54}_{25}Mn$ 312,3 сут [48]
38	37,0–6
39	18,0–5
40	45,0–5
41	86,0–5
42	14,8–4
43	21,6–4
44	30,3–4
45	41,2–4
46	52,9–4
47	64,7–4
48	78,3–4
49	92,6–4
50	10,7–3
52	13,4–3
54	16,2–3
56	18,7–3
58	21,3–3
60	23,7–3
62	25,8–3
64	27,9–3
66	29,9–3
68	32,0–3
70	33,9–3
72	35,8–3
74	38,1–3
76	40,5–3
78	43,5–3
80	48,1–3
82	53,6–3
84	61,0–3
86	69,5–3
88	80,0–3
90	91,0–3
94	11,7–2
98	14,5–2
102	17,8–2
106	21,0–2
110	24,3–2
114	27,8–2
118	31,2–2
126	38,2–2
134	45,4–2
142	52,8–2
150	60,4–2
158	68,4–2
166	76,6–2
174	85,3–2
182	94,4–2
	$_{27}Co(\alpha)^{56}_{25}Mn$ 2,58 ч [48]
38	95,8–4
39	14,2–3
40	20,3–3
41	27,5–3
42	35,4–3
43	42,4–3
44	50,3–3
45	60,2–3
46	72,2–3
47	88,8–3
48	11,0–2
49	14,6–2
50	19,0–2
51	25,3–2
52	33,4–2
53	44,4–2
54	58,4–2
55	77,1–2
56	10,1–1
57	12,9–1
58	16,4–1
59	21,0–1
60	26,7–1
61	32,8–1
62	39,4–1
63	45,5–1
64	52,9–1
65	60,2–1
66	69,1–1
67	80,0–1
68	91,6–1
70	11,6
72	13,1
74	16,7
76	19,3
78	21,9

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
80	24,4
82	27,0
86	32,1
90	37,1
94	42,1
98	47,1
102	52,5
106	58,3
110	64,6
114	71,4
118	78,7
122	90,2
130	10,7+1
138	12,4+1
146	14,2+1
154	16,1+1
162	18,0+1
170	20,0+1
186	23,8+1
	$_{27}Co(\alpha)^{52}_{26}Fe$ 8,28 ч [48]
108	22,2–5
109	51,0–5
110	96,0–5
111	10,6–4
112	24,8–4
113	35,8–4
114	50,2–4
115	67,5–4
116	89,5–4
117	11,1–3
118	13,8–3
119	17,2–3
120	21,1–3
121	25,1–3
122	29,7–3
123	35,2–3
124	41,3–3
125	47,3–3
126	54,3–3
127	62,0–3
128	70,8–3
129	78,7–3
130	88,2–3
132	10,9–2
134	13,0–2
136	15,5–2
138	18,0–2
140	20,8–2
142	23,6–2
144	26,8–2
148	33,4–2
152	40,4–2
156	47,8–2
160	55,5–2
164	63,4–2
168	71,5–2
172	79,6–2
180	96,0–2
	$_{27}Co(\alpha)^{59}_{26}Fe$ 45,1 сут [48]
24	11,1–6
25	15,8–6
26	22,3–6
27	30,4–6
28	40,7–6
29	50,6–6
30	65,0–6
31	80,7–6
32	10,0–5
33	12,2–5
34	14,8–5
35	18,1–5
36	21,8–5
37	25,5–5
38	30,1–5
39	35,4–5
40	41,1–5
41	47,0–5
42	53,8–5
43	61,2–5
44	69,5–5
45	79,0–5
46	89,3–5
47	10,1–4
48	11,4–4
49	13,0–4
50	14,8–4
51	17,0–4
52	19,4–4
53	22,6–4
54	26,6–4
55	31,4–4
56	36,9–4
57	42,4–4
58	48,8–4
59	56,6–4
60	64,5–4
61	72,2–4
62	81,0–4
64	10,3–3
66	12,7–3
68	15,1–3
70	17,8–3
72	20,5–3
76	26,2–3
80	32,3–3
84	38,6–3
88	45,2–3
92	51,9–3
96	58,9–3
100	66,0–3
104	73,2–3
108	80,6–3
116	96,4–3
124	11,4–2
132	13,1–2
140	15,0–2
148	16,8–2
156	18,7–2
164	20,6–2
180	24,2–2
	$_{27}Co(\alpha)^{55}_{27}Co$ (к.) 17,54 ч [48]
60	32,9–4
61	81,8–4
62	15,0–3
63	25,4–3
64	39,7–3
65	57,3–3
66	80,3–3
67	10,9–2
68	14,0–2
69	19,7–2
70	26,1–2
71	33,9–2
72	43,3–2
73	50,4–2

Продолжение табл.

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
74	58,2–2	68	16,8–2	102	56,2–2
75	67,0–2	70	19,1–2	110	66,7–2
76	77,7–2	72	21,1–2	118	77,2–2
77	87,3–2	76	24,8–2	126	87,7–2
78	98,8–2	80	28,1–2	134	98,2–2
80	12,3–1	84	31,2–2	150	11,9–1
82	14,6–1	92	37,5–2	166	14,0–1
84	17,0–1	100	45,0–2	182	16,1–1
88	21,8–1	108	54,5–2		
92	26,3–1	116	65,9–2	$_{27}Co(a)^{58}_{27}Co$ 70,78 сут [48]	
96	30,4–1	124	78,3–2		
100	34,3–1	132	91,1–2	18	12,4–5
104	38,1–1	140	10,4–1	19	48,5–5
108	41,9–1	148	11,7–1	20	12,7–4
112	45,9–1	156	12,9–1	21	27,8–4
116	50,2–1	164	14,2–1	22	57,6–4
124	60,0–1	180	17,0–1	23	11,4–3
132	71,1–1			24	18,9–3
140	83,3–1	$_{27}Co(a)^{57}_{27}Co$ 270,9 сут [48]		25	28,0–3
148	96,1–1			26	38,6–3
156	10,9	30	26,6–4	27	50,4–3
164	12,2	31	39,2–4	28	63,6–3
172	13,6	32	59,4–4	29	77,6–3
180	15,0	33	82,8–4	30	92,5–3
		34	11,5–3	31	10,8–2
$_{27}Co(a)^{56}_{27}Co$ 78,76 сут [48]		35	14,5–3	32	12,5–2
		36	18,2–3	34	15,8–2
44	37,0–5	37	22,5–3	36	19,2–2
45	76,0–5	38	27,5–3	38	22,6–2
46	13,3–4	39	32,4–3	40	26,1–2
47	20,8–4	40	38,0–3	42	29,3–2
48	32,9–4	41	44,6–3	46	35,0–2
49	50,4–4	42	51,9–3	50	40,3–2
50	74,8–4	43	59,3–3	54	45,3–2
51	10,3–3	44	67,0–3	58	51,2–2
52	13,9–3	45	74,8–3	62	59,2–2
53	18,3–3	46	83,3–3	66	70,4–2
54	24,9–3	48	10,0–2	70	85,0–2
55	30,8–3	49	10,9–2	74	10,3–1
56	37,7–3	50	11,8–2	78	12,2–1
57	46,3–3	52	12,5–2	82	14,2–1
58	55,0–3	54	15,3–2	86	16,2–1
59	64,7–3	58	18,3–2	90	18,2–1
60	75,2–3	62	20,3–2	94	20,1–1
61	85,2–3	70	24,0–2	102	24,0–1
62	97,3–3	78	28,9–2	110	27,8–1
64	12,0–2	86	36,3–2	118	31,5–1
66	14,5–2	94	45,9–2	126	35,3–1
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Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк /(мкА· ч)
134	39,1–1	$_{27}Co(a)^{61}_{27}Co$ 1,65 ч [49]		79	30,7–1
150	46,8–1			80	36,1–1
166	54,6–1			81	41,4–1
182	62,3–1	14	15,0–6	82	47,5–1
		15	46,7–4	83	53,8–1
$_{27}Co(a)^{60}_{27}Co$ 5,27 года [48]		16	21,0–3	84	61,2–1
		17	61,9–3	85	68,6–1
		18	12,4–2	86	76,7–1
30	28,4–7	19	22,8–2	87	84,6–1
31	43,5–7	20	40,5–2	88	92,5–1
32	64,8–7	21	65,7–2	89	10,1
33	91,2–7	22	87,7–2	90	11,1
34	12,5–6	23	14,0–1	91	11,9
35	16,4–6	24	19,1–1	92	12,8
36	21,1–6	25	25,1–1	94	14,7
37	26,8–6	26	32,0–1	96	16,7
38	33,9–6	27	39,7–1	98	18,7
39	41,7–6	28	48,1–1	100	20,7
40	51,6–6	29	57,2–1	104	24,9
41	63,4–6	30	66,9–1	108	29,0
42	76,7–6	31	77,0–1	112	33,2
43	92,5–6	32	87,7–1	116	37,4
44	10,8–5	33	98,9–1	124	45,7
45	12,6–5	34	11,0	132	53,8
46	14,3–5	35	12,2	140	61,6
47	16,2–5	36	13,4	148	69,3
48	18,2–5	38	15,8	156	76,7
50	22,2–5	40	18,2	164	83,9
52	26,4–5	42	20,5	180	98,0
54	30,6–5	44	22,7		
58	38,5–5			$_{27}Co(a)^{60}_{29}Cu$ 23,2 мин [49]	
62	45,9–5	$_{27}Co(a)^{57}_{28}Ni$ (к.) 36,16 ч [48]			
66	53,1–5				
70	60,2–5	64	67,4–3	30	11,1–5
74	67,3–5	65	10,2–2	31	32,1–3
78	74,3–5	66	14,8–2	32	31,3–2
86	88,3–5	67	20,6–2	33	12,7–1
94	10,2–4	68	28,7–2	34	29,3–1
102	11,6–4	69	37,7–2	35	53,9–1
110	13,0–4	70	48,7–2	36	89,1–1
118	13,7–4	71	62,8–2	37	13,6
126	15,7–4	72	79,3–2	38	18,3
134	17,1–4	73	99,0–2	39	22,9
150	19,6–4	74	12,3–1	40	27,7
166	22,0–4	75	15,2–1	41	32,3
182	24,3–4	76	18,5–1	42	37,0
		77	21,9–1	43	41,6
		78	26,1–1	44	46,2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{27}Co(\alpha)^{61}_{29}Cu$ 3,41 ч [48]	
16	80,0–5
17	99,1–3
18	56,4–2
19	16,4–1
20	38,0–1
21	73,3–1
22	12,5
23	19,0
24	27,2
25	36,2
26	45,9
27	56,0
28	66,5
29	77,0
30	87,6
32	10,8+1
34	12,5+1
38	15,4+1
42	16,8+1
50	18,5+1
58	19,5+1
74	20,8+1
106	22,1+1
138	22,5+1
170	22,7+1
$_{27}Co(\alpha)^{62}_{29}Cu$ 9,74 мин [49]	
6	15,9–2
7	25,0–1
8	31,5
9	79,7
10	16,6+1
11	30,3+1
12	49,8+1
13	76,5+1
14	10,9+2
15	14,8+2
16	19,7+2
17	24,8+2
18	29,4+2
19	33,8+2
20	38,0+2
24	44,8+2
28	47,5+2
36	49,6+2
44	50,2+2
$^{58}_{28}Ni(p)^{52}_{25}Mn$ 5,67 сут [51]	
40	18,7–3
41	35,4–3
42	67,1–3
43	10,7–2
44	17,2–2
45	26,6–2
46	39,6–2
47	57,1–2
48	79,8–2
49	10,9–1
50	14,4–1
51	18,8–1
52	24,4–1
53	31,0–1
54	38,8–1
55	47,4–1
56	57,0–1
57	67,2–1
58	78,6–1
59	89,6–1
60	10,3
$^{60}_{28}Ni(p)^{54}_{25}Mn$ 312,3 сут [51]	
42	37,0–6
43	52,0–6
44	74,0–6
45	25,0–5
46	11,8–4
47	21,1–4
48	34,4–4
49	51,3–4
50	73,3–4
51	10,1–3
52	13,6–3
53	17,7–3
54	22,9–3
55	28,8–3
56	36,1–3
57	44,6–3
58	54,3–3
59	64,8–3
60	76,3–3
$^{58}_{28}Ni(p)^{52}_{26}Fe$ 5,67 сут [51]	
42	16,2–3
43	25,6–3
44	41,3–3
45	67,0–3
46	10,6–2
47	16,7–2
48	26,2–2
49	41,3–2
50	61,7–2
51	80,4–2
52	12,8–1
53	17,4–1
54	23,5–1
55	31,0–1
56	39,1–1
57	49,0–1
58	59,5–1
59	71,2–1
60	84,7–1
$^{58}_{28}Ni(p)^{53}_{26}Fe$ 8,53 мин [51]	
32	24,4
33	71
34	12,2+1
35	19,3+1
36	29,8+1
37	42,0+1
38	57,9+1
39	78,0+1
40	10,3+2
41	13,1+2
42	16,2+2
43	19,7+2
44	23,5+2
45	27,3+2
46	31,8+2
48	40,8+2
50	50,2+2
52	59,6+2
54	68,7+2
56	77,4+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
58	85,9+2
60	94,2+2
$^{58}_{28}Ni(p)^{55}_{27}Co$ (к.) 17,54 ч [51]	
8	10,5–2
9	48,5–2
10	12,2–1
11	22,8–1
12	38,1–1
13	57,7–1
14	83,2–1
15	11,4
16	14,9
17	18,6
18	22,5
19	26,9
20	30,2
22	35,5
24	39,1
28	43,8
32	47,7
36	51,9
40	57,7
42	62,3
44	70,1
46	81,5
48	86,8
50	11,6+1
52	14,0+1
54	16,7+1
56	19,4+1
58	22,3+1
60	25,2+1
$^{60}_{28}Ni(p)^{55}_{27}Co$ (к.) 17,54 ч [51]	
36	36,3–2
37	62,3–2
38	10,0–1
39	14,5–1
40	20,3–1
41	26,8–1
42	34,7–1
43	43,3–1
44	53,0–1
45	64,0–1
46	74,1–1
47	85,6–1
48	94,1–1
52	12,5
56	14,7
60	16,9
$_{28}Ni(p)^{56}_{27}Co$ 78,76 сут [11, 50]	
20	29,6–4
21	65,1–4
22	12,5–3
23	21,6–3
24	34,7–3
25	55,3–3
26	85,3–3
27	13,1–2
28	19,2–2
29	28,6–2
30	41,8–2
31	60,0–2
32	84,5–2
33	11,4–1
34	14,9–1
35	18,4–1
36	23,1–1
37	27,8–1
38	32,4–1
40	42,7–1
42	53,4–1
44	64,0–1
46	73,6–1
48	86,3–1
50	96,5–1
52	10,8
56	12,5
60	14,3
68	17,8
76	20,9
84	24,4
92	27,8
100	31,2
$^{58}_{28}Ni(p)^{56}_{27}Co$ 78, 76 сут [50, 51]	
28	32,1–3
29	85,2–3
30	18,3–2
31	34,3–2
32	55,3–2
33	80,8–2
34	11,4–1
35	15,0–1
36	19,1–1
37	23,8–1
38	38,2–1
40	38,2–1
42	48,8–1
44	59,1–1
46	68,6–1
48	77,9–1
52	93,0–1
60	11,9
$^{60}_{28}Ni(p)^{56}_{27}Co$ 78, 76 сут [50, 51]	
20	29,6–4
21	65,6–4
22	12,5–3
23	21,4–3
24	34,7–3
25	55,4–3
26	85,3–3
27	12,0–2
28	16,0–2
29	19,9–2
30	23,5–2
32	29,2–2
34	35,0–2
36	40,0–2
38	42,2–2
40	44,8–2
42	46,1–2
44	48,8–2
46	50,3–2
47	63,5–2
48	83,7–2
50	11,5–1
52	15,1–1
54	15,9–1
56	16,8–1
58	20,2–1
60	24,0–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{28}Ni(p)^{57}_{27}Co$ (к.) 270,9 сут [11, 50, 51]	
7	15,0–6
8	14,8–5
9	96,2–5
10	26,3–4
11	55,4–4
12	94,7–4
13	13,4–3
14	26,1–3
15	68,7–3
16	14,1–2
17	25,2–2
18	42,3–2
19	59,3–2
20	82,9–2
21	10,6–1
22	13,0–1
23	15,7–1
24	18,2–1
25	20,9–1
26	23,5–1
28	28,7–1
30	33,5–1
32	37,7–1
34	41,2–1
36	44,4–1
40	50,0–1
44	55,5–1
48	62,2–1
52	69,7–1
56	77,3–1
60	85,0–1
68	99,1–1
76	11,5
84	13,0
92	14,5
100	15,8
$_{28}Ni(p)^{57}_{27}Co$ 270,9 сут [50, 51]	
7	15,0–6
8	14,8–5
9	96,2–5
10	26,3–4
11	55,4–4
12	94,7–4
13	13,3–3
14	25,8–3
15	65,7–3
16	13,6–2
17	24,5–2
18	38,2–2
19	53,0–2
20	70,9–2
21	88,4–2
22	10,6–1
23	12,4–1
24	14,3–1
25	16,0–1
26	17,8–1
27	19,4–1
28	21,1–1
30	24,0–1
32	26,5–1
36	30,3–1
40	33,3–1
44	36,4–1
48	40,5–1
52	45,3–1
56	50,1–1
60	54,9–1
$^{58}_{28}Ni(p)^{57}_{27}Co$ (к.) 270,9 сут [50, 51]	
14	99,2–4
15	45,0–3
16	11,0–2
17	22,3–2
18	38,2–2
19	56,8–2
20	78,2–2
21	10,0–1
22	12,5–1
23	14,8–1
24	17,7–1
25	20,3–1
26	23,0–1
28	28,1–1
30	32,9–1
32	37,1–1
34	40,7–1
36	43,8–1
40	49,3–1
44	54,3–1
48	59,7–1
52	65,3–1
56	70,9–1
60	76,5–1
$^{58}_{28}Ni(p)^{57}_{27}Co$ 270,9 сут [51]	
14	96,0–4
15	43,0–3
16	10,5–2
17	20,7–2
18	34,1–2
19	49,5–2
20	66,2–2
21	83,0–2
22	10,1–1
23	12,0–1
24	13,8–1
25	15,7–1
26	17,3–1
27	19,0–1
28	20,5–1
30	23,4–1
32	25,9–1
34	28,0–1
36	29,7–1
40	32,6–1
44	35,2–1
52	41,1–1
60	46,9–1
$^{60}_{28}Ni(p)^{57}_{27}Co$ 270,9 сут [51]	
7	15,0–6
8	14,8–5
9	96,2–5
10	26,3–4
11	57,2–4
12	94,7–4
13	12,6–3
14	16,2–3
15	22,8–3
16	31,2–3
17	36,8–3
18	41,4–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	46,3–3
22	49,1–3
26	51,9–3
30	54,9–3
34	57,3–3
38	60,6–3
40	69,7–3
41	78,0–3
42	88,7–3
43	10,3–2
44	12,1–2
45	14,3–2
46	17,0–2
47	20,4–2
48	23,9–2
49	28,3–2
50	32,7–2
51	37,3–2
52	42,0–2
54	51,4–2
56	60,8–2
58	70,4–2
60	79,3–2
$_{28}Ni(p)^{58}_{27}Co$ 70, 78 сут [11, 50, 51]	
8	22,2–5
9	43,6–5
10	81,4–5
11	13,2–4
12	21,5–4
13	35,3–4
14	54,4–4
15	77,4–4
16	10,3–3
17	13,1–3
18	16,2–3
19	20,1–3
20	24,7–3
21	29,3–3
22	35,3–3
23	41,2–3
24	48,5–3
25	56,8–3
26	66,6–3
27	81,0–3
28	10,0–2
29	13,2–2
30	17,4–2
31	19,5–2
32	33,4–2
33	44,5–2
34	58,4–2
35	73,0–2
36	90,1–2
37	10,9–1
38	12,8–1
39	14,8–1
40	16,9–1
41	19,0–1
42	21,1–1
44	25,1–1
46	28,7–1
48	32,7–1
50	37,2–1
52	41,6–1
54	45,8–1
56	49,9–1
58	54,1–1
60	58,5–1
64	66,3–1
68	74,3–1
72	80,6–1
76	87,5–1
80	94,8–1
84	10,2
92	11,6
100	12,9
$^{60}_{28}Ni(p)^{58}_{27}Co$ 70, 78 сут [51]	
24	29,6–4
25	52,8–4
26	88,8–4
27	14,0–3
28	22,1–3
29	43,6–3
30	78,0–3
31	13,4–2
32	21,2–2
33	29,4–2
34	39,9–2
35	50,5–2
36	62,3–2
37	74,5–2
38	87,0–2
39	10,0–1
40	11,3–1
41	12,6–1
42	14,0–1
43	15,2–1
44	16,6–1
45	17,9–1
46	19,3–1
48	21,9–1
50	24,3–1
52	26,6–1
56	30,6–1
60	34,1–1
$^{61}_{28}Ni(p)^{58}_{27}Co$ 70, 78 сут [51]	
6	55,5–6
7	11,7–5
8	22,2–5
9	45,0–5
10	81,4–5
11	13,4–4
12	21,5–4
13	31,2–4
14	42,6–4
15	56,3–4
16	71,4–4
17	88,5–4
18	10,8–3
19	12,8–3
20	15,2–3
21	17,5–3
22	19,7–3
$_{28}Ni(p)^{60}_{27}Co$ 5,27 года [50, 51]	
12	12,2–7
13	20,0–7
14	35,5–7
15	56,2–7
16	88,8–7
17	13,7–6
18	20,0–6
19	29,6–6
20	44,0–6
21	65,0–6

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
22	94,7−6
23	13,7−5
24	18,4−5
25	23,8−5
26	30,2−5
27	37,0−5
28	44,4−5
29	52,0−5
30	60,1−5
31	68,0−5
32	76,1−5
33	85,0−5
34	94,0−5
35	10,5−4
36	11,7−4
37	13,2−4
38	14,8−4
39	16,7−4
40	18,7−4
41	20,8−4
42	23,0−4
44	27,4−4
46	31,7−4
48	36,0−4
50	40,3−4
52	44,6−4
56	52,8−4
60	59,7−4
$_{28}Ni(p)^{56}_{28}Ni$ 6,10 сут [50, 51]	
20	57,4−4
21	12,1−3
22	22,2−3
23	34,5−3
24	50,6−3
25	68,0−3
26	90,2−3
27	11,8−2
28	15,2−2
29	20,2−2
30	27,6−2
31	37,5−2
32	49,9−2
33	65,0−2
34	82,9−2
35	10,5−1
36	12,8−1
37	20,4−1
38	18,6−1
39	21,6−1
40	25,3−1
41	27,8−1
42	32,7−1
44	40,3−1
46	47,6−1
48	55,5−1
50	63,3−1
52	71,0−1
54	78,5−1
56	85,9−1
58	93,1−1
60	10,0
$_{28}Ni(p)^{57}_{28}Ni$ (к.) 36,16 ч [50, 51]	
14	59,2−3
15	14,0−2
16	91,0−2
17	32,5−1
18	73,5−1
19	13,2
20	21,6
21	31,4
22	43,0
23	65,6
24	70,2
25	84,0
26	10,2+1
27	11,8+1
28	13,6+1
29	15,3+1
30	17,1+1
31	18,6+1
32	20,2+1
34	22,9+1
36	25,4+1
40	30,0+1
44	34,4+1
48	39,1+1
52	43,9+1
56	49,0+1
60	54,2+1
$^{58}_{28}Ni(p)^{57}_{28}Ni$ (к.) 36,16 ч [50, 51]	
14	59,2−3
15	14,0−2
16	91,0−2
17	32,5−1
18	73,5−1
19	13,2
20	21,6
21	31,4
22	43,0
23	65,6
24	70,2
25	84,0
26	10,2+1
27	11,8+1
28	13,6+1
29	15,3+1
30	17,1+1
31	18,6+1
32	20,2+1
34	22,9+1
36	25,4+1
40	30,0+1
44	34,4+1
48	38,9+1
52	43,5+1
56	48,3+1
60	53,2+1
$^{60}_{28}Ni(p)^{57}_{28}Ni$ (к.) 36,16 ч [50, 51]	
42	13,8−2
43	25,2−2
44	40,1−2
45	60,0−2
46	84,2−2
47	92,5−2
48	15,3−1
49	20,0−1
50	25,5−1
51	31,8−1
52	38,7−1
53	45,8−1
54	53,3−1
55	61,0−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
56	68,7−1
58	83,9−1
60	98,5−1
$^{60}_{28}Ni(p)^{60}_{29}Cu$ 23,2 мин [51]	
8	70,0
9	22,6+1
10	49,1+1
11	78,8+1
12	12,2+2
13	16,5+2
14	21,2+2
15	25,0+2
16	27,6+2
18	31,7+2
20	34,8+2
22	37,1+2
24	38,7+2
$_{28}Ni(p)^{61}_{29}Cu$ 3,41 ч [50, 51]	
4	12,3−3
5	66,0−3
6	23,3−2
7	65,0−2
8	13,5−1
9	25,5−1
10	43,8−1
11	72,8−1
12	10,6
13	13,2
14	15,9
15	18,0
16	20,5
17	25,3
18	30,4
19	38,3
20	47,0
21	56,8
22	67,7
23	78,4
24	89,4
26	11,0+1
28	12,7+1
30	14,0+1
34	15,7+1
38	16,8+1
42	17,7+1
50	19,7+1
$^{62}_{28}Ni(p)^{62}_{29}Cu$ 9,74 мин [51]	
6	15,4
7	88,0
8	23,5+1
9	40,0+1
10	57,8+1
11	78,0+1
12	10,0+2
13	12,3+2
14	14,4+2
15	16,3+2
16	17,8+2
18	20,1+2
22	22,4+2
24	22,7+2
$^{64}_{28}Ni(p)^{64}_{29}Cu$ 12,71 ч [51]	
6	28,9−2
7	65,0−2
8	12,2−1
9	18,9−1
10	28,3−1
11	39,1−1
12	49,2−1
13	58,5−1
14	67,0−1
16	75,5−1
18	80,1−1
20	84,0−1
22	86,8−1
24	88,4−1
$^{58}_{28}Ni(d)^{52}_{25}Mn$ 5,59 сут [52]	
17	37,0−6
18	15,7−4
19	53,6−4
20	12,0−3
21	22,6−3
22	37,5−3
23	57,8−3
24	84,6−3
25	12,0−2
26	16,4−2
27	21,7−2
28	27,7−2
29	34,0−2
30	40,3−2
31	46,6−2
32	52,5−2
34	62,7−2
36	70,6−2
38	76,7−2
40	81,4−2
42	85,2−2
$^{58}_{28}Ni(d)^{54}_{25}Mn$ 312,3 сут [52, 53]	
16	30,0−7
17	11,0−6
18	22,0−6
19	39,3−6
20	98,0−6
21	18,7−5
22	28,2−5
23	47,7−5
24	86,4−5
25	13,3−4
26	19,7−4
27	30,1−4
28	51,2−4
29	78,0−4
30	11,1−3
31	15,2−3
32	19,9−3
33	25,3−3
34	31,4−3
35	38,2−3
36	45,6−3
37	53,5−3
38	62,0−3
39	71,1−3
40	80,6−3
41	90,7−3
42	10,1−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{60}_{28}Ni(d)^{54}_{25}Mn$ 312,3 сут [53]	
16	30,0–7
17	10,2–6
18	24,0–6
19	52,2–6
20	10,2–5
21	18,2–5
22	29,0–5
23	52,0–5
24	89,1–5
25	15,5–4
26	26,8–4
$^{58}_{28}Ni(d)^{55}_{26}Fe$ 2,72 года [53]	
12	15,0–6
13	94,2–6
14	55,5–5
15	14,5–4
16	23,7–4
17	45,0–4
18	57,4–4
19	80,5–4
20	10,9–3
21	14,1–3
22	18,0–3
23	21,9–3
24	26,2–3
25	30,8–3
26	35,9–3
$_{28}Ni(d)^{55}_{27}Co$ (к.) 17,54 ч [52]	
6	13,0–5
7	96,0–5
8	64,9–4
9	11,4–3
10	21,8–3
11	88,0–3
12	22,4–2
13	46,5–2
14	85,4–2
15	14,5–1
16	23,8–1
17	35,7–1
18	49,4–1
19	67,0–1
20	86,7–1
21	11,0
22	13,6
23	16,2
24	18,9
25	21,4
26	23,2
28	26,5
29	28,0
32	31,2
36	34,6
40	37,9
44	43,2
$^{58}_{28}Ni(d)^{56}_{27}Co$ 78,76 сут [52]	
4	26,9–4
5	56,0–4
6	10,8–3
7	18,7–3
8	30,1–3
9	44,4–3
10	63,5–3
11	82,5–3
12	10,2–2
13	11,8–2
14	13,2–2
16	15,4–2
18	17,0–2
22	19,4–2
26	21,5–2
30	24,3–2
32	26,6–2
34	30,2–2
36	35,9–2
37	40,0–2
38	45,2–2
39	52,8–2
40	62,3–2
41	72,0–2
42	88,5–2
43	10,4–1
44	12,4–1
$^{58}_{28}Ni(d)^{57}_{27}Co$ 271,5 сут [52, 53]	
6	53,5–6
7	10,1–5
8	17,4–5
9	25,4–5
10	36,2–5
11	51,3–5
12	70,9–5
13	19,6–4
14	31,0–4
15	63,0–4
16	98,4–4
17	16,5–3
18	24,3–3
19	37,2–3
20	52,0–3
21	75,0–3
22	10,9–2
23	15,7–2
24	21,3–2
25	27,5–2
26	36,5–2
27	45,6–2
28	56,6–2
29	67,0–2
30	79,7–2
31	89,2–2
32	10,5–1
33	12,8–1
34	13,3–1
35	14,8–1
36	16,2–1
37	17,7–1
38	19,2–1
40	22,5–1
42	25,8–1
44	29,1–1
$^{58}_{28}Ni(d)^{58}_{27}Co$ 70,78 сут [52]	
4	20,0–6
5	65,0–5
6	21,6–4
7	77,0–4
8	18,9–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
9	41,5–3
10	78,2–3
11	13,8–2
12	20,1–2
13	29,3–2
14	40,1–2
15	52,8–2
16	67,1–2
17	83,0–2
18	99,7–2
19	11,7–1
20	13,6–1
21	15,5–1
22	17,4–1
23	19,2–1
24	21,1–1
26	24,7–1
28	28,0–1
32	33,4–1
36	37,6–1
40	41,5–1
44	45,0–1
$^{58}_{28}Ni(d)^{56}_{28}Ni$ 6,10 сут [52]	
24	20,0–7
25	48,0–6
26	23,6–5
27	67,0–5
28	14,2–4
29	26,1–4
30	43,9–4
31	68,0–4
32	10,1–3
33	14,4–3
34	20,0–3
35	26,9–3
36	35,4–3
37	46,1–3
38	59,4–3
39	75,7–3
40	96,1–3
41	12,2–2
42	15,6–2
43	20,0–2
44	25,6–2
$^{58}_{28}Ni(d)^{57}_{28}Ni$ (к.) 36,16 ч [52, 53]	
6	25,2–4
7	49,4–4
8	80,3–4
9	11,2–3
10	15,5–3
11	24,2–3
12	33,6–3
13	59,0–3
14	10,2–2
15	17,6–2
16	27,4–2
17	41,3–2
18	60,6–2
19	86,2–2
20	12,0–1
21	16,5–1
22	21,7–1
23	28,8–1
24	37,8–1
25	49,2–1
26	62,9–1
27	87,0–1
28	99,1–1
29	12,2
30	14,8
31	17,6
32	20,9
33	24,3
34	28,3
35	32,4
36	36,7
38	45,9
40	55,7
42	66,1
44	77,1
$_{28}Ni(\alpha)^{56}_{27}Co$ 78,76 сут [44, 54]	
22	15,0–6
23	24,5–6
24	37,0–6
25	51,0–6
26	67,0–6
27	83,0–6
28	10,0–5
29	11,8–5
30	14,8–5
31	20,2–5
32	30,2–5
33	58,0–5
34	11,8–4
35	23,3–4
36	36,6–4
37	63,0–4
38	97,3–4
39	15,5–3
40	22,9–3
41	33,8–3
42	49,5–3
43	73,0–3
44	10,1–2
45	13,0–2
46	16,4–2
47	19,7–2
48	23,1–2
49	26,6–2
50	30,2–2
$_{28}Ni(\alpha)^{57}_{27}Co$ 271,5 сут [44, 54]	
18	44,9–5
19	96,0–5
20	18,1–4
21	30,0–4
22	45,5–4
23	63,0–4
24	85,8–4
25	11,0–3
26	13,6–3
27	16,5–3
28	19,5–3
29	22,7–3
30	25,9–3
32	32,6–3
34	39,3–3
36	45,8–3
38	52,0–3
40	57,8–3
42	64,9–3
44	70,8–3
46	76,1–3
50	85,0–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{28}Ni(\alpha)^{58}_{27}Co$ 70,78 сут [54]	
24	22,2−5
25	36,8−5
26	55,5−5
27	72,1−5
28	98,8−5
29	11,1−4
30	13,3−4
31	15,5−4
32	17,8−4
33	21,6−4
34	24,8−4
35	30,0−4
36	37,0−4
37	56,5−4
38	79,9−4
39	12,3−3
40	17,1−3
41	22,3−3
42	28,6−3
43	35,2−3
44	43,3−3
45	54,2−3
46	67,6−3
47	82,5−3
48	10,0−2
$_{28}Ni(\alpha)^{56}_{28}Ni$ 6,10 сут [54]	
29	20,0−7
30	19,0−6
31	14,0−5
32	35,2−5
33	59,0−5
34	90,7−5
35	12,9−4
36	17,2−4
37	23,2−4
38	29,8−4
39	38,0−4
40	47,2−4
41	58,0−4
42	69,8−4
43	83,2−4
44	97,9−4
45	11,5−3
46	13,2−3
47	15,1−3
48	17,1−3
49	19,3−3
50	21,6−3
$_{28}Ni(\alpha)^{57}_{28}Ni$ 36,16 ч [54]	
16	35,9−5
17	11,0−4
18	25,2−4
19	52,0−4
20	93,6−4
21	16,4−3
22	25,5−3
23	41,5−3
24	59,3−3
25	83,5−3
26	11,7−2
27	15,9−2
28	20,5−2
29	26,3−2
30	32,8−2
31	40,2−2
32	49,0−2
33	63,5−2
34	68,9−2
35	79,5−2
36	90,8−2
38	11,3−1
40	13,5−1
42	15,4−1
44	17,1−1
48	19,9−1
50	21,1−1
$_{28}Ni(\alpha)^{60}_{29}Cu$ (к.) 23,2 мин [54]	
14	24,1−2
15	90,0−2
16	21,3−1
17	51,0−1
18	10,3
19	20,4
20	36,7
21	70,8
22	11,0+1
23	16,5+1
24	24,8+1
25	34,5+1
26	45,5+1
27	57,8+1
28	70,8+1
29	84,4+1
30	98,8+1
31	11,3+2
32	12,8+2
33	14,3+2
34	15,6+2
36	17,9+2
38	19,9+2
40	21,7+2
44	25,0+2
$_{58}Ni(\alpha)^{61}_{29}Cu$ (к.) 3,41 ч [54]	
4	50,0−4
5	60,0−3
6	63,4−2
7	17,4−1
8	37,8−1
9	73,0−1
10	12,7
11	20,5
12	29,2
13	39,6
14	50,8
15	62,3
16	74,4
17	80,5
18	97,0
20	11,5+1
24	13,7+1
28	14,8+1
36	16,5+1
40	18,5+1
42	22,0+1
44	26,0+1
$_{28}Ni(\alpha)^{62}_{30}Zn$ 9,26 ч [54]	
14	10,0−5
15	10,0−4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
16	91,8−4
17	26,8−3
18	59,2−3
19	12,2−2
20	20,6−2
21	32,8−2
22	50,5−2
23	72,5−2
24	10,1−1
25	13,5−1
26	17,4−1
27	21,8−1
28	26,7−1
29	32,0−1
30	37,4−1
31	43,1−1
32	48,8−1
33	54,1−1
34	60,6−1
36	71,7−1
38	81,8−1
40	90,6−1
44	10,3
46	10,6
$_{28}Ni(\alpha)^{63}_{30}Zn$ 38,1 мин [54]	
8	49,0−3
9	29,0−2
10	14,9−1
11	52,3−1
12	12,3
13	23,4
14	36,8
15	53,6
16	71,5
17	91,7
18	11,2+1
19	13,2+1
20	15,3+1
21	17,0+1
22	18,7+1
24	21,2+1
28	23,8+1
36	26,7+1
44	29,7+1
$_{28}Ni(\alpha)^{65}_{30}Zn$ 243,9 сут [54]	
8	20,0−6
9	14,0−5
10	47,5−5
11	77,0−5
12	11,1−4
13	14,8−4
14	18,5−4
15	22,5−4
16	26,5−4
17	30,4−4
18	34,0−4
20	40,3−4
22	45,2−4
24	48,5−4
28	53,3−4
32	58,2−4
36	65,5−4
40	76,8−4
44	93,9−4
$_{28}Ni(\tau)^{56}_{27}Co$ 78,76 сут [21]	
10	44,4−5
11	17,0−4
12	31,1−4
13	47,6−4
14	70,3−4
15	10,4−3
16	14,7−3
17	19,8−3
18	25,2−3
19	31,3−3
20	37,7−3
21	44,8−3
22	52,4−3
23	60,3−3
24	68,3−3
26	84,0−3
28	97,2−3
30	10,9−2
32	12,2−2
$_{28}Ni(\tau)^{57}_{27}Co$ 271,5 сут [21]	
10	81,4−6
11	34,0−5
12	60,7−5
13	88,1−5
14	11,9−4
15	14,1−4
16	16,8−4
17	19,4−4
18	22,2−4
19	25,0−4
20	28,9−4
21	33,0−4
22	37,9−4
23	44,0−4
24	51,8−4
25	61,5−4
26	72,6−4
27	85,5−4
28	10,0−3
29	11,6−3
30	13,4−3
31	15,3−3
32	17,4−3
$_{28}Ni(\tau)^{58}_{27}Co$ 70,79 сут [21]	
10	22,2−5
11	44,4−5
12	81,4−5
13	14,1−4
14	31,1−4
15	47,4−4
16	63,6−4
17	85,8−4
18	11,2−3
19	15,2−3
20	20,8−3
21	28,7−3
22	39,5−3
23	53,0−3
24	68,5−3
25	86,3−3
26	10,5−2
27	12,7−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
28	14,9–2
29	17,1–2
30	19,3–2
31	21,5–2
32	23,7–2
$_{28}Ni(т)\,^{56}_{28}Ni$ 6,10, сут [21]	
10	55,5–6
11	18,5–5
12	61,0–5
13	10,5–4
14	15,9–4
15	21,5–4
16	28,9–4
17	38,1–4
18	48,5–4
19	60,5–4
20	74,9–4
21	89,9–4
22	10,5–3
23	12,0–3
24	13,6–3
25	15,1–3
26	16,6–3
27	18,0–3
28	19,4–3
30	21,4–3
32	22,9–3
$_{28}Ni(т)\,^{57}_{28}Ni$(к.) 36,16 ч [21]	
7	14,8–3
8	25,9–3
9	40,7–3
10	59,2–3
11	84,4–3
12	10,8–2
13	13,3–2
14	16,0–2
15	19,2–2
16	22,5–2
17	26,0–2
18	30,3–2
19	34,3–2
20	38,5–2
21	43,4–2
22	48,3–2
24	59,2–2
26	72,7–2
28	89,3–2
30	10,6–1
32	12,3–1
$_{29}Cu(p)\,^{52}_{25}Mn$ 5,591 сут [16]	
60	60,0–7
61	53,0–6
62	20,7–5
63	49,4–5
64	93,7–5
65	15,8–4
66	24,7–4
67	36,8–4
68	52,9–4
69	73,9–4
70	10,2–3
$_{29}Cu(p)\,^{54}_{25}Mn$ 312,2 сут [16]	
44	13,0–6
45	66,0–6
46	21,7–5
47	48,5–5
48	91,6–5
49	15,0–4
50	24,0–4
51	36,0–4
52	49,8–4
53	67,5–4
54	86,9–4
55	10,9–3
56	13,6–3
57	14,8–3
58	19,5–3
59	22,7–3
60	26,1–3
61	29,6–3
62	33,2–3
64	40,4–3
66	47,6–3
68	54,5–3
70	61,1–3
$_{29}Cu(p)\,^{56}_{25}Mn$ 2,568 ч [16]	
50	10,5–3
51	43,5–3
52	14,0–2
53	33,8–2
54	67,4–2
55	10,8–1
56	15,9–1
57	21,6–1
58	28,1–1
59	35,4–1
60	43,1–1
61	51,8–1
62	61,4–1
63	72,5–1
64	83,6–1
65	95,8–1
66	11,0
67	12,5
68	14,3
69	16,1
70	18,0
$_{29}Cu(p)\,^{59}_{26}Fe$ 44,52 сут [16]	
44	12,0–6
45	60,0–6
46	20,2–5
47	47,3–5
48	82,8–5
49	13,7–4
50	20,7–4
51	30,0–4
52	41,4–4
53	56,0–4
54	72,4–4
55	91,3–4
56	11,4–3
57	13,8–3
58	16,5–3
59	19,4–3
60	22,4–3
61	25,6–3
62	28,8–3
63	32,3–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
64	35,9–3
65	39,7–3
66	43,5–3
67	47,5–3
68	51,6–3
69	55,0–3
70	60,2–3
$_{29}Cu(p)\,^{55}_{27}Co$ (к.) 17,54 ч [16]	
60	17,7–5
61	14,3–4
62	56,1–4
63	14,2–3
64	29,1–3
65	52,2–3
66	84,6–3
67	12,8–2
68	18,4–2
69	25,4–2
70	34,4–2
$_{29}Cu(p)\,^{56}_{27}Co$ 78,76 сут [16]	
48	14,2–5
49	41,0–5
50	87,3–5
51	12,6–4
52	23,8–4
53	38,5–4
54	59,4–4
55	97,2–4
56	13,9–3
57	21,1–3
58	29,4–3
59	42,0–3
60	56,2–3
61	74,5–3
62	96,5–3
63	12,3–2
64	15,1–2
65	18,4–2
66	21,9–2
67	25,8–2
68	29,9–2
69	34,6–2
70	38,8–2
$_{29}Cu(p)\,^{57}_{27}Co$ (к.) 271,5 сут [16]	
36	13,0–5
37	41,0–5
38	96,0–5
39	19,5–4
40	35,0–4
41	79,0–4
42	13,4–3
43	22,4–3
44	33,7–3
45	50,0–3
46	70,3–3
47	93,5–3
48	11,8–2
49	15,1–2
50	18,5–2
51	21,7–2
52	26,2–2
53	30,3–2
54	34,5–2
56	43,3–2
58	51,5–2
60	60,1–2
62	67,5–2
64	75,6–2
66	83,5–2
68	90,0–2
72	10,3–1
$_{29}Cu(p)\,^{58}_{27}Co$ 70,79 сут [16]	
24	36,8–5
25	72,0–5
26	14,5–4
27	30,0–4
28	61,4–4
29	12,0–3
30	29,5–3
31	60,0–3
32	10,1–2
33	15,8–2
34	23,3–2
35	32,7–2
36	43,4–2
37	55,5–2
38	68,8–2
39	83,0–2
40	97,3–2
41	11,2–1
42	12,7–1
43	14,3–1
44	15,9–1
46	18,5–1
48	21,3–1
52	25,7–1
56	29,6–1
60	33,8–1
64	38,1–1
68	43,5–1
72	50,0–1
$_{29}Cu(p)\,^{60}_{27}Co$ 5,273 года [16]	
28	80,0–7
29	16,5–6
30	35,5–6
31	74,0–6
32	15,0–5
33	29,5–5
34	50,2–5
35	77,2–5
36	11,4–4
37	14,6–4
38	18,9–4
39	24,1–4
40	30,1–4
41	35,7–4
42	41,8–4
43	49,3–4
44	57,1–4
45	65,0–4
46	73,2–4
48	92,1–4
50	11,5–3
52	13,4–3
54	15,9–3
56	18,3–3
58	20,9–3
60	23,6–3
64	29,1–3
68	34,6–3
72	40,0–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{29}Cu(p)\,^{56}_{28}Ni$ 6,10 сут [16]	
52	19,0−6
53	41,0−6
54	88,0−6
55	25,4−5
56	56,1−5
57	10,3−4
58	16,8−4
59	25,6−4
60	36,5−4
61	50,0−4
62	65,8−4
63	83,2−4
64	10,7−3
65	13,2−3
66	16,2−3
67	19,4−3
68	23,0−3
70	30,9−3
72	39,8−3
$_{29}Cu(p)\,^{57}_{28}Ni$ 36,16 ч [16]	
40	25,5−4
41	88,0−4
42	22,4−3
43	46,5−3
44	85,3−3
45	14,4−2
46	22,0−2
47	31,2−2
48	44,8−2
49	61,0−2
50	79,1−2
51	10,2−1
52	12,7−1
53	15,4−1
54	18,6−1
55	21,5−1
56	25,1−1
58	31,8−1
60	38,5−1
62	44,9−1
64	50,8−1
66	56,3−1
68	61,3−1
70	66,0−1
72	70,5−1
$_{29}Cu(p)\,^{60}_{29}Cu$(к.) 23,2 мин [16]	
34	99,7−2
35	22,5−1
36	51,6−1
37	11,8
38	24,7
39	45,2
40	75,4
41	11,5+1
42	17,8+1
43	25,5+1
44	37,4+1
45	52,0+1
46	69,2+1
47	91,8+1
48	11,4+2
49	14,3+2
50	17,2+2
51	15,6+2
52	24,0+2
53	27,6+2
54	31,2+2
56	38,4+2
58	45,6+2
60	52,5+2
62	59,0+2
64	65,2+2
66	71,2+2
68	77,0+2
70	82,6+2
$_{29}Cu(p)\,^{61}_{29}Cu$(к.) 3,41 ч [16, 55]	
22	21,1
23	30,4
24	42,8
25	58,4
26	79,8
27	10,8+1
28	14,7+1
29	19,7+1
30	25,6+1
31	34,8+1
32	47,0+1
33	60,7+1
34	80,1+1
35	96,8+1
36	11,6+2
37	13,8+2
38	15,8+2
39	18,0+2
40	20,0+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
42	23,7+2
44	27,0+2
46	30,2+2
50	35,6+2
54	40,1+2
58	44,1+2
66	51,5+2
74	58,9+2
82	66,0+2
90	73,1+2
98	80,3+2
106	87,7+2
$^{65}_{29}Cu(p)\,^{61}_{29}Cu$(к.) 3,41 ч [16, 55]	
42	29,0−2
43	12,0−1
44	24,8−1
45	43,0−1
46	68,3−1
47	10,0
48	15,2
49	21,8
50	30,5
51	40,5
52	54,7
53	71,3
54	93,8
55	11,4+1
56	14,0+1
57	16,8+1
58	19,9+1
59	23,0+1
60	26,4+1
61	30,0+1
62	33,9+1
64	42,2+1
66	49,5+1
68	58,0+1
70	64,5+1
74	76,1+1
78	84,9+1
82	93,4+1
90	11,1+2
98	12,8+2
106	14,6+2
$_{29}Cu(p)\,^{62}_{29}Cu$ 9,74 мин [55]	
12	30,1
13	16,0+1
14	39,2+1
15	89,3+1
16	18,6+2
17	33,6+2
18	56,5+2
19	83,7+2
20	12,2+3
21	16,9+3
22	22,1+3
23	28,5+3
24	35,4+3
25	43,0+3
26	50,8+3
27	59,0+3
28	67,9+3
29	76,6+3
30	85,3+3
32	10,2+4
34	11,7+4
36	13,0+4
40	15,3+4
44	17,5+4
48	21,1+4
52	22,7+4
60	27,5+4
68	32,1+4
76	36,9+4
84	42,0+4
92	46,9+4
100	51,8+4
$^{63}_{29}Cu(p)\,^{62}_{29}Cu$ 9,74 мин [55]	
12	30,1
13	16,0+1
14	39,2+1
15	89,3+1
16	18,6+2
17	33,6+2
18	56,5+2
19	83,7+2
20	12,2+3
21	16,9+3
22	22,1+3
23	28,5+3
24	35,4+3
25	43,0+3
26	50,8+3
27	59,0+3
28	67,9+3
29	76,6+3
30	85,3+3
31	93,9+3
32	10,2+4
34	11,7+4
36	13,0+4
40	15,2+4
44	17,0+4
52	20,7+4
60	24,2+4
68	27,7+4
76	31,4+4
84	35,4+4
92	39,2+4
100	43,0+4
$^{65}_{29}Cu(p)\,^{62}_{29}Cu$ 9,74 мин [55]	
30	28,2
31	44,2
32	69,4
33	10,7+1
34	16,7+1
35	23,5+1
36	33,5+1
37	47,6+1
38	67,2+1
39	93,0+1
40	12,7+2
41	18,2+2
42	25,9+2
43	35,0+2
44	46,5+2
45	62,8+2
46	83,6+2
47	10,2+3
48	12,1+3
49	14,5+3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
50	16,6+3
51	18,5+3
52	20,2+3
54	24,2+3
58	30,8+3
62	36,6+3
66	41,9+3
70	47,0+3
74	52,3+3
78	57,7+3
86	68,9+3
94	79,9+3
102	90,6+3
$_{29}Cu(p)^{64}_{29}Cu$ 12,71 ч [16, 55]	
12	23,5−1
13	37,1−1
14	60,1−1
15	91,0−1
16	13,2
17	20,2
18	29,6
19	41,9
20	58,4
21	77,4
22	10,0+1
23	12,4+1
24	15,1+1
25	17,3+1
26	19,8+1
27	22,7+1
28	25,7+1
30	30,6+1
32	35,1+1
34	39,4+1
36	43,8+1
40	52,2+1
44	60,5+1
48	68,9+1
52	77,2+1
56	85,6+1
60	94,1+1
68	11,1+2
76	12,9+2
84	14,7+2
92	16,4+2
100	18,1+2
122	

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{29}Cu(p)^{62}_{30}Zn$ 9,255 ч [16, 55]	
16	86,9−1
17	14,6
18	22,8
19	33,6
20	48,8
21	65,8
22	85,3
23	10,8+1
24	13,1+1
25	15,6+1
26	17,8+1
27	19,9+1
28	22,1+1
30	25,2+1
32	28,0+1
36	31,4+1
40	34,5+1
44	37,6+1
52	43,1+1
68	51,7+1
84	60,4+1
100	68,7+1
$^{63}_{29}Cu(p)^{62}_{30}Zn$ 9,255 ч [16, 55]	
16	86,9−1
17	14,6
18	22,8
19	33,6
20	48,8
21	65,8
22	85,3
23	10,8+1
24	13,1+1
25	15,6+1
26	17,8+1
27	19,9+1
28	22,1+1
30	25,2+1
32	28,0+1
36	31,4+1
40	34,4+1
44	37,2+1
52	41,1+1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
68	47,3+1
84	54,4+1
100	61,4+1
$^{65}_{29}Cu(p)^{62}_{30}Zn$ 9,255 ч [16, 55]	
36	20,2−2
37	32,8−2
38	52,1−2
39	77,5−2
40	11,7−1
41	16,7−1
42	24,3−1
43	33,7−1
44	45,4−1
45	57,2−1
46	73,0−1
47	90,8−1
48	11,0
49	13,2
50	15,4
51	18,0
52	20,5
54	24,7
56	28,7
60	34,6
64	39,6
68	44,1
76	52,6
84	60,1
92	66,6
100	72,1
$_{29}Cu(p)^{63}_{30}Zn$ 38,1 мин [16, 55, 56]	
6	18,0+1
7	43,5+1
8	85,7+1
9	14,2+2
10	21,8+2
11	30,4+2
12	40,4+2
13	51,2+2
14	60,9+2
15	68,8+2
16	76,6+2
18	86,2+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
22	94,6+2
24	97,1+2
28	10,2+3
32	11,2+3
36	12,5+3
44	14,8+3
52	16,1+3
68	18,1+3
84	20,3+3
100	22,2+3
$^{63}_{29}Cu(p)^{63}_{30}Zn$ 38,1 мин [16, 55, 56]	
6	18,0+1
7	43,5+1
8	85,7+1
9	14,2+2
10	21,8+2
11	30,4+2
12	40,4+2
13	51,2+2
14	60,9+2
15	68,8+2
16	76,6+2
18	86,2+2
22	94,6+2
24	96,8+2
28	10,0+3
36	10,8+3
52	11,6+3
68	12,6+3
84	13,9+3
100	15,1+3
$^{65}_{29}Cu(p)^{63}_{30}Zn$ 38,1 мин [16, 55, 56]	
24	29,7
25	61,8
26	10,7+1
27	16,8+1
28	25,2+1
29	34,2+1
30	45,6+1
31	59,6+1
32	76,8+1
33	95,4+1
34	11,8+2

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
35	14,2+2
36	16,6+2
37	19,4+2
38	22,1+2
40	27,6+2
42	31,5+2
44	35,3+2
48	39,9+2
52	44,5+2
60	50,5+2
68	54,9+2
76	59,5+2
84	63,7+2
92	67,6+2
100	71,1+2
$_{29}Cu(p)^{65}_{30}Zn$ 243,2 сут [16, 56]	
4	38,8−4
5	12,0−3
6	28,0−3
7	52,8−2
8	91,6−3
9	14,1−2
10	20,2−2
11	27,2−2
12	33,6−2
13	39,5−2
14	45,3−2
16	53,2−2
18	57,7−2
22	62,2−2
24	63,5−2
40	71,9−2
56	78,8−2
72	84,9−2
$_{29}Cu(d)^{65}_{28}Ni$ 2,52 ч [12]	
4	15,0−6
5	36,6−5
6	11,7−4
7	22,6−4
8	37,5−4
9	57,2−4
10	80,8−4
11	10,9−3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
12	16,3−3
13	30,7−3
14	61,0−3
15	10,9−2
16	18,3−2
17	28,5−2
18	42,2−2
19	60,0−2
20	83,0−2
21	11,3−1
22	14,9−1
23	18,5−1
24	25,2−1
25	32,7−1
26	39,8−1
$_{29}Cu(d)^{61}_{29}Cu$ (к.) 3,408 ч [57]	
28	12,2−1
29	32,7−1
30	89,5−1
31	23,6
32	50,2
33	89,8
34	14,6+1
35	21,8+1
36	30,4+1
37	41,2+1
38	52,5+1
39	66,0+1
40	81,6+1
41	10,0+2
42	11,8+2
$_{29}Cu(d)^{62}_{29}Cu$ 9,74 мин [57]	
10	10,8+1
11	24,2+1
12	46,4+1
13	79,0+1
14	12,7+2
15	18,7+2
16	26,9+2
17	36,6+2
18	48,6+2
19	63,6+2
20	78,9+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
21	98,5+2
22	11,8+3
23	14,2+3
24	16,6+3
25	19,4+3
26	22,3+3
27	25,5+3
28	28,8+3
29	32,4+3
30	36,1+3
32	44,0+3
34	52,5+3
36	61,6+3
38	71,2+3
40	81,3+3
41	86,5+3
42	91,9+3
$_{29}Cu(d)\,^{64}_{29}Cu$ 12,71 ч [57]	
4	94,1−1
5	15,3
6	23,3
7	31,9
8	41,9
9	51,2
10	62,3
11	74,5
12	87,9
13	10,1+1
14	11,5+1
15	12,9+1
16	14,3+1
18	16,9+1
20	19,3+1
22	21,9+1
24	25,0+1
26	29,1+1
28	34,1+1
30	40,0+1
32	46,0+1
34	51,9+1
38	62,6+1
42	71,8+1
$_{29}Cu(d)\,^{66}_{29}Cu$ 5,10 мин [57]	
2	10,8+1
3	21,3+1
4	38,2+1
5	69,3+1
6	11,6+2
7	18,8+2
8	27,2+2
9	35,0+2
10	42,2+2
11	48,2+2
12	54,1+2
14	64,6+2
16	74,1+2
18	82,6+2
22	98,5+2
26	11,4+3
30	13,4+3
$_{29}Cu(d)\,^{62}_{30}Zn$ 9,255 ч [57]	
14	40,1−2
15	10,6−1
16	22,5−1
17	42,2−1
18	73,4−1
19	11,7
20	17,5
21	25,2
22	34,8
23	45,4
24	55,8
25	65,4
26	75,1
27	89,8
28	10,5+1
29	12,2+1
30	13,9+1
31	15,5+1
32	17,2+1
34	20,1+1
36	22,8+1
40	27,6+1
$_{29}Cu(d)\,^{63}_{30}Zn$ 38,1 мин [57]	
6	12,4
7	43,8
8	10,5+1
9	20,6+1
10	37,5+1
11	63,4+1
12	10,3+2
13	15,4+2
14	21,5+2
15	29,5+2
16	37,8+2
17	47,7+2
18	57,7+2
19	67,9+2
20	78,0+2
21	87,4+2
22	96,5+2
24	11,3+3
26	12,8+3
28	14,0+3
32	16,1+3
36	17,8+3
40	19,4+3
44	20,9+3
$_{29}Cu(d)\,^{65}_{30}Zn$ 243,9 сут [57]	
4	16,7−5
5	11,0−4
6	68,8−4
7	14,8−3
8	27,9−3
9	47,5−3
10	69,9−3
11	89,2−3
12	10,7−2
13	17,9−2
14	24,9−2
15	26,0−2
16	37,1−2
17	43,8−2
18	50,4−2
19	57,2−2
20	63,9−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
22	74,2−2
24	81,8−2
28	92,1−2
36	10,5−1
44	11,4−1
$_{29}Cu(\alpha)\,^{61}_{27}Co$ 1,65 ч [58]	
24	12,9−5
25	38,1−5
26	11,2−4
27	26,7−4
28	54,7−4
29	96,3−4
30	17,1−3
31	27,3−3
32	40,5−3
33	60,0−3
34	80,8−3
35	13,7−2
36	14,7−2
37	19,2−2
38	24,6−2
39	31,5−2
40	39,1−2
41	48,2−2
42	58,3−2
43	69,5−2
44	82,3−2
$_{29}Cu(\alpha)\,^{62}_{29}Cu$ 9,74 мин [58]	
22	10,4−1
23	25,5−1
24	63,0−1
25	19,4−1
26	44,1
27	87,0
28	15,8+1
29	24,2+1
30	34,8+1
31	47,3+1
32	60,9+1
33	76,6+1
34	90,7+1
35	10,7+2
36	12,3+2
37	14,0+2
38	15,7+2
39	17,3+2
40	19,0+2
42	22,2+2
44	25,3+2
$_{29}Cu(\alpha)\,^{64}_{29}Cu$ 12,71 ч [58]	
20	95,0−4
21	10,5−3
22	10,2−2
23	21,8−2
24	42,7−2
25	73,7−2
26	12,9−1
27	19,3−1
28	28,5−1
29	41,5−1
30	51,9−1
31	67,9−1
32	83,6−1
33	10,2
34	12,2
35	14,2
36	16,4
37	18,5
38	20,7
40	25,2
42	30,2
44	36,7
$_{29}Cu(\alpha)\,^{67}_{29}Cu$ 61,79 ч [58]	
20	10,0−7
21	32,0−7
22	16,0−6
23	30,4−6
24	71,0−6
25	14,1−5
26	24,2−5
27	37,6−5
28	59,5−5
29	97,0−5
30	14,8−4
31	21,5−4
32	30,8−4
33	42,6−4
34	59,0−4
35	79,7−4
36	10,1−3
37	12,7−3
38	15,3−3
39	17,6−3
40	19,7−3
42	23,9−3
44	27,9−3
$_{29}Cu(\alpha)\,^{65}_{30}Zn$ (к.) 243,9 сут [58]	
18	44,6−5
19	15,6−4
20	37,1−4
21	71,2−4
22	13,1−3
23	20,1−3
24	30,3−3
25	42,4−3
26	56,3−3
27	72,8−3
28	90,5−3
29	10,5−2
30	13,1−2
31	15,4−2
32	17,7−2
33	19,9−2
34	22,1−2
36	26,1−2
38	29,5−2
40	32,4−2
44	36,1−2
$_{29}Cu(\alpha)\,^{65}_{30}Zn$ 243,9 сут [58]	
18	44,6−5
19	15,6−4
20	37,1−4
21	71,0−4
22	12,9−3
23	20,0−3
24	29,4−3
25	40,4−3
26	53,2−3
27	69,5−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
28	82,4−3
29	98,0−3
30	11,5−2
31	12,2−2
32	15,0−2
33	16,7−2
34	18,3−2
36	21,4−2
38	24,1−2
40	26,3−2
44	28,8−2
$_{29}Cu(\alpha)^{65}_{31}Ga$ 15,2 мин [58]	
20	32,8−3
21	32,0−2
22	28,2−1
23	91,8−1
24	21,3
25	40,4
26	70,8
27	12,1+1
28	18,6+1
29	27,2+1
30	37,5+1
31	49,9+1
32	62,2+1
33	74,3+1
34	86,2+1
36	10,8+2
38	12,6+2
40	14,2+2
44	16,8+2
$_{29}Cu(\alpha)^{66}_{31}Ga$ 9,40 ч [58, 59]	
10	94,6−2
11	12,9−1
12	17,6−1
13	28,8−1
14	43,5−1
15	57,2−1
16	73,2−1
17	93,7−1
18	11,8
19	14,3
20	17,0
21	19,5
22	22,1
24	26,2
28	30,6
32	32,3
36	36,0
38	40,7
40	47,3
42	57,0
44	67,0
$_{29}Cu(\alpha)^{67}_{31}Ga$ 78,255 ч [60]	
20	14,3−4
21	21,0−3
22	36,3−2
23	64,0−2
24	10,4−1
25	14,9−1
26	20,1−1
27	25,4−1
28	31,1−1
29	36,5−1
30	41,9−1
31	47,0−1
32	52,0−1
34	60,8−1
36	68,2−1
40	78,2−1
44	84,0−1
52	90,5−1
60	94,5−1
$_{29}Cu(\alpha)^{68}_{31}Ga$ 68,0 мин [58]	
8	23,2−2
9	84,0−2
10	20,9−1
11	42,6−1
12	82,2−1
13	14,8
14	24,8
15	37,0
16	54,3
17	75,2
18	98,9
19	12,6+1
20	15,5+1
21	18,5+1
22	21,5+1
24	26,8+1
28	31,2+1
36	33,9+1
44	35,1+1
$_{29}Cu(\tau)^{57}_{27}Co$ 271,5 сут [21]	
20	14,8−6
21	22,2−6
22	37,0−6
23	85,1−6
24	17,8−5
25	30,2−5
26	48,8−5
27	72,9−5
28	10,0−4
29	13,4−4
30	17,4−4
31	22,0−4
32	27,3−4
33	33,2−4
34	39,7−4
$_{29}Cu(\tau)^{58}_{27}Co$ 70,79 сут [21]	
10	11,1−6
11	35,0−6
12	70,3−6
13	11,1−5
14	16,6−5
15	24,8−5
16	35,5−5
17	48,7−5
18	67,0−5
19	89,5−5
20	12,2−4
21	15,5−4
22	19,1−4
23	23,0−4
24	27,0−4
25	31,2−4
26	35,7−4
28	43,9−4
30	51,3−4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
32	56,9−4
34	59,0−4
$_{29}Cu(\tau)^{60}_{27}Co$ 5,273 года [21]	
14	11,8−5
15	42,9−5
16	82,1−5
17	15,1−4
18	24,8−4
19	38,8−4
20	57,0−4
21	76,6−4
22	10,3−3
23	13,9−3
24	18,6−3
25	23,5−3
26	30,8−3
27	38,5−3
28	48,7−3
29	60,0−3
30	74,0−3
31	95,0−3
32	11,3−2
33	12,0−2
34	16,7−2
$_{29}Cu(\tau)^{61}_{29}Cu$ 3,408 ч [61]	
8	38,1−4
9	33,6−3
10	13,3−2
11	34,0−2
12	71,7−2
13	13,5−1
14	22,7−1
15	35,1−1
16	50,7−1
17	69,2−1
18	90,0−1
19	11,3
20	13,7
21	16,2
22	18,8
23	21,3
24	23,7
26	28,5
$_{29}Cu(\tau)^{62}_{29}Cu$ 9,74 мин [61]	
4	48,0−5
5	11,7−4
6	15,6−2
7	61,8−2
8	15,8−1
9	32,9−1
10	60,1−1
11	10,3
12	16,7
13	25,2
14	34,5
15	43,5
16	52,6
17	62,1
18	72,5
19	84,5
20	10,0+1
21	12,1+1
22	14,7+1
23	17,7+1
24	20,0+1
25	23,2+1
26	26,1+1
$_{29}Cu(\tau)^{64}_{29}Cu$ 12,71 ч [61]	
6	10,0−5
7	18,5−4
8	69,5−4
9	27,0−3
10	84,9−3
11	20,4−2
12	39,9−2
13	68,1−2
14	10,6−1
15	15,3−1
16	21,2−1
17	28,2−1
18	36,1−1
19	45,0−1
20	54,5−1
21	64,6−1
22	75,2−1
23	86,3−1
24	97,5−1
25	10,9
26	12,1
$_{29}Cu(\tau)^{62}_{30}Zn$ 9,255 ч [61]	
16	20,0−7
17	81,0−6
18	26,7−5
19	66,3−5
20	14,1−4
21	28,8−4
22	54,9−4
23	93,2−4
24	14,4−3
25	20,8−3
26	27,5−3
$_{29}Cu(\tau)^{63}_{30}Zn$ 38,1 мин [61]	
10	24,0−4
11	51,9−3
12	13,5−2
13	28,2−2
14	46,8−2
15	79,6−2
16	16,2−1
17	34,9−1
18	70,2−1
19	13,2
20	23,9
21	40,6
22	62,9
23	91,8
24	12,8+1
25	17,3+1
26	22,9+1
27	29,8+1
28	38,2+1
29	48,3+1
30	50,3+1
$_{29}Cu(\tau)^{65}_{30}Zn$ (к.) 243,9 сут [21, 61]	
7	11,0−6
8	74,0−6

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
9	24,4−5
10	49,6−5
11	87,3−5
12	13,1−4
13	18,5−4
14	24,0−4
15	30,9−4
16	40,0−4
17	51,4−4
18	69,4−4
19	90,8−4
20	12,1−3
21	15,4−3
22	19,4−3
23	24,5−3
24	30,3−3
25	36,7−3
26	43,3−3
27	50,3−3
28	57,4−3
29	65,0−3
30	72,7−3
32	89,4−3
34	10,8−2
$^{63}_{29}Cu(\tau)^{65}_{30}Zn$ 243,9 сут [61]	
7	11,0−6
8	74,0−6
9	24,4−5
10	49,6−5
11	87,3−5
12	13,1−4
13	18,1−4
14	22,9−4
15	28,3−4
16	33,4−4
17	37,7−4
18	42,4−4
20	50,8−4
22	58,3−4
24	65,9−4
26	73,5−4
$^{65}_{29}Cu(\tau)^{65}_{30}Zn$ 243,9 сут [61]	
13	37,0−6
14	11,1−5
15	25,9−5
16	66,6−5
17	13,7−4
18	27,0−4
19	44,4−4
20	69,9−4
21	99,2−4
22	13,6−3
23	18,2−3
24	23,8−3
25	30,3−3
26	36,0−3
$_{29}Cu(\tau)^{65}_{31}Ga$ 15,2 мин [61]	
6	60,0−4
7	40,3−3
8	26,3−2
9	91,0−2
10	23,3−1
11	44,0−1
12	68,9−1
13	96,0−1
14	12,4
15	15,1
16	17,8
17	20,7
18	24,4
19	29,2
20	35,3
21	43,4
22	55,0
23	70,2
24	86,3
25	10,7+1
26	12,1+1
$^{63}_{29}Cu(\tau)^{65}_{31}Ga$ 15,2 мин [61]	
6	60,6−4
7	40,3−3
8	26,3−2
9	91,0−2
10	23,3−1
11	44,0−1
12	68,9−1
13	96,0−1
14	12,4
15	15,1
16	17,8
17	20,2
18	22,6
19	25,3
20	27,6
21	30,5
22	33,6
24	39,5
26	44,3
$^{65}_{29}Cu(\tau)^{65}_{31}Ga$ 15,2 мин [61]	
17	48,2−2
18	17,8−1
19	38,9−1
20	76,5−1
21	12,9
22	21,4
23	33,4
24	46,8
25	50,0
26	62,6
$_{29}Cu(\tau)^{66}_{31}Ga$ 9,40 ч [61]	
6	20,0−5
7	50,0−4
8	30,0−3
9	17,8−2
10	63,2−2
11	15,5−1
12	31,8−1
13	54,6−1
14	83,0−1
15	11,6
16	15,3
17	19,3
18	23,2
19	27,0
20	30,6
22	36,9
24	41,8
26	45,5

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{29}Cu(\tau)^{67}_{31}Ga$ 78,255 ч [21]	
6	29,6−5
7	15,9−4
8	34,8−4
9	56,6−4
10	92,5−4
11	12,8−3
12	16,9−3
13	21,2−3
14	25,5−3
15	30,1−3
16	34,7−3
17	39,1−3
18	43,5−3
20	51,6−3
22	59,0−3
24	66,3−3
26	73,6−3
30	87,3−3
34	94,4−3
$^{68}_{30}Zn(p)^{67}_{29}Cu$ 61,79 ч [25]	
14	50,0−4
15	82,6−4
16	12,9−3
17	18,6−3
18	26,0−3
19	33,7−3
20	42,6−3
21	53,4−3
22	66,0−3
23	79,2−3
24	93,3−3
25	11,4−2
26	13,0−2
27	15,0−2
28	17,2−2
29	19,7−2
30	22,3−2
31	25,1−2
32	28,2−2
34	34,8−2
36	42,8−2
38	50,8−2
40	60,6−2
42	70,5−2
44	82,1−2
46	93,7−2
48	10,7−1
50	12,1−1
52	13,6−1
54	15,2−1
56	16,9−1
58	18,7−1
60	20,6−1
62	22,6−1
64	24,6−1
66	26,9−1
70	31,5−1
74	36,4−1
78	41,5−1
82	46,9−1
86	52,6−1
90	58,6−1
94	64,9−1
$^{68}_{30}Zn(p)^{65}_{30}Zn$ (к.) 243,9 сут [25]	
32	23,9−4
33	46,2−4
34	68,4−4
35	97,2−4
36	13,4−3
37	17,8−3
38	23,4−3
39	30,2−3
40	38,8−3
41	48,4−3
42	60,3−3
43	74,4−3
44	90,4−3
45	11,1−2
46	13,0−2
47	15,2−2
48	17,7−2
49	20,4−2
50	23,5−2
51	26,4−2
52	29,7−2
53	33,0−2
54	36,4−2
56	42,9−2
58	49,1−2
60	55,8−2
62	61,3−2
64	67,2−2
68	77,3−2
72	86,6−2
80	10,4−1
88	11,8−1
$^{66}_{30}Zn(p)^{66}_{31}Ga$ 9,40 ч [62]	
6	16,0−3
7	90,0−3
8	31,5−2
9	24,0−1
10	92,6−1
11	21,5
12	41,1
13	65,2
14	92,5
15	12,1+1
16	15,1+1
17	18,9+1
18	20,2+1
20	23,8+1
22	26,5+1
24	28,8+1
28	33,2+1
32	38,8+1
36	47,0+1
40	53,9+1
$^{66}_{30}Zn(p)^{66}_{31}Ga$ 9,40 ч [62]	
6	16,0−3
7	90,0−3
8	31,5−2
9	24,0−1
10	92,6−1
11	21,5
12	41,1
13	65,2
14	92,5
15	12,1+1
16	15,1+1
17	18,9+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
18	20,2+1
20	23,6+1
22	25,7+1
24	27,3+1
28	29,9+1
32	32,3+1
40	36,0+1
$^{67}_{30}Zn(p)^{66}_{31}Ga$ 9,40 ч [62]	
16	20,0–4
17	18,0–3
18	92,9–3
19	53,9–2
20	19,3–1
21	42,8–1
22	74,7–1
23	11,4
24	15,7
25	20,1
26	24,4
27	28,4
28	31,8
30	37,4
32	41,8
34	45,4
36	48,4
40	53,4
$^{68}_{30}Zn(p)^{66}_{31}Ga$ 9,40 ч [25, 62]	
24	15,0–4
25	31,0–3
26	94,7–3
27	35,7–2
28	11,0–1
29	30,0–1
30	69,0–1
31	13,5
32	22,9
33	34,8
34	48,0
35	62,1
36	76,1
37	89,3
38	10,2+1
40	12,6+1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
42	14,5+1
44	16,1+1
48	18,5+1
52	20,2+1
60	22,9+1
68	25,2+1
76	26,9+1
84	28,4+1
92	29,9+1
$^{70}Zn(p)^{67}_{31}Ga$ 78,255 ч [62]	
6	79,0–3
7	19,8–2
8	41,2–2
9	68,6–2
10	12,2–1
11	20,9–1
12	30,5–1
13	38,5–1
14	45,9–1
15	54,3–1
16	68,0–1
17	88,1–1
18	11,7
19	14,9
20	18,7
21	22,4
22	26,8
23	30,8
24	35,5
25	39,9
26	44,0
28	51,7
30	58,3
32	64,2
34	69,2
36	73,8
38	78,0
40	81,9
$^{67}_{30}Zn(p)^{67}_{31}Ga$ 78,255 ч [62]	
6	79,0–3
7	19,8–2
8	41,2–2
9	68,6–2

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
10	12,2–1
11	20,9–1
12	30,5–1
13	38,4–1
14	45,7–1
15	52,4–1
16	57,2–1
18	64,8–1
20	70,1–1
22	73,9–1
24	78,4–1
26	82,3–1
28	86,1–1
32	94,5–1
36	10,2
40	11,0
$^{68}_{30}Zn(p)^{67}_{31}Ga$ 78,255 ч [25, 62]	
12	20,0–4
13	63,0–4
14	19,2–3
15	18,5–2
16	10,8–1
17	26,8–1
18	52,0–1
19	81,0–1
20	11,7
21	15,2
22	19,4
23	23,2
24	27,7
25	31,9
26	35,8
27	39,5
28	43,1
30	49,3
32	54,7
34	59,4
36	63,6
38	67,4
42	72,3
46	75,1
50	77,5
62	84,0
70	87,9
78	91,5

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
86	94,4
94	97,1
$^{68}_{30}Zn(p)^{68}_{31}Ga$ 68,0 мин [25]	
8	86,5
9	15,4+1
10	24,6+1
11	36,9+1
12	53,8+1
13	73,0+1
14	95,0+1
15	11,7+2
16	14,1+2
17	15,9+2
18	17,5+2
20	20,4+2
22	21,0+2
24	21,6+2
28	22,4+2
36	23,8+2
52	25,7+2
68	27,5+2
84	29,1+2
100	30,6+2
$^{70}Zn(d)^{61}_{29}Cu$ 3,408 ч [63]	
9	25,9–2
10	74,0–2
11	28,1–1
12	59,2–1
13	12,2
14	21,5
15	34,8
16	48,1
17	61,4
18	74,7
19	88,0
20	10,1+1
22	12,6+1
$^{70}Zn(d)^{64}_{29}Cu$ 12,71 ч [63]	
5	11,1–2
6	25,9–2

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
7	44,4–2
8	10,4–1
9	18,1–1
10	26,6–1
11	41,4–1
12	56,6–1
13	80,3–1
14	10,8
15	14,0
16	17,8
17	22,2
18	27,2
19	32,8
20	40,4
21	45,8
22	51,0
$^{70}Zn(d)^{67}_{29}Cu$ 61,79 ч [63]	
9	14,8–5
10	40,7–5
11	11,3–4
12	20,0–4
13	38,1–4
14	63,6–4
15	10,7–3
16	15,5–3
17	20,8–3
18	26,6–3
19	32,9–3
20	39,5–3
21	46,1–3
22	52,5–3
$^{70}Zn(d)^{65}_{30}Zn$ (к.) 249,3 сут [63]	
4	37,0–5
5	22,2–4
6	51,8–4
7	96,2–4
8	14,1–3
9	20,0–3
10	24,4–3
11	30,5–3
12	35,2–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
13	39,9–3
14	44,4–3
16	52,9–3
18	57,3–3
20	60,8–3
22	63,9–3
$^{70}Zn(d)^{66}_{31}Ga$ 9,40 ч [64, 65]	
10	18,5–2
11	14,1–1
12	45,1–1
13	10,4
14	18,5
15	30,2
16	44,4
17	60,9
18	82,7
19	10,5+1
20	12,7+1
21	15,0+1
22	17,1+1
23	19,3+1
24	21,6+1
$^{70}Zn(d)^{67}_{31}Ga$ 78,255 ч [64, 65]	
5	62,9–3
6	44,4–2
7	96,2–2
8	20,4–1
9	35,2–1
10	51,8–1
11	64,8–1
12	77,7–1
13	87,7–1
14	99,7–1
15	11,2
16	12,3
17	13,6
18	15,0
19	16,4
20	18,0
21	19,8
22	21,8
24	27,8

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{64}_{30}Zn(\alpha)^{62}_{29}Cu$ 9,74 мин [66]	
30	28,7–2
31	78,0–2
32	17,9–1
33	37,4–1
34	70,8–1
35	12,7
36	20,8
37	33,2
38	52,8
39	81,0
40	12,1+1
41	18,3+1
42	25,4+1
43	33,6+1
44	42,4+1
45	51,0+1
46	60,5+1
47	69,4+1
48	77,0+1
$^{64}_{30}Zn(\alpha)^{62}_{30}Zn$ 9,255 ч [66]	
28	81,4–5
29	12,2–4
30	20,7–4
31	42,5–4
32	91,0–4
33	20,5–3
34	39,7–3
35	69,2–3
36	11,4–2
37	17,8–2
38	27,3–2
39	41,8–2
40	61,8–2
41	85,0–2
42	11,1–1
43	14,0–1
44	17,0–1
45	20,2–1
46	23,4–1
47	26,6–1
48	29,8–1
$^{64}_{30}Zn(\alpha)^{63}_{30}Zn$ 38,1 мин [66]	
22	38,7–2
23	14,2–1
24	34,9–1
25	67,0–1
26	12,4
27	19,6
28	29,4
29	40,6
30	55,5
31	72,8
32	91,0
33	11,2+1
34	13,3+1
35	15,6+1
36	17,8+1
37	20,1+1
38	22,3+1
39	24,6+1
40	26,9+1
41	29,2+1
42	31,5+1
43	33,8+1
44	36,0+1
46	40,5+1
48	44,9+1
$_{30}Zn(\alpha)^{65}_{30}Zn$ (к.) 243,9 сут [64]	
23	25,9–5
24	74,0–5
25	11,8–4
26	17,8–4
27	25,9–4
28	35,2–4
29	48,1–4
30	62,9–4
31	77,7–4
32	99,9–4
33	13,0–3
34	17,0–3
35	22,2–3
36	28,1–3
37	34,0–3
38	43,3–3
39	51,8–3
40	62,9–3
41	74,2–3
42	86,1–3
43	98,3–3
44	11,1–2
$^{64}_{30}Zn(\alpha)^{65}_{30}Zn$ (к.) 243,9 сут [66]	
28	13,0–6
29	60,0–6
30	26,5–5
31	69,0–5
32	15,4–4
33	29,4–4
34	51,0–4
35	83,2–4
36	12,8–3
37	18,6–3
38	26,5–3
39	36,5–3
40	47,2–3
41	59,5–3
42	74,3–3
43	88,0–3
44	10,6–2
45	12,3–2
46	14,1–2
47	15,9–2
48	17,7–2
$^{64}_{30}Zn(\alpha)^{65}_{30}Zn$ 243,9 сут [66]	
30	13,3–5
31	46,2–5
32	11,1–4
33	20,7–4
34	36,0–4
35	57,8–4
36	90,6–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
37	13,4–3
38	19,8–3
39	27,9–3
40	37,1–3
41	44,4–3
42	60,3–3
43	74,0–3
44	87,5–3
45	10,3–2
46	11,7–2
47	13,2–2
48	14,6–2
$^{64}_{30}Zn(\alpha)^{65}_{31}Ga$ (к.) 15,2 мин [66]	
28	30,1–2
29	11,8–1
30	30,5–1
31	55,2–1
32	10,1
33	19,0
34	34,9
35	56,8
36	86,1
37	11,9+1
38	15,4+1
39	19,5+1
40	23,3+1
41	27,9+1
42	32,4+1
43	37,5+1
44	42,2+1
45	47,7+1
46	53,4+1
47	59,6+1
48	66,0+1
$^{64}_{30}Zn(\alpha)^{65}_{31}Ga$ 15,2 мин [66]	
28	30,1–2
29	11,8–1
30	30,5–1
31	55,2–1
32	10,1
33	19,0
34	34,9
35	56,5
36	85,4
37	11,8+1
38	15,1+1
39	18,8+1
40	22,4+1
41	26,4+1
42	30,3+1
43	34,4+1
44	38,4+1
46	46,5+1
48	54,4+1
$_{30}Zn(\alpha)^{66}_{31}Ga$ 9,40 ч [64]	
19	22,2–3
20	92,5–3
21	23,7–2
22	66,6–2
23	14,1–1
24	31,8–1
25	61,0–1
26	87,0–1
27	13,3
28	17,8
29	22,9
30	28,9
31	36,1
32	43,3
33	50,5
34	57,7
36	66,6
38	77,3
40	87,0
42	97,2
44	10,5+1
$_{30}Zn(\alpha)^{67}_{31}Ga$ (к.) 78,255 ч [64]	
12	48,1–3
13	18,5–2
14	46,2–2
15	85,1–2
16	13,3–1
17	19,2–1
18	25,9–1
19	30,7–1
20	37,0–1
21	44,4–1
22	50,0–1
24	59,2–1
26	64,8–1
28	68,4–1
30	72,5–1
32	75,8–1
34	81,4–1
36	88,8–1
38	98,0–1
40	10,7
44	12,5
$^{64}_{30}Zn(\alpha)^{67}_{31}Ga$ (к.) 78,255 ч [66]	
6	20,7–4
7	60,7–4
8	13,5–3
9	23,8–3
10	43,1–3
11	73,0–3
12	12,2–2
13	19,7–2
14	32,0–2
15	53,0–2
16	83,0–2
17	12,4–1
18	17,4–1
19	23,5–1
20	29,3–1
21	35,3–1
22	41,2–1
23	46,2–1
24	51,0–1
26	58,0–1
28	62,6–1
32	67,6–1
36	69,7–1
40	70,6–1
44	71,2–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{64}_{30}Zn(\alpha)^{67}_{31}Ga$ 78,255 ч [66]	
6	14,8−4
7	45,8−4
8	10,7−3
9	19,8−3
10	34,2−3
11	58,6−3
12	94,1−3
13	15,2−2
14	24,2−2
15	40,0−2
16	61,3−2
17	89,5−2
18	12,2−1
19	16,0−1
20	19,8−1
21	23,7−1
22	27,6−1
24	34,3−1
26	39,4−1
28	42,8−1
32	46,4−1
36	48,0−1
44	48,8−1
$_{30}Zn(\alpha)^{68}_{31}Ga$ 68,0 мин [64]	
18	13,0−2
19	99,9−2
20	30,3−1
21	66,6−1
22	11,5
23	17,9
24	26,5
25	37,0
27	61,0
28	72,2
29	88,8
30	10,2+1
31	11,7+1
32	13,7+1
33	15,5+1
34	17,8+1
35	19,6+1
36	21,5+1
38	23,9+1
40	25,3+1
44	27,5+1
$^{64}_{30}Zn(\alpha)^{65}_{32}Ge$ 30,9 с [66]	
34	68,3−2
35	50,0−1
36	20,5
37	47,4
38	94,2
39	16,2+1
40	26,8+1
41	41,5+1
42	61,2+1
43	85,0+1
44	11,2+2
$^{64}_{30}Zn(\alpha)^{66}_{32}Ge$ 2,27 ч [66]	
24	29,0−3
25	11,5−2
26	36,7−2
27	74,5−2
28	13,7−1
29	25,0−1
30	41,4−1
31	65,2−1
32	93,1−1
33	12,3
34	15,7
35	19,1
36	22,3
37	25,4
38	28,5
40	33,9
42	38,5
44	42,8
$^{64}_{30}Zn(\alpha)^{67}_{32}Ge$ 18,7 мин [66]	
6	14,9−2
7	35,2−2
8	70,6−2
9	12,7−1
10	22,4−1
11	39,4−1
12	70,0−1
13	11,4
14	19,6
15	33,6
16	54,5
17	87,3
18	13,0+1
19	18,2+1
20	24,0+1
21	29,0+1
22	34,1+1
23	38,0+1
24	41,8+1
26	46,8+1
28	49,9+1
36	54,6+1
44	55,4+1
$_{30}Zn(\alpha)^{68}_{32}Ge$ 288 сут [64]	
16	37,0−5
17	48,1−5
18	48,1−5
19	74,0−5
20	99,9−5
21	12,2−4
22	17,0−4
23	22,9−4
24	34,4−4
25	51,8−4
26	72,2−4
27	98,0−4
28	12,2−3
29	15,5−3
30	19,2−3
31	22,6−3
32	26,1−3
33	30,2−3
34	33,7−3
35	37,4−3
36	41,1−3
38	48,1−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
40	51,1−3
42	55,5−3
44	60,1−3
$_{30}Zn(\alpha)^{69}_{32}Ge$ 39,05 ч [64]	
12	11,1−2
13	29,6−2
14	62,9−2
15	96,2−2
16	13,0−1
17	17,8−1
18	20,5−1
19	25,5−1
20	30,7−1
21	36,3−1
22	40,7−1
23	45,4−1
24	50,0−1
26	57,4−1
28	61,0−1
30	64,0−1
31	65,0−1
32	66,2−1
34	71,3−1
36	76,6−1
38	84,5−1
40	92,9−1
44	10,5
$_{30}Zn(\tau)^{65}_{30}Zn$ (к.) 243,9 сут [21]	
10	25,2−4
11	48,1−4
12	84,4−4
13	13,0−3
14	18,5−3
15	24,8−3
16	32,2−3
17	40,0−3
18	48,8−3
19	57,4−3
20	66,9−3
21	75,5−3
22	84,7−3
23	93,5−3
24	10,3−2
26	12,0−2
28	13,4−2
30	15,0−2
32	16,5−2
34	18,1−2
36	19,6−2
$_{30}Zn(\tau)^{67}_{31}Ga$ (к.) 78,255 ч [21]	
10	74,0−3
11	15,5−2
12	27,8−2
13	42,6−2
14	58,6−2
15	78,4−2
16	99,5−2
17	12,6−1
18	15,5−1
19	18,6−1
20	21,9−1
21	25,2−1
22	28,4−1
24	34,7−1
26	40,5−1
28	45,6−1
30	49,6−1
32	52,4−1
34	53,8−1
$_{30}Zn(\tau)^{68}_{32}Ge$ 288 сут [21]	
10	53,0−5
11	68,5−5
12	87,0−5
13	11,0−4
14	13,7−4
15	16,9−4
16	20,4−4
17	25,5−4
18	31,3−4
19	38,3−4
20	46,5−4
21	58,5−4
22	72,2−4
23	90,3−4
24	11,1−3
25	13,5−3
26	16,0−3
27	18,7−3
28	21,4−3
30	26,7−3
32	32,0−3
34	37,4−3
$_{31}Ga(p)^{64}_{29}Cu$ 12,71 ч [67]	
20	24,0−3
21	48,2−3
22	77,0−3
23	10,1−2
24	13,3−2
25	19,3−2
26	31,2−2
27	55,0−2
28	97,6−2
29	17,0−1
30	30,4−1
31	50,0−1
32	79,3−1
33	11,2
34	15,9
35	21,1
36	27,4
37	34,5
38	42,0
39	50,3
40	58,8
41	67,6
42	76,3
43	85,0
44	93,9
46	11,1+1
48	12,7+1
50	14,3+1
52	15,8+1
54	17,3+1
56	18,8+1
60	21,8+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{69}_{31}Ga(p)^{64}_{29}Cu$ 12,71 ч [67]	
20	24,0–3
21	48,2–3
22	77,0–3
23	10,1–2
24	13,3–2
25	19,3–2
26	31,2–2
27	55,0–2
28	97,6–2
29	17,0–1
30	30,4–1
31	50,0–1
32	79,3–1
33	11,2
34	15,9
25	21,1
36	27,4
37	34,5
38	42,0
39	50,3
40	58,8
41	67,6
42	76,3
43	85,0
44	93,8
46	11,1+1
48	12,7+1
50	14,2+1
52	15,6+1
56	18,0+1
60	19,8+1
$^{71}_{31}Ga(p)^{64}_{29}Cu$ 12,71 ч [67]	
40	27,0–3
41	39,2–3
42	55,0–3
43	74,3–3
44	99,0–3
45	13,5–2
46	20,4–2
47	34,2–2
48	49,9–2
49	75,3–2
50	11,4–1
51	16,5–1
52	23,9–1
53	33,6–1
54	47,5–1
55	63,8–1
56	85,3–1
57	10,8
58	13,6
59	16,7
60	20,0
$_{31}Ga(p)^{67}_{29}Cu$ (к.) 61,88 ч [67]	
12	22,5–5
13	46,5–5
14	85,8–5
15	13,2–4
16	20,0–4
17	32,3–4
18	50,0–4
19	75,0–4
20	11,0–3
21	15,8–3
22	24,6–3
23	36,5–3
24	56,2–3
25	80,8–3
26	11,4–2
27	15,2–2
28	19,6–2
29	24,6–2
30	29,6–2
31	35,2–2
32	40,8–2
33	46,8–2
34	52,8–2
35	58,9–2
36	65,0–2
37	71,3–2
38	77,7–2
40	91,0–2
42	10,5–1
44	12,0–1
46	13,5–1
48	15,2–1
50	16,9–1
52	18,8–1
54	20,7–1
56	22,5–1
60	26,2–1
$^{69}_{31}Ga(p)^{67}_{29}Cu$ 61,88 ч [67]	
22	65,0–5
23	98,0–5
24	14,0–4
25	18,0–4
26	22,6–4
27	27,1–4
28	32,3–4
29	37,4–4
30	43,9–4
31	52,0–4
32	61,1–4
33	73,6–4
34	88,9–4
35	11,0–3
36	13,5–3
37	16,9–3
38	21,3–3
39	27,4–3
40	35,1–3
41	44,4–3
42	55,4–3
43	69,0–3
44	82,4–3
45	98,8–3
46	11,5–2
47	12,3–2
48	15,1–2
49	17,0–2
50	18,9–2
51	20,9–2
52	22,9–2
54	26,6–2
56	30,1–2
60	36,7–2
$^{71}_{31}Ga(p)^{67}_{29}Cu$ (к.) 61,88 ч [67]	
12	22,5–5
13	46,5–5
14	85,8–5

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
15	13,2–4
16	20,0–4
17	32,3–4
18	50,0–4
19	75,0–4
20	11,0–3
21	15,8–3
22	23,6–3
23	36,5–3
24	54,8–3
25	79,0–3
26	11,2–2
27	14,9–2
28	19,3–2
29	24,2–2
30	29,2–2
31	34,7–2
32	40,2–2
33	46,1–2
34	51,9–2
35	57,8–2
36	63,7–2
38	75,6–2
40	87,5–2
42	99,4–2
44	11,1–1
46	12,4–1
48	13,7–1
50	15,0–1
52	16,5–1
56	19,5–1
60	22,5–1
$^{69}_{31}Ga(p)^{62}_{30}Zn$ 9,255 ч [67]	
40	39,0–4
41	97,5–4
42	24,0–3
43	57,5–3
44	10,1–2
45	13,9–2
46	18,6–2
47	23,5–2
48	29,3–2
49	36,3–2
50	43,5–2
51	53,2–2
52	63,3–2
53	79,0–2
54	95,1–2
55	11,7–1
56	14,0–1
57	16,7–1
58	19,6–1
59	22,6–1
60	26,1–1
$^{69}_{31}Ga(p)^{63}_{30}Zn$ 38,1 мин [67]	
36	15,3–1
37	29,5–1
38	55,0–1
39	10,5
40	19,6
41	34,5
42	56,4
43	85,0
44	12,4+1
45	17,2+1
46	23,4+1
47	30,6+1
48	39,3+1
49	50,0+1
50	60,5+1
51	73,1+1
52	85,7+1
53	10,0+2
54	11,4+2
55	12,8+2
56	14,2+2
57	15,9+2
58	17,7+2
60	21,0+2
$_{31}Ga(p)^{65}_{30}Zn$ (к.) 243,9 сут [67]	
12	10,0–4
13	33,4–4
14	80,0–4
15	15,3–3
16	27,0–3
17	40,5–3
18	59,0–3
19	80,0–3
20	10,4–2
21	13,1–2
22	16,4–2
23	19,6–2
24	23,2–2
25	26,6–2
26	30,2–2
28	36,7–2
30	42,5–2
32	47,6–2
34	51,9–2
20	10,4–2
21	13,1–2
22	16,4–2
23	19,6–2
24	23,2–2
25	26,6–2
26	30,2–2
27	33,4–2
28	36,7–2
30	42,5–2
32	47,6–2
34	51,9–2
36	55,4–2
38	58,8–2
40	62,4–2
42	66,9–2
44	72,6–2
46	79,8–2
48	87,6–2
50	96,6–2
52	10,7–1
54	12,0–1
56	13,6–1
58	15,7–1
60	17,4–1
$_{31}Ga(p)^{65}_{30}Zn$ 243,9 сут [67]	
12	10,0–4
13	33,4–4
14	80,0–4
15	15,3–3
16	27,0–3
17	40,5–3
18	59,0–3
19	80,0–3
20	10,4–2
21	13,1–2
22	16,4–2
23	19,6–2
24	23,2–2
25	26,6–2
26	30,2–2
28	36,7–2
30	42,5–2
32	47,6–2
34	51,9–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
36	55,4−2
38	58,8−2
40	62,4−2
42	66,9−2
44	72,6−2
46	79,8−2
48	87,6−2
50	96,5−2
52	10,7−1
54	11,8−1
56	13,4−1
58	15,2−1
60	16,6−1
$^{69}_{31}Ga(p)^{65}_{30}Zn$ (к.) 243,9 сут [67]	
12	10,0−4
13	33,4−4
14	80,0−4
15	15,3−3
16	27,0−3
17	40,5−3
18	59,0−3
19	80,0−3
20	10,4−2
21	13,1−2
22	16,4−2
23	19,6−2
24	23,2−2
25	26,6−2
26	30,2−2
28	36,7−2
30	42,5−2
32	47,5−2
34	51,6−2
36	54,7−2
38	57,2−2
40	59,4−2
42	61,6−2
44	63,9−2
46	66,6−2
48	69,8−2
50	73,8−2
52	79,3−2
54	86,6−2
56	98,1−2
58	11,4−1
60	12,6−1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{69}_{31}Ga(p)^{65}_{30}Zn$ 243,9 сут [67]	
12	10,0−4
13	33,4−4
14	80,0−4
15	15,3−3
16	27,0−3
17	40,5−3
18	59,0−3
19	80,0−3
20	10,4−2
21	13,1−2
22	16,4−2
23	19,6−2
24	23,2−2
25	26,6−2
26	30,2−2
28	36,7−2
30	42,5−2
32	47,5−2
34	51,6−2
36	54,7−2
38	57,2−2
40	59,4−2
42	61,6−2
44	63,9−2
46	66,6−2
48	69,8−2
50	73,7−2
52	78,7−2
54	85,6−2
56	95,7−2
60	11,8−1
$^{71}_{31}Ga(p)^{65}_{30}Zn$ 243,9 сут [67]	
28	13,7−5
29	22,8−5
30	37,2−5
31	61,0−5
32	99,3−5
33	17,8−4
34	30,7−4
35	48,8−4
36	74,2−4
37	11,0−3

Энергия частиц, МэВ	Выход радионуклида, МБк /(мкА· ч)
38	15,9−3
39	22,5−3
40	30,3−3
41	41,5−3
42	53,4−3
43	70,4−3
44	87,5−3
45	10,9−2
46	13,1−2
47	15,4−2
48	17,8−2
49	20,3−2
50	22,8−2
52	27,8−2
54	32,9−2
56	37,9−2
58	42,7−2
60	48,1−2
$^{71}_{31}Ga(p)^{69m}_{30}Zn$ 14,0 ч [67]	
12	20,0−4
13	42,3−4
14	80,0−4
15	11,8−3
16	17,0−3
17	23,0−3
18	31,0−3
19	40,5−3
20	53,0−3
21	69,5−3
22	92,0−3
23	12,4−2
24	16,7−2
25	22,2−2
26	30,9−2
27	40,6−2
28	55,4−2
29	74,4−2
30	99,0−2
31	12,9−1
32	17,0−1
33	21,6−1
34	27,3−1
35	34,0−1
36	41,1−1
37	49,7−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
38	58,5−1
39	68,6−1
40	78,8−1
41	89,8−1
42	10,1
43	11,3
44	12,6
45	13,9
46	15,2
48	17,9
50	20,8
52	23,8
54	26,8
56	30,0
58	33,2
60	36,2
$^{71}_{31}Ga(p)^{69g}_{30}Zn$ (к.) 55,6 мин [67]	
14	42,0−3
15	77,5−3
16	13,5−2
17	19,6−2
18	28,8−2
19	42,5−2
20	61,9−2
21	82,5−2
22	10,9−1
23	15,2−1
24	21,0−1
25	29,3−1
26	41,2−1
27	56,9−1
28	78,1−1
29	10,4
30	14,0
31	18,0
32	23,4
33	29,6
34	37,2
35	45,3
36	53,7
37	62,9
38	72,1
39	82,3
40	92,5
41	10,4+1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
42	11,5+1
43	12,7+1
44	14,0+1
46	16,9+1
48	20,1+1
50	23,4+1
52	26,8+1
54	30,3+1
56	33,8+1
60	40,8+1
$^{69}_{31}Ga(p)^{65}_{31}Ga$ (к.) 15,2 мин [67]	
50	17,2
51	34,5
52	67,7
53	12,5+1
54	22,4+1
55	39,0+1
56	56,5+1
57	82,2+1
58	10,7+2
59	13,8+2
60	17,5+2
$_{31}Ga(p)^{66}_{31}Ga$ 9,40 ч [67]	
34	98,9−2
35	22,1−1
36	43,4−1
37	75,2−1
38	12,4
39	19,1
40	28,6
41	42,3
42	60,5
43	85,2
44	11,7+1
45	15,6+1
46	20,0+1
47	25,0+1
48	29,9+1
49	35,4+1
50	41,0+1
51	47,0+1
52	52,9+1
53	59,2+1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
54	65,4+1
56	78,3+1
58	91,5+1
60	10,5+2
$^{71}_{31}Ga(p)^{66}_{31}Ga$ 9,40 ч [67]	
50	45,0−2
51	69,1−2
52	10,2−1
53	14,1−1
54	18,9−1
55	24,5−1
56	31,4−1
57	39,3−1
58	48,4−1
59	58,8−1
60	70,6−1
$_{31}Ga(p)^{67}_{31}Ga$ (к.) 78,255 ч [67]	
20	40,0−3
21	12,0−2
22	36,2−2
23	91,2−2
24	22,7−1
25	50,5−1
26	96,2−1
27	15,2
28	22,1
29	30,1
30	39,9
31	50,8
32	62,2
33	73,8
34	86,8
35	10,0+1
36	11,3+1
37	12,6+1
38	14,0+1
40	16,6+1
42	19,1+1
44	21,3+1
48	25,3+1
52	29,2+1
56	33,4+1
60	38,4+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{31}Ga(p)^{67}_{31}Ga$ 78,255 ч [67]	
20	40,0−3
21	11,8−2
22	36,2−2
23	10,1−1
24	22,7−1
25	44,4−1
26	78,7−1
27	12,3
28	18,2
29	25,3
30	33,4
31	43,0
32	52,5
33	63,1
34	73,6
35	84,7
36	95,7
38	11,8+1
40	14,1+1
42	16,2+1
44	18,1+1
48	21,6+1
52	25,0+1
56	28,9+1
60	33,2+1
$^{71}_{31}Ga(p)^{67}_{31}Ga$ 78,255 ч [67]	
40	22,0−3
41	61,4−3
42	13,6−2
43	24,4−2
44	41,9−2
45	65,0−2
46	98,1−2
47	14,2−1
48	19,6−1
49	27,3−1
50	36,8−1
51	48,4−1
52	62,5−1
53	79,5−1
54	97,5−1
55	11,9
56	14,2
57	17,0
58	19,8
59	23,2
60	26,7
$_{31}Ga(p)^{68}_{31}Ga$ 68,0 мин [67]	
14	31,6
15	10,2+1
16	23,4+1
17	43,5+1
18	74,3+1
19	11,2+2
20	15,5+2
21	20,1+2
22	25,9+2
23	31,8+2
24	38,1+2
25	44,8+2
26	51,5+2
27	58,5+2
28	65,5+2
29	72,2+2
30	78,9+2
31	85,0+2
32	91,0+2
34	10,2+3
36	11,2+3
38	12,3+3
40	13,5+3
42	14,8+3
44	16,4+3
46	18,1+3
48	19,9+3
52	23,6+3
56	27,6+3
60	31,6+3
$^{69}_{31}Ga(p)^{68}_{31}Ga$ 68,0 мин [67]	
14	31,6
15	10,2+1
16	23,4+1
17	43,5+1
18	74,3+1
19	11,2+2
20	15,5+2
21	20,1+2
22	25,9+2
23	31,8+2
24	38,1+2
25	44,8+2
26	51,5+2
27	58,5+2
28	65,5+2
30	78,9+2
32	91,0+2
34	10,2+3
38	12,1+3
42	13,9+3
46	15,8+3
50	17,8+3
54	19,9+3
56	21,0+3
60	23,2+3
$^{71}_{31}Ga(p)^{68}_{31}Ga$ 68,0 мин [67]	
30	12,2−1
31	36,0−1
32	89,3−1
33	18,6
34	35,8
35	64,5
36	10,6+1
37	16,7+1
38	25,5+1
39	37,5+1
40	53,3+1
41	72,8+1
42	96,8+1
43	12,4+2
44	15,6+2
45	19,3+2
46	23,0+2
47	27,0+2
48	31,1+2
49	35,2+2
50	39,6+2
52	48,2+2
54	57,0+2
56	65,8+2
58	74,7+2
60	83,5+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{31}Ga(p)^{70}_{31}Ga$ 21,15 мин [67]	
10	68,9−1
11	12,3
12	22,7
13	44,5
14	84,8
15	15,8+1
16	27,1+1
17	47,2+1
18	78,0+1
19	12,3+2
20	18,0+2
21	24,2+2
22	32,3+2
23	40,8+2
24	50,1+2
25	60,3+2
26	70,8+2
27	82,1+2
28	93,3+2
30	11,6+3
32	13,7+3
34	15,7+3
36	17,6+3
38	19,5+3
40	21,4+3
44	25,4+3
48	29,6+3
52	33,9+3
56	38,5+3
60	43,3+3
$_{31}Ga(p)^{66}_{32}Ge$ 2,27 ч [67]	
34	51,0−3
35	15,6−2
36	37,2−2
37	78,6−2
38	14,2−1
39	22,5−1
40	34,3−1
41	48,6−1
42	67,9−1
43	92,4−1
44	12,5
45	16,4
46	21,5
47	27,3
48	33,8
49	41,8
50	49,8
51	58,8
52	67,8
53	76,8
54	85,8
56	10,2+1
58	11,7+1
60	13,1+1
$^{71}_{32}Ge(p)^{66}_{32}Ge$ 2,27 ч [67]	
52	70,0−3
53	17,3−2
54	32,2−2
55	48,4−2
56	67,3−2
57	87,4−2
58	11,0−1
59	13,3−1
60	15,9−1
$_{31}Ga(p)^{67}_{31}Ge$ 18,7 мин [67]	
25	40,0
26	43,8+1
27	69,1+1
28	98,7+1
29	13,1+2
30	16,5+2
31	20,2+2
32	24,3+2
33	28,4+2
34	33,2+2
35	38,2+2
36	43,0+2
38	53,1+2
40	63,0+2
42	72,4+2
44	80,7+2
48	93,8+2
52	10,5+3
56	11,5+3
60	12,8+3
$^{71}_{31}Ga(p)^{67}_{32}Ge$ 18,7 мин [67]	
42	57,2−2
43	13,4−1
44	29,4−1
45	59,0−1
46	11,2
47	20,4
48	34,9
49	53,2
50	76,6
51	10,4
52	13,7+1
53	17,6+1
54	21,8+1
55	26,6+1
56	31,9+1
57	37,8+1
58	44,2+1
59	51,3+1
60	58,9+1
$_{32}Ge(p)^{68}_{32}Ge$ 288 сут [67]	
14	40,7−3
15	93,0−3
16	16,8−2
17	25,4−2
18	35,4−2
19	45,6−2
20	57,2−2
21	68,2−2
22	79,2−2
23	89,4−2
24	99,3−2
25	10,8−1
26	11,7−1
28	13,1−1
32	15,2−1
36	16,6−1
40	18,3−1
44	20,5−1
52	24,5−1
60	27,8−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{69}_{31}Ga(p)^{68}_{32}Ge$ 288 сут [67]	
14	40,7−3
15	93,0−3
16	16,8−2
17	25,4−2
18	35,4−2
19	45,6−2
20	57,2−2
21	68,2−2
22	79,2−2
23	89,4−2
24	99,3−2
26	11,7−1
28	13,1−1
32	15,2−1
36	16,5−1
44	18,4−1
60	21,2−1
$^{71}_{31}Ga(p)^{68}_{32}Ge$ 288 сут [67]	
36	92,5−4
37	20,0−3
38	36,6−3
39	56,8−3
40	81,8−3
41	11,1−2
42	14,4−2
43	18,0−2
44	21,8−2
45	25,8−2
46	29,0−2
48	35,2−2
50	40,9−2
52	46,1−2
56	55,8−2
60	65,5−2
$_{31}Ga(p)^{69}_{32}Ge$ 39,05 ч [67]	
8	72,4−2
9	60,0−1
10	18,3
11	34,4
12	51,9
13	68,5
14	80,5
15	86,4
16	90,1
17	93,8
18	96,0
20	10,1+1
22	10,4+1
24	11,0+1
26	12,4+1
28	14,6+1
30	17,3+1
32	20,2+1
34	23,2+1
36	25,9+1
40	30,5+1
44	34,2+1
52	39,0+1
60	42,9+1
$^{69}_{31}Ga(p)^{69}_{32}Ge$ 39,05 ч [67]	
8	72,4−2
9	60,0−1
10	18,3
11	34,4
12	51,9
13	68,5
14	80,5
15	86,4
16	90,1
17	93,8
18	96,0
20	10,1+1
24	10,8+1
28	11,4+1
36	12,6+1
44	13,6+1
60	15,7+1
$^{71}_{31}Ga(p)^{69}_{32}Ge$ 39,05 ч [67]	
24	21,6−1
25	58,6−1
26	12,4
27	20,9
28	31,4
29	43,4
30	56,0
31	70,3
32	82,4
33	94,8
34	10,9+1
35	12,0+1
36	13,3+1
38	15,5+1
40	17,4+1
42	19,1+1
44	20,5+1
52	24,3+1
60	27,1+1
$_{31}Ga(d)^{68}_{32}Ge$ 288 сут [68]	
16	11,8−4
17	31,1−4
18	71,0−4
19	12,6−3
20	22,9−3
21	36,8−3
22	53,6−3
23	78,7−3
24	95,6−3
$_{31}Ga(\alpha)^{73}_{33}As$ 80,3 сут [69]	
18	17,8−3
19	29,7−3
20	45,9−3
21	64,6−3
22	85,6−3
23	10,8−2
24	13,6−2
25	16,3−2
26	19,5−2
27	22,2−2
28	24,6−2
30	29,3−2
32	33,8−2
36	40,6−2
40	45,2−2
44	48,3−2
48	49,5−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{31}Ga(\alpha)^{74}_{33}As$ 17,77 сут [69]	
12	23,1−3
13	39,3−3
14	61,0−3
15	86,6−3
16	11,6−2
17	14,7−2
18	18,2−2
19	21,4−2
20	24,5−2
21	27,6−2
22	30,7−2
24	35,7−2
28	41,0−2
36	44,2−2
52	47,1−2
$_{32}Ge(p)^{65}_{30}Zn$ (к.) 243,9 сут [158]	
16	44,4−4
17	62,9−4
18	85,1−4
19	10,0−3
20	10,8−3
21	12,1−3
22	14,1−3
23	15,5−3
24	18,0−3
25	20,0−3
26	23,7−3
27	28,1−3
28	31,0−3
29	39,2−3
30	44,4−3
31	52,5−3
32	59,9−3
33	69,9−3
34	81,4−3
35	91,8−3
36	10,5−2
37	11,8−2
38	13,5−2
39	14,9−2
40	16.8−2
41	18,9−2
42	20,9−2
44	25,5−2
46	29,7−2
48	33,7−2
50	37,4−2
54	44,2−2
58	51,4−2
62	61,1−2
66	71,6−2
70	83,2−2
$_{32}Ge(p)^{66}_{31}Ga$ 9,40 ч [158]	
16	16,3−2
17	10,5−1
18	14,1−1
19	25,2−1
20	32,6−1
21	45,1−1
22	61,4−1
23	81,4−1
24	11,2
25	15,4
26	22,6
27	32,7
28	41,9
29	52,1
30	61,7
31	71,0
32	81,0
34	94,4
38	10,8+1
42	11,8+1
46	13,2+1
50	15,4+1
54	19,2+1
58	24,7+1
62	30,3+1
66	35,9+1
70	41,4+1
$_{32}Ge(p)^{67}_{31}Ga$ 78,255 сут [70, 158]	
7	29,6−3
8	59,2−3
9	96,2−3
10	16,6−2
11	27,8−2
12	40,7−2
13	54,8−2
14	71,8−2
15	90,3−2
16	10,8−1
17	12,8−1
18	15,0−1
19	17,0−1
20	19,1−1
21	21,0−1
22	22,9−1
23	24,5−1
24	25,8−1
25	29,6−1
26	36,0−1
27	42,8−1
28	50,4−1
29	59,7−1
30	69,8−1
31	80,6−1
32	94,1−1
33	10,6
34	12,0
35	13,4
36	14,8
37	16,4
38	18,4
39	20,0
40	22,2
42	26,2
44	30,1
46	33,9
50	41,1
54	48,2
58	55,1
62	61,1
66	66,0
70	70,3
$_{32}Ge(p)^{68}_{32}Ge$ (к.) 288 сут [158]	
24	29.6−4
25	10,4−3
26	16,4−3
27	24.7−3
28	35,4−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
29	59,2−3
30	96,2−3
31	15,5−2
32	21,2−2
33	27,4−2
34	33,3−2
35	39,2−2
36	45,1−2
37	50,7−2
38	56,5−2
39	62,4−2
40	68,1−2
42	78,8−2
44	88,1−2
46	97,3−2
50	11,5−1
54	13,3−1
58	15,2−1
62	17.3−1
66	19,8−1
70	22,7−1
$_{32}Ge(p)^{69}_{32}Ge$ (к.) 39,05 ч [158]	
12	14,8−1
13	44,3−1
14	81,4−1
15	13,2
16	16,3
17	20,0
18	22,9
19	25,2
20	28,1
21	36,3
22	47,4
23	59,2
24	72,5
25	84,4
26	10,0+1
27	11,4+1
28	12,9+1
29	14,4+1
30	15,9+1
31	17,5+1
32	19,2+1
34	22,0+1
38	24,0+1
42	27,1+1
46	32,3+1
50	38,6+1
54	45,6+1
58	52,8+1
62	59,5+1
66	65,9+1
70	72,4+1
$_{32}Ge(p)^{71}_{33}As$ 64,8 ч [71, 158]	
14	11,1−2
15	12,6−1
16	32,2−1
17	60,7−1
18	98,4−1
19	14,3
20	19,4
21	25,3
22	31,6
23	38,1
24	45,0
25	51,3
26	57,8
28	68,7
30	77,8
32	85,2
36	98,1
40	11,3+1
44	12,9+1
46	14,0+1
50	16,4+1
54	18,4+1
62	21,4+1
70	23,3+1
$_{32}Ge(p)^{72}_{33}As$ 26,0 ч [71, 72, 158]	
6	27,4−1
7	67,5−1
8	12,3
9	20,0
10	28,9
11	39,2
12	49,8
13	61,0
14	72,6
15	82,6
16	92,9
18	10,9+1
20	12,3+1
22	13,5+1
24	14,9+1
26	16,8+1
28	18,5+1
30	21,5+1
32	24,4+1
34	27,5+1
38	33,6+1
42	39,4+1
46	45,1+1
54	55,0+1
62	63,7+1
70	71,0+1
$_{32}Ge(p)^{73}_{33}As$ 80,3 сут [69, 158]	
6	22,2−3
7	29,6−3
8	37,0−3
9	56,2−3
10	85,8−3
11	13,2−2
12	18,6−2
13	24,7−2
14	33,3−2
15	43,8−2
16	57,6−2
17	75,9−2
18	98,3−2
19	12,2−1
20	14,6−1
21	16,7−1
22	19,3−1
23	21,8−1
24	24,2−1
26	25,4−1
30	27,5−1
38	31,3−1
46	34,6−1
54	37,5−1
70	42,2−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{32}Ge(p)^{74}_{33}As$ 17,77 сут [71, 72, 158]	
6	37,8−2
7	81,3−2
8	13,9−1
9	21,0−1
10	28,5−1
11	35,7−1
12	42,4−1
13	48,2−1
14	53,0−1
16	59,8−1
18	64,0−1
20	67,1−1
22	70,0−1
24	74,3−1
28	87,4−1
32	10,2
36	11,4
44	12,9
52	14,1
60	15,2
76	17,1
$_{32}Ge(p)^{76}_{33}As$ 26,32 ч [71]	
6	14,8−1
7	37,4−1
8	66,6−1
9	99,5−1
10	12,6
11	14,4
12	15,5
14	16,8
18	17,7
22	18,1
$_{32}Ge(d)^{67}_{31}Ga$ 78,255 ч [70]	
10	59,2−3
11	11,5−2
12	17,8−2
13	25,0−2
14	33,7−2
15	45,3−2
16	57,7−2
17	75,1−2
18	98,0−2
19	13,3−1
20	17,8−1
21	22,8−1
22	29,1−1
23	37,9−1
24	44,8−1
$_{32}Ge(d)^{73}_{33}As$ 80,3 сут [69]	
5	41,4−3
6	65,1−3
7	10,6−2
8	14,8−2
9	20,0−2
10	25,6−2
11	33,2−2
12	42,2−2
13	52,5−2
14	64,4−2
15	77,6−2
16	90,7−2
18	11,6−1
20	14,3−1
22	16,9−1
24	19,6−1
$_{32}Ge(d)^{74}_{33}As$ 17,77 сут [69]	
5	10,4−2
6	18,5−2
7	34,4−2
8	57,7−2
9	87,0−2
10	13,2−1
11	19,5−1
12	26,0−1
13	32,3−1
14	38,8−1
15	45,3−1
16	51,8−1
17	57,8−1
18	63,8−1
20	76,0−1
22	84,9−1
24	90,6−1
$_{32}Ge(\alpha)^{72}_{33}As$ 26,0 ч [73]	
18	14,8−4
19	75,0−4
20	24,8−3
21	62,9−3
22	13,4−2
23	24,9−2
24	43,9−2
25	67,8−2
26	10,3−1
27	14,2−1
28	19,2−1
29	25,0−1
30	31,2−1
31	37,4−1
32	44,7−1
33	57,0−1
34	59,3−1
36	71,8−1
38	83,0−1
39	88,2−1
40	93,0−1
42	10,2
46	11,7
$_{32}Ge(\alpha)^{73}_{33}As$ (к.) 80,3 сут [69]	
10	28,1−3
11	32,1−3
12	35,5−3
13	39,4−3
14	43,7−3
15	47,2−3
16	50,3−3
17	52,3−3
18	54,4−3
19	56,5−3
20	58,5−3
21	60,4−3
22	62,2−3
23	64,0−3
24	65,9−3
25	76,4−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
26	87,0–3
28	10,8–2
30	13,2–2
32	16,1–2
34	17,5–2
36	19,6–2
38	22,0–2
40	24,7–2
42	29,1–2
44	34,0–2
46	38,8–2
48	44,0–2
$_{32}Ge(a)\,^{74}_{33}As$ 17,77 сут [69]	
22	16,6–3
23	35,6–3
24	57,4–3
25	78,4–3
26	10,1–2
27	12,7–2
28	15,3–2
29	18,4–2
30	21,1–2
31	24,2–2
32	27,2–2
33	30,1–2
34	32,7–2
35	36,1–2
36	39,2–2
38	45,6–2
40	52,2–2
42	58,7–2
44	64,0–2
48	74,6–2
$_{32}Ge(a)\,^{72}_{34}Se$ 8,4 сут [74]	
22	79,6–3
23	13,8–2
24	20,7–2
25	28,0–2
26	36,1–2
27	43,4–2
28	50,7–2
29	58,3–2
30	65,7–2
32	75,5–2
34	85,7–2
38	10,3–1
44	12,3–1
48	13,4–1
$_{32}Ge(a)\,^{75}_{34}Se$ 119,8 сут [74]	
14	87,9–4
15	10,9–3
16	13,4–3
17	16,0–3
18	19,0–3
19	22,9–3
20	26,8–3
21	31,0–3
22	35,6–3
23	40,3–3
24	45,3–3
25	52,5–3
26	60,1–3
27	68,0–3
28	76,3–3
29	85,4–3
30	94,8–3
32	11,8–2
34	14,4–2
36	16,9–2
38	20,0–2
40	22,9–2
42	26,4–2
44	29,7–2
48	36,1–2
$_{33}As(p)\,^{73}_{34}Se$ 7,1 ч [75]	
22	29,8–1
23	86,0–1
24	18,9
25	37,2
26	56,9
27	99,0
28	15,7+1
29	23,3+1
30	33,1+1
31	44,4+1
32	58,1+1
33	73,4+1
34	90,4+1
35	10,8+2
36	12,6+2
38	16,1+2
40	19,0+2
44	23,5+2
48	26,5+2
56	30,6+2
64	34,0+2
80	39,6+2
$_{33}As(p)\,^{75}_{34}Se$ 119,8 сут [74, 75]	
5	25,9–3
6	94,4–3
7	24,4–2
8	41,3–2
9	60,1–2
10	78,3–2
11	95,8–2
12	11,1–1
14	13,6–1
16	15,6–1
18	17,3–1
22	20,0–1
24	21,3–1
32	23,0–1
48	23,8–1
80	24,7–1
$_{33}As(d)\,^{75}_{32}Ge$ 82,78 мин [76]	
14	16,3–3
15	57,0–3
16	16,0–2
17	33,3–2
18	61,1–2
19	10,2–1
20	16,5–1
21	25,8–1
22	38,8–1
23	55,4–1
24	76,6–1
25	10,1
26	13,1
27	16,7

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
28	20,3
29	24,3
30	28,6
31	32,8
32	37,3
34	45,5
36	52,9
38	60,3
40	68,1
42	76,5
44	85,6
46	95,6
50	11,8+1
$_{33}As(d)\,^{73}_{33}As$ 80,3 сут [76]	
32	34,6–3
33	74,5–3
34	14,3–2
35	24,8–2
36	40,8–2
37	58,7–2
38	85,0–2
39	11,4–1
40	15,0–1
41	19,2–1
42	23,5–1
43	28,7–1
44	34,3–1
45	40,5–1
46	47,0–1
47	53,7–1
48	60,7–1
50	74,0–1
$_{33}As(d)\,^{74}_{33}As$ 17,77 сут [76]	
14	21,0–3
15	32,8–3
16	50,0–3
17	75,4–3
18	11,3–2
19	16,8–2
20	25,1–2
21	36,3–2
22	52,3–2
23	73,7–2
24	10,3–1
25	13,8–1
26	18,8–1
27	24,8–1
28	31,4–1
29	39,2–1
30	48,5–1
31	58,8–1
32	70,1–1
33	83,5–1
34	96,9–1
35	11,2
36	12,9
37	14,5
38	16,2
40	19,4
42	22,5
44	25,7
46	29,0
50	35,8
$_{33}As(d)\,^{76}_{33}As$ 26,32 ч [76]	
2	59,4–3
3	26,0–2
4	75,8–2
5	22,8–1
6	54,5–1
7	10,3
8	16,3
9	22,9
10	30,3
11	38,7
12	45,9
13	53,2
14	60,2
15	66,9
16	73,5
18	86,0
20	97,5
22	10,8+1
26	12,5+1
34	15,2+1
42	17,4+1
50	19,2+1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{33}As(d)\,^{72}_{34}Se$ 8,4 сут [76]	
40	48,8–4
41	19,0–3
42	50,5–3
43	91,0–3
44	17,6–2
45	27,4–2
46	44,8–2
47	64,4–2
48	92,4–2
49	12,6–1
50	16,4–1
$_{33}As(d)\,^{73m}_{34}Se$ 39 мин [76]	
28	14,5
29	38,0
30	81,7
31	14,8+1
32	25,2+1
33	37,4+1
34	53,7+1
35	72,6+1
36	95,0+1
37	12,0+2
38	14,6+2
39	37,6+2
40	20,3+2
41	23,4+2
42	26,3+2
44	32,4+2
46	38,4+2
48	44,3+2
50	50,1+2
$_{33}As(d)\,^{73g}_{34}Se$ 7,1 ч [76]	
28	17,2–1
29	41,6–1
30	85,8–1
31	14,8
32	24,7
33	35,8
34	51,6
35	69,4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
36	90,0
37	11,4+1
38	13,8+1
39	16,4+1
40	19,0+1
41	21,7+1
42	24,5+1
43	27,3+1
44	30,2+1
46	35,6+1
48	40,6+1
50	44,7+1
$_{33}As(d)\,^{75}_{34}Se$ 119,8 сут [76]	
6	41,8−5
7	19,0−4
8	55,8−4
9	13,2−3
10	29,0−3
11	59,0−3
12	10,8−2
13	19,2−2
14	31,3−2
15	47,4−2
16	66,6−2
17	90,8−2
18	11,6−1
19	14,3−1
20	17,0−1
21	19,7−1
22	22,4−1
24	27,3−1
26	31,6−1
28	35,2−1
30	38,0−1
34	41,7−1
42	47,2−1
50	52,3−1
$_{33}As(\alpha)\,^{74}_{35}Br$ 25,3 мин [77]	
64	12,6−2
65	75,0−2
66	27,8−1
67	59,0−1
68	10,9
69	18,2
70	29,1
71	43,0
72	58,1
$_{33}As(\alpha)\,^{75}_{35}Br$ 98 мин [77]	
38	12,6−3
39	76,0−3
40	36,0−2
41	11,4−1
42	27,9−1
43	51,0−1
44	88,4−1
45	14,4
46	22,2
47	34,1
48	50,3
49	69,8
50	91,7
51	12,0+1
52	14,8+1
53	17,6+1
54	20,4+1
56	25,8+1
58	31,2+1
60	35,9+1
62	40,6+1
64	44,8+1
66	48,9+1
70	56,6+1
74	63,7+1
$_{33}As(\alpha)\,^{76}_{35}Br$ 16,2 ч [59, 77, 78]	
28	26,2−2
29	63,4−2
30	13,1−1
31	25,0−1
32	43,7−1
33	64,9−1
34	90,7−1
35	11,6
36	15,1
37	19,2
38	23,9
39	28,8
40	34,5
41	39,8
42	45,0
44	56,0
46	67,0
50	76,0
54	86,4
56	89,8
58	93,3
66	10,3+1
74	11,2+1
$_{33}As(\alpha)\,^{77}_{35}Br$ 57,036 ч [78]	
16	75,0−2
17	13,6−1
18	21,1−1
19	29,5−1
20	39,6−1
21	51,1−1
22	65,5−1
23	82,6−1
24	10,3
25	12,6
26	15,0
27	17,2
28	19,4
29	21,5
30	23,5
32	26,9
36	31,9
40	34,6
48	36,1
$_{33}As(\tau)\,^{74}_{35}Br$ 25,3 мин [77]	
28	10,2−2
29	49,0−2
30	13,0−1
31	24,8−1
32	43,1−1
33	69,0−1
34	10,3
35	15,1
36	22,0
37	30,8
38	42,9

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
39	57,8
40	77,4
41	10,2+1
42	13,1+1
43	16,9+1
44	21,2+1
45	26,4+1
46	32,8+1
$_{33}As(\tau)\,^{75}_{35}Br$ 98 мин [77]	
14	90,0−4
15	13,0−2
16	98,0−2
17	27,5−1
18	62,5−1
19	11,4
20	19,5
21	30,0
22	44,2
23	61,3
24	80,5
25	10,4+1
26	12,5+1
27	14,9+1
28	17,4+1
29	19,7+1
30	22,0+1
32	26,3+1
34	30,3+1
36	34,0+1
38	37,3+1
42	42,9+1
46	46,9+1
$_{33}As(\tau)\,^{76}_{35}Br$ 16,2 ч [77]	
4	60,0−5
5	35,0−4
6	25,0−3
7	10,5−2
8	28,5−2
9	54,6−2
10	95,8−2
11	15,7−1
12	24,7−1
13	36,8−1
14	50,8−1
15	68,8−1
16	82,5−1
17	99,0−1
18	11,6
19	13,7
20	15,5
22	18,4
24	20,8
28	23,9
32	26,4
36	29,0
40	31,6
44	34,4
48	37,3
$_{34}^{76}Se(p)\,^{74}_{35}Br$ 25,3 мин [77]	
28	33,0−3
29	26,0−2
30	27,9−1
31	16,5
32	40,8
33	77,0
34	11,5+1
35	16,0+1
36	22,4+1
37	28,4+1
38	33,3+1
$_{34}^{76}Se(p)\,^{75}_{35}Br$ 98 мин [77]	
16	56,2−1
17	24,0
18	67,5
19	12,1+1
20	18,8+1
21	25,7+1
22	33,8+1
23	42,2+1
24	49,3+1
25	56,5+1
26	63,4+1
28	75,1+1
30	84,7+1
34	98,1+1
38	10,8+2
$_{34}Se(p)\,^{76}_{35}Br$ 16,2 ч [78, 79]	
8	37,0−1
9	63,4−1
10	10,3
11	14,9
12	20,6
13	26,0
14	32,7
15	39,8
16	47,6
17	55,0
18	62,6
19	65,8
20	79,1
21	87,6
22	96,2
23	10,5+1
24	11,5+1
25	12,6+1
26	13,7+1
27	14,8+1
28	15,9+1
29	17,5+1
30	19,2+1
32	23,5+1
34	28,2+1
36	34,0+1
38	40,0+1
42	48,6+1
46	55,0+1
50	59,7+1
$_{34}^{77}Se(p)\,^{76}_{35}Br$ 16,2 ч [80]	
12	12,0−3
13	10,3−2
14	40,7−2
15	15,6−1
16	34,4−1
17	59,9−1
18	90,2−1
19	12,7
20	16,3
21	19,3
22	22,1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
24	26,2
28	28,6
$_{34}Se(p)^{77}_{35}Br$ 57,036 ч [78, 79]	
6	40,0−2
7	69,0−2
8	11,0−1
9	16,3−1
10	23,4−1
11	32,2−1
12	41,6−1
13	50,7−1
14	62,0−1
15	77,3−1
16	95,8−1
17	12,4
18	16,3
19	21,4
20	27,6
21	40,3
22	44,5
23	53,0
24	61,4
25	69,8
26	78,3
27	86,2
28	94,1
30	10,6+1
32	11,8+1
36	13,5+1
40	15,8+1
44	19,0+1
48	23,4+1
52	28,7+1
56	34,9+1
60	42,0+1
$^{78}_{34}Se(p)^{77}_{35}Br$ 57,036 ч [78, 80]	
14	28,0−2
15	10,2−1
16	25,0−1
17	48,6−1
18	86,1−1
19	13,1
20	19,4
21	27,2
22	36,1
23	44,5
24	52,8
25	61,2
26	69,5
$_{34}Se(p)^{82}_{35}Br$ 35,3 ч [79]	
6	43,0−2
7	12,3−1
8	25,4−1
9	40,5−1
10	54,4−1
11	67,3−1
12	77,6−1
14	90,4−1
18	10,2
22	10,7
26	11,0
$^{76}_{34}Se(d)^{74}_{35}Br$ 2,53 мин [77]	
30	20,7−4
31	14,0−3
32	89,0−3
33	20,8−2
34	45,3−2
35	10,6−1
36	24,5−1
37	51,0−1
38	10,2
39	18,8
40	31,8
41	49,2
42	69,1
43	93,6
44	11,8+1
45	14,6+1
46	17,5+1
47	20,5+1
48	23,6+1
$^{76}_{34}Se(d)^{75}_{35}Br$ 98 мин [77]	
18	50,0−3
19	38,0−2
20	17,4−1
21	48,7−1
22	10,2
23	20,6
24	36,7
25	58,3
26	84,4
27	11,4+1
28	14,7+1
29	18,3+1
30	22,3+1
31	26,1+1
32	30,0+1
34	37,3+1
36	43,9+1
38	50,0+1
40	55,8+1
42	61,3+1
44	66,6+1
46	71,7+1
48	76,7+1
$_{34}Se(d)^{76}_{35}Br$ 16,2 ч [79]	
9	23,0−2
10	96,0−2
11	17,6−1
12	34,3−1
13	61,8−1
14	92,2−1
15	12,8
16	16,6
17	21,2
18	26,4
19	32,3
20	38,3
21	44,5
22	50,7
24	63,3
26	75,8
$^{76}_{34}Se(d)^{76}_{35}Br$ 16,2 ч [77, 79]	
9	23,0−2
10	96,0−2
11	17,6−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
12	34,3−1
13	61,8−1
14	92,2−1
15	12,8
16	16,6
17	18,8
18	24,2
19	27,8
20	31,3
22	37,5
24	42,8
28	50,9
32	56,5
40	64,5
48	71,7
$_{34}Se(d)^{77}_{35}Br$ 57,036 ч [79]	
6	45,0−2
7	88,0−2
8	14,1−1
9	21,0−1
10	31,4−1
11	41,2−1
12	53,2−1
13	64,8−1
14	78,0−1
15	91,0−1
16	10,5
17	11,9
18	13,3
19	15,1
20	17,7
21	21,4
22	24,6
23	27,7
24	30,8
$_{34}Se(d)^{82}_{35}Br$ 35,3 ч [79]	
6	33,0−2
7	74,6−2
8	14,8−1
9	25,2−1
10	40,0−1
11	56,4−1
12	77,2−1
13	99,5−1
14	12,2
15	14,5
16	16,7
18	20,3
20	22,8
24	25,2
$_{34}Se(\alpha)^{76}_{35}Br$ 16,2 ч [79]	
18	18,0−3
19	33,6−3
20	58,0−3
21	87,6−3
22	13,0−2
23	18,0−2
24	24,2−2
25	32,5−2
26	41,7−2
27	50,4−2
28	59,2−2
29	67,7−2
30	76,3−2
32	89,4−2
34	10,3−1
36	12,3−1
38	14,7−1
42	17,6−1
46	19,2−1
$_{34}Se(\alpha)^{77}_{35}Br$ (к.) 57,036 ч [79]	
12	21,0−3
13	27,8−3
14	36,8−3
15	47,4−3
16	58,0−3
17	67,2−3
18	77,3−3
19	87,6−3
20	10,0−2
22	11,9−2
24	14,3−2
26	16,7−2
28	19,8−2
30	24,3−2
32	28,8−2
34	39,6−2
36	55,0−2
38	83,5−2
40	12,1−1
42	16,9−1
44	22,6−1
46	27,9−1
$_{34}Se(\alpha)^{82}_{35}Br$ 35,3 ч [79]	
18	65,0−4
19	18,1−3
20	39,0−3
21	75,2−3
22	13,3−2
23	20,2−2
24	28,6−2
25	37,4−2
26	47,2−2
27	55,8−2
28	65,3−2
30	87,5−2
32	11,2−1
34	13,6−1
36	16,0−1
38	18,5−1
40	21,0−1
44	26,0−1
46	28,1−1
$_{34}Se(\tau)^{76}_{36}Kr$ 14,8 ч [164]	
22	33,3−4
23	14,1−3
24	35,5−3
25	76,0−3
26	13,5−2
27	21,4−2
28	31,1−2
29	42,5−2
30	55,5−2
31	70,2−2
32	83,2−2
33	10,1−1
34	12,1−1
36	15,5−1
38	17,9−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
40	19,6–1
$^{34}Se(\tau)\,^{77}_{36}Kr$ 74,7 мин [164]	
14	65,0–5
15	11,5–3
16	14,8–2
17	68,8–2
18	17,8–1
19	38,5–1
20	62,9–1
21	89,3–1
22	12,2
23	16,4
24	20,5
25	24,5
26	27,8
28	33,7
30	39,2
32	45,5
34	52,2
36	58,5
38	66,6
40	70,7
$^{34}Se(\tau)\,^{79}_{36}Kr$ 35,04 ч [164]	
14	37,5–4
15	47,2–3
16	11,8–2
17	30,5–2
18	63,6–2
19	11,1–1
20	16,3–1
21	20,6–1
22	25,2–1
23	30,3–1
24	34,6–1
26	38,5–1
28	42,6–1
30	52,9–1
32	65,9–1
34	88,8–1
36	11,5
38	15,5
40	20,7
$^{76}_{34}Se(\tau)\,^{75}_{34}Se$ 119,8 сут [164]	
8	83,0–7
9	13,8–6
10	22,2–6
11	31,9–6
12	45,3–6
13	64,5–6
14	88,6–6
15	11,9–5
16	15,9–5
17	20,6–5
18	26,4–5
19	33,1–5
20	41,0–5
21	50,1–5
22	60,4–5
23	72,8–5
24	84,8–5
25	98,8–5
26	11,4–4
28	14,7–4
30	18,5–4
32	23,3–4
34	29,8–4
36	40,0–4
38	56,3–4
40	81,4–4
$^{76}_{34}Se(\tau)\,^{75}_{36}Br$ (к.) 98 мин [164]	
22	10,0–5
23	34,7–5
24	12,4–4
25	31,6–4
26	66,7–4
27	14,6–3
28	27,1–3
29	44,9–3
30	68,7–3
31	15,0–2
32	29,0–2
33	50,1–2
34	76,8–2
35	11,9–1
36	17,7–1
37	24,6–1
38	34,4–1
39	47,8–1
40	65,4–1
$^{76}_{34}Se(\tau)\,^{76}_{35}Br$ 16,2 ч [164]	
20	23,4–4
21	13,2–3
22	34,7–3
23	78,7–3
24	15,3–2
25	27,8–2
26	46,7–2
27	70,7–2
28	10,6–1
29	15,2–1
30	21,4–1
32	35,4–1
34	54,0–1
36	66,7–1
38	76,8–1
40	83,4–1
$^{76}_{34}Se(\tau)\,^{77}_{35}Br$ (к.) 57,036 ч [164]	
12	26,7–6
13	44,6–5
14	11,3–3
15	48,3–3
16	12,1–2
17	22,1–2
18	35,4–2
19	49,6–2
20	66,9–2
21	87,9–2
22	11,0–1
23	13,1–1
24	15,2–1
25	16,7–1
26	18,3–1
27	20,3–1
28	22,3–1
30	25,2–1
32	27,4–1
36	30,7–1
40	33,4–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{76}_{34}Se(\tau)\,^{77}_{35}Br$ 57,036 ч [164]	
12	26,7–6
13	30,0–5
14	66,7–4
15	32,1–3
16	80,1–3
17	14,2–2
18	23,4–2
19	33,6–2
20	46,7–2
21	60,7–2
22	76,8–2
23	91,1–2
24	10,6–1
25	11,6–1
26	12,7–1
28	15,6–1
30	17,7–1
32	19,7–1
36	22,7–1
40	25,3–1
$^{76}_{34}Se(\tau)\,^{76}_{36}Kr$ 14,8 ч [164]	
20	16,7–5
21	13,1–4
22	87,8–4
23	23,4–3
24	50,1–3
25	88,2–3
26	14,3–2
27	21,3–2
28	30,7–2
29	41,8–2
30	55,0–2
31	67,9–2
32	80,1–2
33	95,6–2
34	11,2–1
36	14,0–1
38	16,1–1
40	18,7–1
$^{76}_{34}Se(\tau)\,^{77}_{36}Kr$ 74,7 мин [164]	
12	55,9–5
13	66,7–4
14	21,0–2
15	78,5–2
16	18,7–1
17	35,6–1
18	55,0–1
19	72,8–1
20	92,9–1
21	12,2
22	15,3
23	17,9
24	20,7
26	25,7
28	30,4
32	35,4
40	36,9
$^{77}_{34}Se(\tau)\,^{75}_{34}Se$ 119,8 сут [164]	
14	11,0–6
15	25,4–6
16	58,2–6
17	11,2–5
18	20,1–5
19	33,1–5
20	52,1–5
21	76,8–5
22	11,0–4
23	14,8–4
24	19,4–4
25	23,8–4
26	28,3–4
28	35,1–4
30	41,0–4
32	46,4–4
36	56,2–4
40	65,8–4
$^{77}_{34}Se(\tau)\,^{76}_{35}Br$ 16,2 ч [164]	
26	62,2–5
27	62,2–5
28	22,7–4
29	46,7–4
30	98,5–4
31	20,8–3
32	39,3–3
33	69,7–3
34	12,4–2
35	22,0–2
36	40,6–2
37	65,9–2
38	10,1–1
39	15,2–1
40	21,6–1
$^{77}_{34}Se(\tau)\,^{77}_{35}Br$ (к.) 57,04 ч [164]	
14	78,1–6
15	29,5–5
16	10,1–4
17	27,4–4
18	58,1–4
19	13,2–3
20	29,7–3
21	60,3–3
22	11,1–2
23	19,6–2
24	32,4–2
25	47,7–2
26	65,1–2
27	94,0–2
28	12,4–1
29	15,0–1
30	17,9–1
32	23,9–1
34	30,9–1
36	40,5–1
38	48,1–1
40	55,0–1
$^{77}_{34}Se(\tau)\,^{77}_{35}Br$ 57,04 ч [164]	
14	78,1–6
15	29,2–5
16	10,1–4
17	36,2–4
18	55,0–4
19	12,4–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	26,9−3
21	53,4−3
22	95,5−3
23	16,8−2
24	27,2−2
25	39,6−2
26	56,1−2
27	76,6−2
28	10,1−1
29	12,2−1
30	14,7−1
31	17,4−1
32	19,1−1
34	24,9−1
36	32,3−1
38	39,3−1
40	44,9−1
$^{77}_{34}Se(\tau)^{78}_{35}Br$ 6,46 мин [164]	
6	19,0−4
7	34,0−3
8	46,7−2
9	14,7−1
10	37,8−1
11	86,0−1
12	17,4
13	33,7
14	56,1
15	87,2
16	12,9+1
17	17,9+1
18	23,7+1
19	29,7+1
20	36,9+1
21	42,7+1
22	48,8+1
23	55,2+1
24	60,9+1
26	70,3+1
28	79,0+1
30	87,5+1
32	96,1+1
36	11,4+2
40	13,4+2
$^{77}_{34}Se(\tau)^{76}_{36}Kr$ 14,8 ч [164]	
26	70,1−6
27	75,0−5
28	22,7−4
29	52,7−4
30	98,5−4
31	19,5−3
32	39,3−3
33	70,5−3
34	12,4−2
35	22,3−2
36	40,6−2
37	64,6−2
38	10,1−1
39	15,1−1
40	21,6−1
$^{77}_{34}Se(\tau)^{77}_{36}Kr$ 74,7 мин [164]	
16	56,1−5
17	26,5−4
18	14,0−3
19	50,0−3
20	12,9−2
21	34,5−2
22	71,6−2
23	13,3−1
24	24,1−1
25	36,0−1
26	53,8−1
27	74,7−1
28	10,1
29	12,9
30	15,7
31	18,9
32	22,1
34	34,6
38	46,2
40	46,2
$^{77}_{34}Se(\tau)^{79}_{36}Kr$ 35,04 ч [164]	
14	28,0−5
15	18,5−4
16	49,1−4
17	94,0−4
18	16,3−3
19	27,1−3
20	39,3−3
21	46,8−3
22	58,9−3
24	75,2−3
26	81,1−3
28	87,2−3
32	10,5−2
36	11,1−2
40	11,4−2
$^{79}_{35}Br(p)^{74}_{35}Br$ 25,3 мин [81]	
56	56,0−4
57	10,0−3
58	44,5−3
59	20,0−2
60	73,8−2
61	31,0−1
62	90,5−1
63	21,2
64	40,6
65	66,0
66	88,1
67	11,8+1
68	14,3+1
69	17,6+1
70	21,1+1
71	25,5+1
72	30,1+1
73	34,2+1
74	38,8+1
75	44,0+1
76	49,8+1
78	60,3+1
80	72,2+1
82	84,3+1
84	96,3+1
86	10,8+2
88	12,1+2
$_{35}Br(p)^{75}_{35}Br$ (к.) 98 мин [81]	
34	14,0−2
35	43,5−2
$^{81}_{35}Br(p)^{75}_{35}Br$ (к.) 98 мин [81]	
58	63,3−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
36	10,1−1
37	20,1−1
38	35,3−1
39	63,3−1
40	71,5−1
41	91,7−1
42	11,2
43	13,0
44	15,1
45	18,0
46	22,0
47	27,6
48	34,5
49	44,0
50	56,8
51	78,0
52	10,5+1
53	13,9+1
54	18,1+1
55	23,8+1
56	30,8+1
57	39,7+1
58	50,5+1
59	62,9+1
60	77,0+1
61	91,7+1
62	10,6+2
63	12,0+2
64	14,0+2
65	15,5+2
66	17,6+2
67	19,0+2
68	21,1+2
69	23,1+2
70	25,1+2
72	28,6+2
74	32,2+2
76	35,7+2
78	39,2+2
80	42,6+2
82	46,0+2
84	49,5+2
86	53,0+2
$^{81}_{35}Br(p)^{75}_{35}Br$ (к.) 98 мин [81]	
58	63,3−2
59	82,0−2
60	10,5−1
61	13,2−1
62	16,3−1
63	19,4−1
64	22,3−1
65	25,8−1
66	30,3−1
67	38,0−1
68	50,4−1
69	67,0−1
70	88,6−1
71	11,9
72	15,7
73	20,9
74	27,9
75	38,4
76	49,0
77	65,1
78	81,2
79	10,0+1
80	12,0+1
81	15,2+1
82	18,4+1
83	22,3+1
84	26,3+1
85	30,2+1
86	34,0+1
$_{35}Br(p)^{76}_{35}Br$ 16,2 ч [81]	
34	43,7−2
35	76,9−2
36	13,4−1
37	23,4−1
38	42,4−1
39	72,8−1
40	12,1
41	19,1
42	28,8
43	40,6
44	55,8
45	75,2
46	99,0
47	12,6+1
48	15,4+1
49	18,4+1
50	21,5+1
51	24,8+1
52	28,6+1
53	32,4+1
54	36,1+1
56	44,2+1
58	51,8+1
60	59,4+1
62	66,6+1
66	80,2+1
70	93,3+1
74	10,7+2
78	12,0+2
86	14,8+2
$^{81}_{35}Br(p)^{76}_{35}Br$ 16,2 ч [81]	
50	57,1−2
51	78,8−2
52	10,5−1
53	13,8−1
54	17,8−1
55	22,0−1
56	26,8−1
57	31,8−1
58	36,9−1
59	43,7−1
60	51,7−1
61	61,2−1
62	72,2−1
63	87,0−1
64	10,3
65	12,4
66	14,8
67	18,8
68	23,6
69	29,0
70	36,1
71	44,6
72	53,7
73	64,8
74	77,3
75	87,0
76	10,2+1
78	13,0+1
80	16,0+1
82	18,9+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
84	21,8+1
86	24,9+1
$_{35}Br(p)^{77}_{35}Br$ (к.) 57,036 ч [81]	
22	31,9−2
23	68,8−2
24	13,2−1
25	23,6−1
26	39,0−1
27	59,6−1
28	88,2−1
29	12,4
30	17,5
31	24,2
32	33,0
33	44,3
34	58,1
35	74,9
36	94,7
37	11,8+1
38	14,3+1
39	16,4+1
40	18,4+1
41	20,5+1
42	22,4+1
44	26,4+1
46	30,2+1
48	33,9+1
50	37,3+1
54	43,3+1
58	50,3+1
62	57,0+1
66	64,0+1
70	71,0+1
74	77,9+1
78	84,8+1
82	91,2+1
90	10,2+2
$_{35}Br(p)^{77}_{35}Br$ 57,036 ч [81]	
22	31,9−2
23	68,6−2
24	13,2−1
25	23,5−1
26	38,3−1
27	58,1−1
28	80,4−1
29	10,9
30	14,4
31	19,0
32	24,7
33	31,4
34	39,1
35	47,9
36	57,6
37	69,2
38	81,9
39	93,8
40	10,6+1
41	12,0+1
42	13,4+1
43	14,8+1
44	16,1+1
45	17,4+1
46	18,7+1
48	21,3+1
50	23,8+1
52	26,3+1
54	28,7+1
58	33,7+1
62	39,0+1
66	44,4+1
74	55,5+1
82	66,3+1
90	76,3+1
$^{81}_{35}Br(p)^{77}_{35}Br$ (к.) 57,036 ч [81]	
40	28,8−4
41	65,5−4
42	15,6−3
43	36,7−3
44	88,4−3
45	18,9−2
46	63,0−2
47	14,9−1
48	30,9−1
49	55,5−1
50	86,6−1
51	11,7
52	15,1
53	18,7
54	23,0
55	27,6
56	32,2
57	38,0
58	44,2
59	50,6
60	57,9
61	64,6
62	71,3
63	79,0
64	86,6
66	10,2+1
68	11,9+1
69	12,7+1
70	13,6+1
72	15,4+1
76	18,8+1
80	22,1+1
84	25,3+1
88	28,4+1
$^{81}_{35}Br(p)^{77}_{35}Br$ 57,036 ч [81]	
46	27,2−2
47	87,0−2
48	20,6−1
49	40,8−1
50	66,3−1
51	89,0−1
52	11,4
53	14,2
54	17,4
55	20,8
56	24,4
57	28,6
58	33,3
59	38,5
60	43,6
62	53,4
64	64,8
66	76,6
68	88,8
70	10,2+1
74	12,9+1
78	15,6+1
82	18,3+1
86	20,9+1
90	23,5+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{35}Br(p)^{78}_{35}Br$ 6,46 мин [81]	
12	60,2+1
13	10,0+2
14	15,8+2
15	24,2+2
16	35,5+2
17	46,7+2
18	60,3+2
19	77,2+2
20	97,3+2
21	11,8+3
22	14,2+3
23	16,9+3
24	19,8+3
25	22,8+3
26	25,6+3
27	28,9+3
28	32,4+3
30	39,0+3
32	46,2+3
34	53,3+3
36	60,8+3
38	68,3+3
40	76,0+3
42	83,7+3
44	91,5+3
48	10,8+4
52	12,4+4
56	14,0+4
60	15,7+4
64	17,4+4
68	19,1+4
76	22,6+4
84	26,0+4
92	29,5+4
$^{81}_{35}Br(p)^{78}_{35}Br$ 6,46 мин [81]	
36	23,5+1
37	39,4+1
38	65,3+1
39	11,1+2
40	18,3+2
41	28,4+2
42	42,7+2
43	62,2+2
44	87,8+2
45	11,4+3
46	14,6+3
47	18,8+3
48	23,7+3
49	28,2+3
50	33,2+3
$^{79}_{35}Br(p)^{78}_{35}Br$ 6,46 мин [81]	
12	60,2+1
13	10,0+2
14	15,8+2
15	24,2+2
16	35,5+2
17	46,7+2
18	60,3+2
19	77,2+2
20	97,3+2
21	11,8+3
22	14,2+3
23	16,9+3
24	19,8+3
25	22,8+3
26	25,6+3
27	28,9+3
28	32,4+3
30	39,0+3
32	46,2+3
34	53,3+3
36	60,8+3
38	68,3+3
40	76,0+3
42	83,7+3
44	91,5+3
48	10,8+4
52	12,4+4
56	14,0+4
60	15,7+4
64	17,4+4
68	19,1+4
76	22,6+4
84	26,0+4
92	29,5+4
$_{35}Br(p)^{80m}_{35}Br$ 4,42 ч [81]	
12	82,0−2
13	19,5−1
14	40,0−1
15	75,2−1
16	13,4
17	20,6
18	31,2
19	45,6
20	64,4
21	82,8
22	10,6+1
23	13,4+1
24	16,5+1
25	19,8+1
26	23,3+1
27	27,4+1
28	31,9+1
29	36,0+1
30	40,4+1
31	45,2+1
32	50,2+1
34	60,0+1
36	69,9+1
38	80,1+1
40	90,7+1
44	11,2+2
48	13,5+2
52	15,8+2
56	18,2+2
60	20,6+2
68	25,4+2
76	30,3+2
84	35,2+2
92	40,0+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{80g}_{35}Br(p)^{80g}_{35}Br$ 17,4 мин [81]	
14	61,4
15	10,6+1
16	16,9+1
17	26,1+1
18	38,2+1
19	53,0+1
20	67,5+1
21	85,0+1
22	10,3+2
23	12,4+2
24	14,8+2
25	17,5+2
26	20,7+2
27	23,8+2
28	27,2+2
29	30,9+2
30	35,1+2
32	43,5+2
34	52,5+2
36	62,0+2
37	66,7+2
38	71,7+2
39	76,6+2
40	81,8+2
41	87,0+2
42	92,3+2
46	11,4+3
50	13,7+3
54	16,1+3
58	18,6+3
62	21,3+3
66	24,0+3
74	29,7+3
82	35,8+3
90	42,3+3
$^{76}_{35}Br(p)^{76}_{36}Kr$ 14,8 ч [81]	
34	52,0−3
35	14,9−2
36	33,0−2
37	63,4−2
38	10,9−1
39	19,2−1
40	31,0−1
41	47,3−1
42	73,1−1
43	10,1
44	13,8
45	18,2
46	23,3
47	29,2
48	36,0
49	43,0
50	50,0
52	65,2
54	79,6
56	93,0
60	11,6+1
64	13,3+1
66	14,2+1
70	15,7+1
74	17,2+1
78	18,8+1
82	20,3+1
86	22,0+1
$^{81}_{35}Br(p)^{76}_{36}Kr$ 14,8 ч [81]	
66	11,5−2
67	37,6−2
68	80,7−2
69	13,8−1
70	21,7−1
71	28,8−1
72	38,6−1
73	49,5−1
74	61,7−1
75	73,0−1
76	87,3−1
78	11,7
80	14,2
82	16,3
84	21,6
86	25,2
$^{77}_{35}Br(p)^{77}_{36}Kr$ 74,7 мин [81]	
24	16,2−1
25	47,0−1
26	11,5
27	25,0
28	49,2
29	80,2
30	13,2+1
31	21,6+1
32	35,3+1
33	56,0+1
34	85,2+1
35	12,3+2
36	16,9+2
37	20,8+2
38	25,1+2
39	29,6+2
40	34,0+2
42	41,8+2
44	47,5+2
48	57,6+2
52	65,6+2
56	72,7+2
60	79,7+2
64	86,7+2
68	93,6+2
72	10,0+3
76	10,6+3
80	11,2+3
84	11,6+3
88	12,0+3
$^{81}_{35}Br(p)^{77}_{36}Kr$ 74,7 мин [81]	
40	13,2−2
41	30,0−2
42	71,5−2
43	16,8−1
44	40,5−1
45	86,5−1
46	16,4
47	28,5
48	47,3
49	67,3
50	93,2
51	12,7+1
52	16,8+1
53	20,8+1
54	25,7+1
55	31,3+1
56	37,4+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
57	43,5+1
58	50,0+1
59	57,7+1
60	65,7+1
61	73,6+1
62	81,9+1
63	90,5+1
64	99,7+1
66	11,8+2
68	13,7+2
70	15,6+2
72	17,5+2
74	19,3+2
76	21,0+2
80	23,9+2
88	28,4+2
$^{79}_{35}Br(p)^{79}_{36}Kr$ 35,04 ч [81]	
6	33,8
7	44,3
8	57,3
9	73,0
10	89,5
11	10,4+1
12	12,2+1
14	15,3+1
16	17,7+1
18	19,7+1
22	21,7+1
38	25,4+1
54	27,6+1
86	31,6+1
$^{81}_{35}Br(p)^{79}_{36}Kr$ 35,04 ч [81]	
6	33,8
7	44,3
8	57,3
9	73,0
10	89,5
11	10,4+1
12	12,2+1
14	15,3+1
16	17,7+1
18	19,7+1
22	21,7+1
38	25,4+1
54	27,6+1
86	31,6+1
$^{81}_{35}Br(p)^{79}_{36}Kr$ 35,04 ч [81]	
24	16,8−1
25	50,8−1
26	11,6
27	20,7
28	35,0
29	53,1
30	74,5
31	91,8
32	11,4+1
33	13,7+1
34	16,2+1
35	18,6+1
36	21,1+1
38	25,9+1
40	30,7+1
42	34,4+1
44	38,1+1
48	43,2+1
56	50,2+1
72	58,8+1
88	64,8+1
$^{76}_{35}Br(d)^{76}_{35}Br$ 16,2 ч [82]	
34	12,8−1
35	20,3−1
36	30,7−1
37	45,4−1
38	65,9−1
39	87,5−1
40	11,7
41	15,0
42	19,2
43	23,0
44	27,5
45	33,2
46	43,1
47	47,2
48	56,5
49	67,0
50	79,8
51	91,5
52	10,4+1
53	11,7+1
54	13,1+1
55	14,5+1
56	16,1+1
57	17,7+1
58	19,5+1
60	23,0+1
62	26,7+1
64	30,3+1
66	34,4+1
70	42,2+1
74	50,2+1
78	58,7+1
82	67,7+1
86	77,1+1
90	86,9+1
$^{77}_{35}Br(d)^{77}_{35}Br$ (к.) 57,036 ч [82]	
20	45,1−2
21	61,0−2
22	83,2−2
23	11,3−1
24	15,2−1
25	24,0−1
26	36,1−1
27	51,8−1
28	70,1−1
29	95,0−1
30	12,2
31	14,9

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
32	19,8
33	24,8
34	30,5
35	37,5
36	45,1
37	52,0
38	61,5
39	70,2
40	80,9
42	10,3+1
44	12,6+1
46	15,1+1
48	17,7+1
50	20,5+1
52	23,5+1
56	29,7+1
60	36,2+1
64	43,0+1
68	49,6+1
72	56,6+1
76	64,1+1
80	72,7+1
88	89,1+1
$_{35}Br(d)\,^{77}_{35}Br$ 57,036 ч [82]	
20	45,1−2
21	54,2−2
22	64,1−2
23	75,8−2
24	90,0−2
25	15,4−1
26	24,4−1
27	37,1−1
28	55,7−1
29	75,0−1
30	10,0
31	12,5
32	16,9
33	21,2
34	26,0
35	31,0
36	36,4
37	42,5
38	49,5
39	61,7
40	64,7
41	71,2
42	80,0
44	99,6
46	11,9+1
48	14,0+1
50	16,2+1
52	18,7+1
54	21,2+1
56	23,8+1
60	29,3+1
64	35,2+1
68	40,8+1
72	46,8+1
76	53,3+1
80	60,2+1
84	67,4+1
88	75,0+1
$_{35}Br(d)\,^{76}_{36}Kr$ 14,8 ч [82]	
38	10,4−1
39	13,0−1
40	16,1−1
41	19,5−1
42	23,6−1
43	27,8−1
44	32,0−1
45	36,9−1
46	42,6−1
47	48,1−1
48	53,8−1
49	62,0−1
50	71,6−1
51	81,0−1
52	91,8−1
53	10,5
54	11,8
55	13,7
56	15,6
57	17,7
58	20,4
59	23,5
60	26,4
61	29,3
62	31,9
64	37,6
66	43,0
68	47,9
70	52,6
74	61,0
78	69,3
82	77,9
86	87,3
90	97,6
$_{35}Br(d)\,^{77}_{36}Kr$ 74,7 мин [82]	
22	14,2
23	17,5
24	21,8
25	27,2
26	34,4
27	44,0
28	54,8
29	70,0
30	88,2
31	11,3+1
32	14,2+1
33	18,0+1
34	22,8+1
35	28,3+1
36	35,5+1
37	44,0+1
38	52,1+1
39	63,1+1
40	73,5+1
41	83,8+1
42	95,4+1
43	10,8+2
44	12,1+2
46	14,5+2
48	17,0+2
50	19,4+2
54	24,1+2
58	28,7+2
62	33,1+2
66	37,4+2
74	46,1+2
82	55,6+2
90	66,3+2
$^{79}_{35}Br(\alpha)\,^{77}_{35}Br$ (к.) 57,036 ч [90]	
48	10,4−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
49	15,4−2
50	22,0−2
51	31,2−2
52	42,4−2
53	53,9−2
54	67,9−2
55	81,1−2
56	94,8−2
57	11,0−1
58	12,5−1
59	14,1−1
60	15,8−1
61	17,8−1
62	20,0−1
64	25,1−1
66	30,0−1
68	34,8−1
70	39,3−1
72	43,8−1
76	47,9−1
80	52,4−1
84	60,5−1
86	71,7−1
88	82,9−1
90	10,0
92	11,5
96	14,4
100	16,6
$^{79}_{35}Br(\alpha)\,^{77}_{35}Br$ 57,036 ч [90]	
48	10,4−2
49	15,2−2
50	22,0−2
51	31,2−2
52	42,4−2
53	54,0−2
54	67,2−2
55	79,8−2
56	94,8−2
57	10,9−1
58	12,5−1
59	14,3−1
60	15,8−1
61	18,2−1
62	20,3−1
64	25,1−1
66	29,7−1
68	34,4−1
70	38,8−1
74	45,0−1
82	52,3−1
86	65,4−1
88	75,7−1
90	89,8−1
94	11,6
98	13,7
100	14,5
$^{79}_{35}Br(\alpha)\,^{77}_{36}Kr$ (к.) 74,7 мин [90]	
48	10,4−2
49	15,2−2
50	22,0−2
51	31,2−2
52	42,4−2
53	54,0−2
54	67,2−2
55	80,3−2
56	94,8−2
57	10,9−1
58	12,5−1
59	14,3−1
60	15,8−1
61	18,2−1
62	20,3−1
63	22,9−1
64	25,1−1
66	30,0−1
68	34,8−1
72	43,8−1
76	47,9−1
80	52,4−1
84	60,5−1
86	69,7−1
88	82,9−1
90	95,7−1
92	11,5
96	14,4
100	16,6
$_{35}Br(\alpha)\,^{83}_{37}Rb$ 86,2 сут [83]	
16	16,3−3
17	25,3−3
18	38,8−3
19	55,0−3
20	72,9−3
21	95,2−3
22	11,7−2
23	14,5−2
24	17,9−2
25	20,7−2
26	23,5−2
28	29,2−2
30	34,7−2
32	40,1−2
36	49,5−2
40	57,2−2
48	66,4−2
$_{35}Br(\alpha)\,^{84}_{37}Rb$ 32,77 сут [83]	
10	48,1−4
11	93,2−4
12	16,6−3
13	26,8−3
14	39,6−3
15	54,3−3
16	70,3−3
17	87,7−3
18	10,6−2
20	13,9−2
22	16,5−2
24	19,0−2
28	22,4−2
32	24,9−2
48	28,5−2
$^{85}_{37}Rb(p)\,^{79}_{36}Kr$ 35,04 ч [84]	
42	41,1−4
43	12,0−3
44	26,7−3
45	48,8−3
46	75,0−3
47	11,5−2
48	16,9−2
49	24,4−2
50	33,4−2
51	42,6−2
52	56,1−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
53	71,5–2
54	90,4–2
56	12,6–1
58	15,9–1
60	18,9–1
62	21,7–1
66	26,4–1
70	29,0–1
$^{85}_{37}Rb(p)^{81m}_{37}Rb$ 32 мин [84]	
44	30,8–4
45	13,5–3
46	61,7–3
47	22,0–2
48	50,2–2
49	84,8–2
50	12,3–1
51	20,0–1
52	32,9–1
53	49,8–1
54	74,0–1
55	10,8
56	15,2
57	20,4
58	27,1
59	34,8
60	43,6
61	54,0
62	65,4
63	72,2
64	90,4
66	12,0+1
68	15,7+1
70	20,5+1
$^{85}_{37}Rb(p)^{81}_{37}Rb$ 4,58 ч [84]	
44	24,7–4
45	46,0–4
46	90,4–4
47	24,0–3
48	61,3–3
49	13,5–2
50	25,8–2
51	48,0–2
52	82,2–2
53	13,5–1
54	20,5–1
55	30,4–1
56	42,1–1
57	55,8–1
58	71,9–1
59	91,0–1
60	11,4
61	12,9
62	16,6
63	19,5
64	22,6
66	29,4
68	37,6
70	47,8
$^{85}_{37}Rb(p)^{82m}_{37}Rb$ 6,2 ч [84]	
38	22,6–3
39	25,0–2
40	31,9–2
41	68,3–2
42	12,8–1
43	22,5–1
44	36,6–1
45	53,8–1
46	76,0–1
47	10,0
48	12,1
49	13,9
50	15,4
51	18,0
52	20,7
53	24,8
54	28,9
56	36,8
58	43,8
60	49,4
62	56,1
66	68,4
70	80,6
$^{85}_{37}Rb(p)^{83}_{37}Rb$ 86,2 сут [84]	
22	12,3–5
23	40,0–5
24	13,2–4
25	24,5–4
26	41,1–4
27	59,2–4
28	82,2–4
29	11,5–3
30	15,7–3
31	20,3–3
32	27,7–3
33	35,0–3
34	44,2–3
35	55,0–3
36	68,9–3
37	82,5–3
38	96,6–3
40	12,5–2
42	15,4–2
44	18,2–2
46	21,0–2
50	26,7–2
54	31,8–2
58	36,9–2
62	41,7–2
70	49,3–2
$^{85}_{37}Rb(p)^{84m}_{37}Rb$ 20,5 мин [84]	
12	53,4–4
13	12,1–3
14	30,4–2
15	83,7–2
16	24,3–1
17	46,5–1
18	82,2–1
19	12,9
20	19,0
21	28,2
22	40,7
23	59,2
24	67,8
25	81,9
26	95,8
28	12,3+1
30	14,9+1
32	17,7+1
34	20,3+1
38	25,9+1
42	31,4+1
46	36,8+1
50	41,9+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
54	47,1+1
62	57,1+1
70	67,4+1
$^{85}_{37}Rb(p)^{84}_{37}Rb$ 32,77 сут [84]	
12	23,2–7
13	52,5–6
14	95,7–5
15	37,0–4
16	64,0–4
17	10,8–3
18	17,6–3
19	26,2–3
20	38,6–3
21	58,8–3
22	87,6–3
23	11,9–2
24	15,8–2
25	19,2–2
26	22,7–2
28	28,1–2
30	35,7–2
32	44,7–2
34	52,4–2
36	60,2–2
38	68,0–2
42	82,2–2
46	94,9–2
54	11,8–1
62	14,1–1
70	16,4–1
$^{85}_{37}Rb(p)^{84g}_{37}Rb$ 32,77 сут [84]	
14	82,2–5
15	23,8–4
16	53,4–4
17	88,2–4
18	14,0–3
19	21,5–3
20	30,4–3
21	46,7–3
22	69,0–3
23	93,6–3
24	12,9–2
25	15,7–2
26	18,5–2
27	20,6–2
28	22,8–2
30	29,2–2
32	37,0–2
34	43,6–2
38	56,7–2
42	68,6–2
46	78,9–2
50	88,4–2
54	97,8–2
62	11,6–1
70	13,5–1
$^{85}_{37}Rb(p)^{81}_{38}Sr$ 25,5 мин [84]	
48	42,8–4
49	14,9–3
50	53,2–3
51	13,8–2
52	28,1–2
53	56,8–2
54	10,6–1
55	16,9–1
56	25,9–1
57	39,5–1
58	56,3–1
59	73,1–1
60	91,3–1
61	11,6
62	14,4
63	17,5
64	21,3
65	25,0
66	28,9
68	38,0
70	48,7
$^{85}_{37}Rb(p)^{82}_{36}Sr$ 25,0 сут [84]	
36	98,7–5
37	19,5–4
38	38,4–4
39	76,3–4
40	13,7–3
41	23,5–3
42	36,5–3
43	58,0–3
44	81,8–3
45	11,2–2
46	14,2–2
47	16,9–2
48	19,8–2
49	22,5–2
50	25,5–2
52	33,7–2
54	41,9–2
56	49,1–2
58	55,7–2
62	66,6–2
70	78,5–2
$^{85}_{37}Rb(p)^{83}_{38}Sr$ 32,4 ч [84]	
22	30,4–4
23	61,2–3
24	12,2–2
25	25,0–2
26	44,0–2
27	71,8–2
28	10,9–1
29	16,3–1
30	22,8–1
31	29,5–1
32	36,5–1
33	46,0–1
34	56,7–1
35	66,5–1
36	76,9–1
38	97,8–1
40	11,8
42	13,3
46	15,8
54	18,6
62	20,1
70	21,2
$^{85}_{37}Rb(p)^{85}_{38}Sr$ 64,84 сут [85]	
5	58,2–3
6	11,5–2
7	19,1–2
8	28,5–2
9	39,8–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
10	55,9−2
11	73,7−2
12	96,2−2
13	10,4−1
14	14,5−1
15	17,2−1
16	19,9−1
18	23,6−1
22	28,1−1
26	30,0−1
$_{37}Rb(d)^{85}_{38}Sr$ 64,84 сут [85]	
6	45,0−3
7	95,2−3
8	17,2−2
9	29,7−2
10	47,8−2
11	63,6−2
12	85,0−2
13	11,2−1
14	14,2−1
15	17,8−1
16	21,5−1
17	25,5−1
18	30,1−1
20	34,2−1
22	46,8−1
24	54,6−1
26	61,3−1
$_{37}Rb(\alpha)^{85m}_{39}Y$ 2,68 ч [86]	
38	45,6−4
39	86,0−4
40	13,8−3
41	19,9−3
42	27,2−3
43	36,5−3
44	48,0−3
45	62,8−3
46	82,0−3
47	10,2−2
48	12,7−2
49	15,3−2
50	18,1−2
51	21,0−2
52	23,8−2
54	29,4−2
56	35,0−2
60	46,3−2
$_{37}Rb(\alpha)^{85}_{39}Y$ 4,8 ч [86]	
38	11,5−3
39	16,7−3
40	23,8−3
41	32,8−3
42	42,0−3
43	55,7−3
44	71,7−3
45	93,7−3
46	11,8−2
47	15,0−2
48	18,2−2
49	22,7−2
50	28,0−2
51	34,1−2
52	41,0−2
54	54,2−2
56	67,8−2
60	79,8−2
$_{37}Rb(\alpha)^{86m}_{39}Y$ 48 мин [86]	
26	91,2−1
27	26,0
28	45,6
29	65,8
30	83,2
31	10,1+1
32	12,2+1
33	14,7+1
34	17,6+1
35	21,0+1
36	23,9+1
39	32,3+1
40	35,2+1
42	41,2+1
44	47,6+1
48	58,8+1
50	63,8+1
52	68,4+1
56	75,9+1
60	81,1+1
$_{37}Rb(\alpha)^{87m}_{39}Y$ 13,2 ч [86]	
20	14,0
21	21,9
22	31,5
23	39,2
24	46,0
26	58,0
28	68,0
30	75,0
32	80,8
36	90,5
44	10,4+1
52	11,6+1
60	14,2+1
$_{37}Rb(\alpha)^{87g}_{39}Y$ 80,3 ч [87]	
20	33,3−3
21	58,3−3
22	96,2−3
23	15,1−2
24	22,9−2
25	36,8−2
26	49,2−2
27	68,8−2
28	95,5−2
29	11,4−1
30	13,1−1
32	16,4−1
34	19,0−1
36	21,4−1
40	25,0−1
44	27,7−1
52	31,3−1
$_{37}Rb(\alpha)^{88}_{39}Y$ 106, 6 сут [86]	
26	12,0−3
27	19,2−3
28	29,0−3
29	41,2−3
30	54,0−3
31	69,7−3
32	87,0−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
33	10,9−2
34	13,1−2
35	15,8−2
36	19,1−2
37	22,7−2
38	26,7−2
39	31,1−2
40	35,8−2
42	44,0−2
44	56,0−2
46	68,5−2
48	80,3−2
52	10,4−1
56	12,5−1
60	14,2−1
$_{37}Rb(\tau)^{85m}_{39}Y$ 2,68 ч [86]	
12	50,0−4
13	64,2−4
14	79,0−4
15	10,0−3
16	12,2−3
17	15,0−3
18	18,1−3
19	21,3−3
20	25,8−3
21	30,5−3
22	35,6−3
23	41,2−3
24	47,3−3
25	56,4−3
26	65,5−3
28	79,2−3
30	90,0−3
32	10,1−2
36	12,2−2
40	14,2−2
$_{37}Rb(\tau)^{85}_{39}Y$ 4,8 ч [86]	
12	13,7−3
13	20,5−3
14	29,0−3
15	42,3−3
16	58,0−3
17	79,2−3
18	10,1−2
19	12,6−2
20	15,0−2
21	17,6−2
22	20,3−2
24	25,4−2
28	31,7−2
32	35,9−2
36	42,1−2
40	48,4−2
$_{37}Rb(\tau)^{86m}_{39}Y$ 48 мин [86]	
12	12,5
13	19,8
14	32,5
15	52,8
16	85,0
17	11,9+1
18	16,0+1
19	19,5+1
20	22,8+1
22	29,0+1
24	35,0+1
28	45,0+1
32	54,7+1
36	64,5+1
40	74,0+1
$_{37}Rb(\tau)^{87m}_{39}Y$ 13,2 ч [86]	
12	57,0−3
13	91,2−3
14	13,9−2
15	29,5−2
16	25,9−2
17	34,5−2
18	45,0−2
19	58,3−2
20	73,3−2
21	90,5−2
22	11,0−1
23	14,6−1
24	18,5−1
25	22,6−1
26	27,0−1
28	35,6−1
30	43,1−1
32	49,1−1
36	56,2−1
40	58,0−1
$_{37}Rb(\tau)^{88}_{39}Y$ 106,6 сут [86]	
12	57,0−4
13	80,8−4
14	11,3−3
15	15,6−3
16	20,6−3
17	26,8−3
18	33,5−3
19	41,2−3
20	50,0−3
21	59,0−3
22	68,2−3
24	86,3−3
26	10,4−2
28	12,3−2
32	14,0−2
36	15,7−2
40	17,4−2
$^{88}_{38}Sr(p)^{83}_{37}Rb$ 86,2 сут [88]	
36	21,0−3
37	39,7−3
38	72,0−3
39	11,4−2
40	16,0−2
41	22,5−2
42	28,6−2
43	36,4−2
44	45,1−2
45	55,5−2
46	66,2−2
47	78,4−2
48	90,9−2
50	11,7−1
52	14,2−1
54	16,4−1
58	20,1−1
62	23,2−1
66	26,2−1
70	29,3−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
78	37,1−1
86	48,0−1
$^{88}_{38}Sr(p)^{84}_{37}Rb$ 32,77 сут [88]	
26	15,0−3
27	31,8−3
28	62,0−3
29	97,6−3
30	15,0−2
31	21,5−2
32	28,5−2
33	37,5−2
34	46,9−2
35	57,5−2
36	68,9−2
37	80,4−2
38	92,2−2
40	11,4−1
44	14,4−1
48	16,7−1
52	18,7−1
56	20,8−1
60	24,3−1
64	31,1−1
68	40,5−1
72	51,8−1
76	63,9−1
80	76,3−1
84	88,4−1
$^{88}_{38}Sr(p)^{86}_{37}Rb$ 18,8 сут [88]	
34	18,0−3
35	29,5−3
36	43,0−3
37	57,8−3
38	76,0−3
39	96,6−3
40	12,4−2
41	15,6−2
42	19,5−2
43	24,3−2
44	30,1−2
45	32,0−2
46	44,8−2
47	54,0−2
48	64,4−2
49	76,8−2
50	89,8−2
51	10,5−1
52	12,1−1
53	13,8−1
54	15,8−1
55	17,9−1
56	20,1−1
58	25,0−1
60	30,4−1
62	36,2−1
64	42,4−1
66	48,7−1
68	55,2−1
70	61,8−1
74	74,6−1
78	86,7−1
82	97,9−1
90	11,9
$^{88}_{38}Sr(p)^{85}_{38}Sr$ (к.) 64,84 сут [88]	
42	81,0−3
43	17,9−2
44	33,5−2
45	53,8−2
46	79,8−2
47	10,8−1
48	14,8−1
49	19,0−1
50	23,9−1
51	29,5−1
52	34,9−1
53	40,7−1
54	47,1−1
56	59,5−1
58	71,7−1
60	83,0−1
62	93,9−1
66	11,5
70	13,5
74	15,6
78	17,5
82	19,4
90	23,2
$^{88}_{38}Sr(p)^{85m}_{38}Sr$ 67,7 мин [88]	
32	11,5−2
33	51,8−2
34	14,4−1
35	33,5−1
36	69,7−1
37	11,3
38	17,4
39	25,5
40	37,5
41	53,7
42	78,1
43	11,8+1
44	18,4+1
45	25,6+1
46	38,1+1
47	50,0+1
48	62,8+1
49	75,8+1
50	89,1+1
52	11,5+2
54	14,0+2
56	16,4+2
58	18,6+2
60	20,8+2
64	25,4+2
72	33,7+2
80	43,2+2
$^{88}_{38}Sr(p)^{85g}_{38}Sr$ 64,84 сут [88]	
32	10,0−6
33	93,5−6
34	53,4−5
35	14,1−4
36	27,0−4
37	51,8−4
38	10,2−3
39	19,5−3
40	36,9−3
41	59,7−3
42	10,4−2
43	17,4−2
44	28,7−2
45	43,2−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
46	64,6−2
47	87,8−2
48	11,9−1
49	15,2−1
50	19,2−1
51	18,1−1
52	28,6−1
53	34,0−1
54	39,6−1
55	45,3−1
56	51,4−1
58	63,2−1
60	74,6−1
62	84,9−1
64	94,5−1
68	11,2
72	12,8
74	13,6
76	14,4
80	15,9
$^{88}_{38}Sr(p)^{84}_{39}Y$ 38,5 мин [88]	
56	13,6−1
57	23,0
58	37,7
59	62,8
60	10,6+1
61	17,5+1
62	28,1+1
63	39,2+1
64	52,3+1
65	66,4+1
66	82,1+1
67	98,1+1
68	11,6+2
69	13,4+2
70	15,3+2
72	18,9+2
74	22,1+2
78	27,9+2
82	32,8+2
86	37,4+2
$^{88}_{38}Sr(p)^{85m}_{39}Y$ 2,68 ч [88]	
36	52,9−2
37	21,9−1
38	55,4−1
39	11,8
40	22,7
41	39,3
42	60,0
43	89,7
44	13,0+1
45	17,9+1
46	23,8+1
47	30,5+1
48	38,8+1
49	47,8+1
50	58,2+1
51	69,7+1
52	82,0+1
54	10,9+2
56	13,6+2
58	16,2+2
60	18,5+2
64	22,1+2
68	24,8+2
76	28,8+2
84	32,2+2
$^{88}_{38}Sr(p)^{85}_{39}Y$ 4,8 ч [88]	
36	29,5−3
37	12,5−2
38	49,2−2
39	15,4−1
40	35,6−1
41	68,8−1
42	12,8
43	22,5
44	38,6
45	69,7
46	11,7 +1
47	18,1+1
48	25,0+1
49	33,5+1
50	43,6+1
51	54,0+1
52	65,0+1
53	76,1+1
54	87,5+1
56	11,0+2
58	13,1+2
60	15,0+2
64	17,9+2
68	20,0+2
76	22,8+2
84	25,0+2
$^{88}_{38}Sr(p)^{86}_{39}Y$ 14,74 ч [88]	
28	16,0−1
29	42,5−1
30	10,2
31	30,0
32	58,8
33	10,2+1
34	15,9+1
35	23,3+1
36	31,1+1
37	40,0+1
38	49,8+1
39	59,5+1
40	79,6+1
42	90,0+1
44	10,7+2
46	12,1+2
50	14,0+2
58	16,5+2
74	18,7+2
90	19,5+2
$^{88}_{38}Sr(p)^{86m}_{39}Y$ 48 мин [88]	
26	13,9−2
27	11,9−1
28	88,0−1
29	35,1
30	86,0
31	19,2+1
32	36,5+1
33	58,2+1
34	88,7+1
35	12,7+2
36	16,7+2
37	22,2+2
38	27,3+2
39	33,5+2
40	40,6+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
41	47,7+2
42	55,0+2
44	68,8+2
46	79,6+2
50	95,4+2
58	11,7+3
66	13,5+3
74	14,8+3
$^{88}_{38}Sr(p)^{86g}_{39}Y$ 14,74 ч [88]	
26	75,0−4
27	88,0−3
28	95,5−2
29	40,2−1
30	93,4−1
31	22,3
32	45,2
33	76,0
34	11,5+1
35	16,5+1
36	22,1+1
37	28,9+1
38	34,8+1
39	41,5+1
40	47,9+1
41	54,1+1
42	60,0+1
44	70,0+1
46	78,1+1
50	89,5+1
58	10,2+2
74	11,4+2
$^{}_{38}Sr(p)^{87m}_{39}Y$ 13,2 ч [87]	
6	11,8−1
7	18,0−1
8	26,6−1
9	33,9−1
10	41,4−1
11	57,2−1
12	81,4−1
13	12,3
14	18,6
15	31,4
16	53,0
17	77,8
18	11,3+1
19	14,3+1
20	17,3+1
21	20,2+1
22	23,4+1
$^{88}_{38}Sr(p)^{87m}_{39}Y$ 13,2 ч [88]	
14	53,0−2
15	22,4−1
16	84,1−1
17	21,6
18	40,6
19	69,8
20	11,0+1
21	16,1+1
22	23,0+1
23	30,8+1
24	41,1+1
25	52,0+1
26	64,2+1
27	75,8+1
28	87,5+1
30	10,8+2
32	12,5+2
34	13,8+2
$^{}_{38}Sr(p)^{87g}_{39}Y$ 80,3 ч [87]	
8	11,1−2
9	15,8−2
10	22,8−2
11	33,0−2
12	51,8−2
13	80,2−2
14	13,2−1
15	23,2−1
16	45,9−1
17	78,2−1
18	13,0
19	18,6
20	25,8
21	32,9
22	39,2
$^{88}_{38}Sr(p)^{87g}_{39}Y$ 80,3 ч [88]	
14	90,0−3
15	49,7−2
16	24,6−1
17	60,2−1
18	10,3
19	16,4
20	23,7
21	31,5
22	41,8
23	53,8
24	69,2
25	83,8
26	97,8
28	12,4+1
30	14,4+1
34	17,2+1
$^{}_{38}Sr(p)^{88}_{39}Y$ 106,6 сут [87, 88]	
6	92,9−4
7	38,5−3
8	12,9−2
9	26,0−2
10	46,8−2
11	73,7−2
12	10,2−1
13	13,6−1
14	17,0−1
15	21,1−1
16	24,4−1
18	31,0−1
22	38,2−1
24	40,7−1
32	46,6−1
40	49,5−1
56	53,8−1
72	57,7−1
88	61,5−1
$^{}_{38}Sr(d)^{87m}_{39}Y$ 13,2 ч [87]	
6	35,2−2
7	57,0−2
8	92,2−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
9	16,2−1
10	26,3−1
11	38,5−1
12	55,7−1
13	74,2−1
14	96,2−1
15	11,9
16	14,2
17	16,5
18	19,0
19	22,0
20	25,2
21	27,2
22	30,0
23	34,3
24	40,2
$^{}_{38}Sr(d)^{87g}_{39}Y$ 80,3 ч [87]	
6	16,6−2
7	24,8−2
8	36,0−2
9	48,8−2
10	66,2−2
11	85,8−2
12	11,1−1
13	14,6−1
14	18,7−1
15	24,1−1
16	29,5−1
17	36,5−1
18	43,8−1
19	57,8−1
20	75,2−1
21	10,2
22	13,9
23	18,3
24	24,6
$^{}_{38}Sr(d)^{88}_{39}Y$ 106,6 сут [87]	
6	64,0−4
7	20,9−3
8	68,2−3
9	13,9−2
10	24,9−2
11	45,8−2
12	70,4−2
13	99,0−2
14	12,5−1
15	15,4−1
16	18,7−1
17	21,4−1
18	25,0−1
20	30,8−1
22	35,0−1
24	37,6−1
$^{}_{39}Y(p)^{84}_{39}Y$ (к.) 38,5 мин [89]	
60	37,0−3
61	50,8−2
62	76,1−2
63	12,0−1
64	19,2−1
65	31,2−1
66	51,0−1
67	90,8−1
68	16,0
69	26,2
70	41,5
71	63,2
72	90,7
73	12,7+1
74	16,7+1
75	21,8+1
76	28,3+1
77	36,0+1
78	45,3+1
79	56,2+1
80	68,9+1
81	84,0+1
82	10,0+2
83	11,9+2
84	13,9+2
85	16,1+2
86	18,5+2
$^{}_{39}Y(p)^{85m}_{39}Y$ 2,68 ч [89]	
54	17,0−3
55	13,4−2
56	64,5−2
57	13,0−1
58	20,2−1
59	33,5−1
60	69,1−1
61	18,5
62	50,3
63	90,3
64	14,9+1
65	22,0+1
66	30,4+1
67	41,2+1
68	50,1+1
69	61,1+1
70	72,6+1
71	84,2+1
72	96,3+1
74	12,0+2
76	14,2+2
78	16,2+2
82	20,3+2
86	24,2+2
$^{}_{39}Y(p)^{85}_{39}Y$ (к.) 4,8 ч [89]	
42	75,5−4
43	25,0−3
44	82,2−3
45	25,5−2
46	80,9−2
47	18,3−1
48	31,2−1
49	45,8−1
50	59,7−1
51	11,2
52	17,9
53	27,5
54	40,6
55	58,2
56	80,8
57	11,0+1
58	14,9+1
59	19,0+1
60	24,1+1
61	28,9−1
62	36,4+1
63	43,5+1
64	52,0+1
65	61,8+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
66	73,8+1
67	84,0+1
68	94,3+1
70	11,9+2
72	14,2+2
74	16,5+2
76	18,8+2
78	21,0+2
82	25,3+2
86	29,3+2
$_{39}Y(p)^{86}_{39}Y$ 14,74 ч [89]	
34	65,4−3
35	20,5−2
36	62,0−2
37	18,8−1
38	57,1−1
39	10,8
40	18,5
41	28,6
42	40,8
43	53,4
44	64,2
45	74,2
46	80,1
47	10,9+1
48	14,0+1
49	17,4+1
50	21,2+1
51	25,4+1
52	30,1+1
53	35,9+1
54	43,9+1
55	48,8+1
56	56,1+1
57	64,2+1
58	73,9+1
60	87,0+1
62	10,6+2
66	13,3+2
70	15,4+2
74	17,4+2
78	19,2+2
86	22,9+2
$_{39}Y(p)^{86m}_{39}Y$ 48 мин [89]	
34	39,9−3
35	12,5−2
36	51,0−2
37	16,4−1
38	43,4−1
39	94,5−1
40	18,3
41	33,2
42	51,0
43	77,3
44	11,9+1
45	18,7+1
46	28,1+1
47	41,2+1
48	62,5+1
49	92,5+1
50	13,6+2
51	18,2+2
52	23,7+2
53	29,5+2
54	35,1+2
55	42,5+2
56	50,2+2
57	58,0+2
58	65,9+2
59	74,0+2
60	82,5+2
62	99,6+2
66	12,7+3
70	14,8+3
74	16,7+3
78	18,5+3
86	22,0+3
$_{39}Y(p)^{86g}_{39}Y$ 14,74 ч [89]	
34	43,8−3
35	15,2−2
36	49,8−2
37	16,0−1
38	52,8−1
39	92,7−1
40	13,5
41	18,4
42	24,2
43	31,4
44	40,0
45	50,8
46	64,9
47	79,8
48	96.7
49	11,7+1
50	13,9+1
51	16,4+1
52	19,2+1
54	24,8+1
56	30,8+1
58	38,1+1
60	44,8+1
62	52,2+1
66	64,0+1
70	74,0+1
74	83,1+1
78	91,8+1
86	10,9+2
$_{39}Y(p)^{87m}_{39}Y$ 13,2 ч [89]	
22	32,5−4
23	96,0−4
24	27,2−3
25	76,0−3
26	20,0−2
27	62,0−2
28	18,0−1
29	50,2−1
30	14,4
31	27,0
32	45,5
33	72,8
34	11,0+1
35	15,2+1
36	19,8+1
37	25,1+1
38	30,8+1
39	36,8+1
40	43,6+1
41	50,5+1
42	58,6+1
43	66,8+1
44	74,5+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
45	82,8+1
46	90,8+1
48	10,6+2
50	12,3+2
54	15,1+2
58	17,5+2
62	19,6+2
70	23,3+2
78	27,0+2
86	30,7+2
$_{39}Y(p)^{87g}_{39}Y$ 80,3 ч [89]	
22	29,0−5
23	10,3−4
24	33,4−4
25	11,1−3
26	32,9−3
27	94,5−3
28	27,0−2
29	74,7−2
30	20,1−1
31	35,5−1
32	51,2−1
33	68,7−1
34	93,4−1
35	11,7
36	15,0
37	18,9
38	23,5
39	27,8
40	32,3
42	42,2
44	50,8
46	62,5
48	72,3
50	83,0
54	10,2+1
58	12,0+1
62	13,7+1
66	15,3+1
70	16,8+1
78	19,7+1
86	22,4+1
$_{39}Y(p)^{88}_{39}Y$ 106,6 сут [89]	
14	10,0−5
15	37,5−5
16	13,3−4
17	46,5−4
18	15,9−3
19	43,0−3
20	97,7−3
21	19,0−2
22	32,6−2
23	46,5−2
24	67,2−2
25	92,7−2
26	12,8−1
27	16,5−1
28	20,3−1
29	24,8−1
30	28,9−1
31	33,5−1
32	38,2−1
34	47,2−1
36	55,5−1
38	63,9−1
42	78,6−1
46	93,0−1
50	10,7
58	13,6
66	16,5
74	19,6
86	24,3
$_{39}Y(p)^{86}_{40}Zr$ 16,5 ч [89]	
36	19,8−2
37	47,0−2
38	11,3−1
39	20,5−1
40	36,6−1
41	53,2−1
42	84,3−1
43	11,7
44	16,2
45	21,5
46	29,0
47	38,2
48	49,3
49	65,1
50	81,1
51	10,0+1
52	12,0+1
54	16,3+1
56	20,8+1
58	25,4+1
60	29,7+1
64	36,2+1
72	46,1+1
80	54.0+1
88	60,7+1
$_{39}Y(p)^{87}_{40}Zr$ 94 мин [89]	
26	70,0−2
27	42,0−1
28	21,9
29	78,8
30	18,7+1
31	30,5+1
32	43,8+1
33	65,2+1
34	89,5+1
35	12,8+2
36	17,7+2
37	24,2+2
38	31,7+2
39	40,5+2
40	49,0+2
41	58,8+2
42	67,3+2
44	84,9+2
46	10,0+3
50	11,9+3
54	13,2+3
70	16,5+3
86	18,8+3
$_{39}Y(p)^{88}_{40}Zr$ 83,4 сут [89]	
14	10,0−4
15	44,0−4
16	19,1−3
17	80,0−3
18	36,1−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
19	72,8–2
20	12,3–1
21	19,6–1
22	28,9–1
23	43,1–1
24	57,8–1
25	74,2–1
26	89,3–1
27	10,7
28	12,5
29	14,4
30	16,3
32	18,8
34	20,8
38	23,2
54	28,0
70	30,7
86	33,0
$^{89}_{39}Y(p)^{89}_{40}Zr$ 79.43 ч [89]	
4	21,0–3
5	26,8–2
6	10,5–1
7	29,3–1
8	63,2–1
9	11,6
10	18,9
11	28,8
12	41,1
13	55,5
14	70,9
15	86,9
16	10,3+1
18	13,5+1
20	16,3+1
22	18,7+1
30	22,9+1
38	24,3+1
54	26,7+1
86	30,6+1
$^{90}_{40}Zr(p)^{81}_{37}Rb$ 4,58 ч [100]	
50	23,7–3
51	50,8–3
52	96,9–3
53	16,0–2
54	24,8–2
55	36,2–2
56	50,6–2
57	71,7–2
58	99,3–2
59	13,7–1
60	18,6–1
61	24,8–1
62	33,7–1
63	45,0–1
64	58,8–1
65	65,1–1
66	71,6–1
67	93,0–1
68	11,6
69	14,1
70	16,7
71	19,5
72	22,3
74	28,2
76	33,9
78	39,2
82	47,8
86	56,0
$^{90}_{40}Zr(p)^{82m}_{37}Rb$ 6,2 ч [100]	
42	15,4–3
43	27,0–3
44	47,2–3
45	88,2–3
46	16,2–2
47	27,5–2
48	44,8–2
49	68,0–2
50	97,3–2
51	13,1–1
52	18,4–1
53	23,8–1
54	30,1–1
55	38,0–1
56	46,8–1
57	54,0–1
58	60,6–1
59	68,7–1
60	77,1–1
62	92,7–1
66	11,9
70	13,8
74	15,6
78	17,8
82	22,0
84	26,1
86	32,1
$^{90}_{40}Zr(p)^{83}_{37}Rb$ 86,2 сут [100]	
34	74,0–6
35	11,8–5
36	18,5–5
37	31,8–5
38	55,5–5
39	90,2–5
40	13,7–4
41	19,8–4
42	26,6–4
43	33,5–4
44	41,4–4
45	49,4–4
46	57,4–4
47	65,8–4
48	73,3–4
50	87,3–4
52	98,8–4
56	11,7–3
60	12,1–3
64	13,8–3
66	16,2–3
67	17,9–3
68	20,2–3
69	23,2–3
70	26,7–3
71	31,3–3
72	36,6–3
73	43,0–3
74	50,0–3
75	58,2–3
76	66,7–3
77	76,6–3
78	87,1–3
80	11,1–2
82	13,9–2
84	17,1–2
86	20,8–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{90}_{40}Zr(p)^{84}_{37}Rb$ 32,77 сут [100]	
50	14,8–5
51	25,2–5
52	44,4–5
53	76,3–5
54	13,3–4
55	20,1–4
56	28,1–4
57	40,5–4
58	55,9–4
59	73,8–4
60	96,6–4
61	12,5–3
62	15,5–3
63	19,0–3
64	23,3–3
65	28,4–3
66	33,9–3
67	40,2–3
68	47,0–3
69	54,5–3
70	62,5–3
72	79,5–3
74	97,5–3
76	11,6–2
78	13,5–2
80	15,4–2
82	17,3–2
84	19,2–2
86	21,0–2
$^{90}_{40}Zr(p)^{82}_{38}Sr$ (к.) 25,0 сут [100]	
70	37,4–4
71	56,2–4
72	80,3–4
73	10,6–3
74	13,8–3
75	17,6–3
76	21,8–3
77	28,5–3
78	38,9–3
79	53,8–3
80	72,9–3
81	10,2–2
82	14,6–2
83	19,5–2
84	27,4–2
85	35,5–2
86	46,0–2
87	38,2–2
88	70,4–2
$^{90}_{40}Zr(p)^{83}_{38}Sr$ (к.) 32,4 ч [100]	
58	15,0–3
59	26,5–3
60	45,7–3
61	80,8–3
62	14,5–2
63	25,6–2
64	45,5–2
65	75,2–2
66	11,8–1
67	18,7–1
68	26,7–1
69	39,8–1
70	61,2–1
71	85,7–1
72	11,3
73	14,5
74	17,7
75	21,3
76	25,0
78	32,9
80	41,3
82	50,2
84	59,4
86	69,0
$^{90}_{40}Zr(p)^{85}_{38}Sr$ (к.) 64,84 сут [100]	
28	18,5–5
29	37,5–5
30	74,0–5
31	13,8–4
32	23,3–4
33	39,5–4
34	62,9–4
35	98,5–4
36	14,1–3
37	20,0–3
38	27,9–3
39	37,8–3
40	50,2–3
41	65,8–3
42	82,3–3
43	10,2–2
44	12,5–2
45	15,0–2
46	17,9–2
47	21,1–2
48	24,4–2
50	31,7–2
52	39,5–2
54	47,4–2
56	55,2–2
58	62,4–2
60	68,8–2
62	74,5–2
66	84,4–2
70	93,1–2
78	11,3–1
86	15,0–1
$^{90}_{40}Zr(p)^{84}_{39}Y$ (к.) 38,5 мин [100]	
36	55,0–2
37	10,3–1
38	17,0–1
39	24,8–1
40	34,8–1
41	44,9–1
42	59,5–1
43	77,8–1
44	10,4
45	13,6
46	17,7
47	22,6
48	27,9
49	34,7
50	41,3
51	49,2
52	59,4
53	72,4
54	87,8
55	11,0+1
56	13,4+1
57	17,1+1
58	21.2+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
59	26,3+1
60	32,3+1
61	39,0+1
62	46,9+1
63	55,2+1
64	64,7+1
65	74,2+1
66	84,6+1
68	10,5+2
70	12,5+2
74	15,8+2
78	18,3+2
86	22,4+2
$^{90}_{40}Zr(p)^{85}_{39}Y$ (к.) 4,8 ч [100]	
34	67,7−3
35	10,7−2
36	20,9−2
37	58,2−2
38	16,1−1
39	37,0−1
40	71,2−1
41	11,9
42	18,5
43	26,5
44	36,4
45	47,5
46	60,9
47	76,5
48	92,3
49	11,1+1
50	13,0+1
51	15,1+1
52	17,3+1
54	21,5+1
58	27,4+1
62	31,2+1
66	34,2+1
70	37,2+1
74	40,7+1
78	45,7+1
82	54,6+1
86	68,0+1
$^{90}_{40}Zr(p)^{86}_{39}Y$ 14,74 ч [100]	
22	40,2−3
23	62,0−3
24	91,6−3
25	13,7−1
26	20,8−1
27	33,5−1
28	56,5−1
29	90,3−1
30	12,6
31	17,7
32	22,6
33	28,0
34	34,9
35	41,7
36	48,6
37	55,6
38	62,8
40	75,7
42	86,5
43	90,9
44	95,2
46	10,2+1
50	11,2+1
58	12,8+1
60	13,4+1
62	14,3+1
64	15,5+1
66	17,3+1
68	19,9+1
70	23,4+1
72	27,5+1
74	32,1+1
76	36,9+1
78	41,9+1
82	52,3+1
86	62,8+1
$^{90}_{40}Zr(p)^{87g}_{39}Y$ 80,3 ч [100]	
10	40,3−4
11	69,0−4
12	13,3−3
13	26,9−3
14	54,9−3
15	91,5−3
16	15,8−2
17	23,4−2
18	34,7−2
19	49,6−2
20	67,3−2
21	90,2−2
22	11,9−1
23	15,0−1
24	19,4−1
25	23,6−1
26	27,9−1
28	36,1−1
30	43,7−1
32	50,6−1
35	59,2−1
36	61,7−1
40	70,0−1
44	81,8−1
46	94,5−1
48	11,5
50	14,5
52	18,5
54	23,4
56	29.4
58	36,1
60	43,3
62	50,7
64	58,2
66	65,9
68	73,7
70	81,6
74	97,5
78	11,4+1
82	13,0+1
86	14,7+1
$^{90}_{40}Zr(p)^{88}_{39}Y$ 106,6 сут [100]	
22	93,0−6
23	14,6−5
24	22,2−5
25	33,0−5
26	49,8−5
27	77,2−5
28	12,1−4
29	22,2−4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
30	41,1−4
31	71,8−4
32	12,6−3
33	19,7−3
34	28,8−3
35	38,8−3
36	53,5−3
37	70,0−3
38	87,2−3
39	10.7−2
40	12,8−2
41	15,3−2
42	18,0−2
43	20,7−2
44	23,9−2
46	30,5−2
48	37,7−2
50	45,3−2
52	53,4−2
54	61,7−2
56	70,1−2
58	78,4−2
60	86,5−2
62	94.2−2
66	11,0−1
70	12,8−1
74	14,7−1
78	16.6−1
82	18,6−1
86	20,7−1
$^{90}_{40}Zr(\alpha)^{88}_{39}Y$ 106,6 сут [91]	
50	15,4−4
51	23,0−4
52	31.2−4
53	39,8−4
54	47,5−4
55	54,8−4
56	64,7−4
58	82,7−4
60	10.2−3
62	12,1−3
64	14,2−3
66	16,4−3
68	19,0−3
72	24,8−3
76	30,2−3
80	35,8−3
$^{90}_{40}Zr(\alpha)^{88}_{40}Zr$ (к.) 83,4 сут [91]	
52	20,7−4
53	41,0−4
54	71,4−4
55	11,1−3
56	15,5−3
57	20,2−3
58	24,8−3
59	29,8−3
60	34,2−3
61	39,4−3
62	43,0−3
64	51,3−3
66	58,9−3
68	65,9−3
72	78,5−3
76	90,6−3
80	10,7−2
$^{90}_{40}Zr(\alpha)^{89}_{40}Zr$ (к.) 78,43 ч [91]	
48	21,0−4
49	64,0−4
50	14,7−3
51	30,2−3
52	52,5−3
53	84,0−3
54	11,7−2
55	16,0−2
56	21,3−2
57	27,8−2
58	35,0−2
59	44,2−2
60	54,6−2
61	67,0−2
62	84,8−2
63	97,0−2
64	11,5−1
65	13,5−1
66	15,8−1
67	18,3−1
68	21,1−1
69	24,3−1
70	27,6−1
71	31,5−1
72	35,4−1
74	44,4−1
76	54,2−1
78	64,5−1
80	75,8−1
$^{90}_{40}Zr(\alpha)^{90}_{41}Nb$ 14,6 ч [91]	
46	67,0−5
47	24,5−4
48	82,0−4
49	29,0−3
50	78,9−3
51	17,8−2
52	44,4−2
53	89,2−2
54	15,4−1
55	25,6−1
56	40,8−1
57	59,8−1
58	79,4−1
59	10,2
60	12,6
61	15,1
62	17,6
63	20,2
64	22,9
66	28,2
68	33,5
70	38,6
72	43,5
76	52,0
80	59,8
$^{90}_{40}Zr(\alpha)^{90}_{42}Mo$ 5,67 ч [91]	
48	84,0−5
49	37,0−4
50	14,0−3
51	48,0−3
52	12,2−2
53	25,8−2
54	55,2−2
55	12,0−1
56	22,5−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
57	35,4−1
58	50,3−1
59	66,8−1
60	82,9−1
61	10,0
62	11,8
63	12,6
64	15,4
66	19,1
68	22,7
70	26,1
72	29,2
76	34,5
80	39,0
$_{41}Nb(p)^{89}_{40}Zr$ 78,43 ч [165]	
6	54,0−5
7	63,0−4
8	89,4−3
9	19,2−2
10	38,9−2
11	73,8−2
12	12,9−1
13	18,7−1
14	24,2−1
15	29,3−1
16	33,4−1
18	38,5−1
20	42,2−1
22	45,2−1
26	50,0−1
30	53,1−1
$_{41}Nb(p)^{92m}_{41}Nb$ 10,13 сут [165]	
12	32,0−7
13	15,5−5
14	24,5−4
15	10,7−3
16	29,6−3
17	66,7−3
18	13,3−2
19	25,0−2
20	41,8−2
21	63,3−2
22	88,7−2
23	11,8−1
24	14,9−1
25	18,3−1
26	21,9−1
28	28,8−1
30	34,7−1
$_{41}Nb(p)^{93m}_{42}Mo$ 6,85 ч [165]	
6	62,0−5
7	31,5−4
8	15,3−3
9	93,0−3
10	25,0−2
11	53,3−2
12	97,5−2
13	24,2−1
14	49,3−1
15	11,2
16	21,6
17	36,4
18	56,1
19	79,2
20	10,9+1
21	14,1+1
22	17,6+1
23	20,8+1
24	24,3+1
26	30,4+1
28	35,9+1
30	41,0+1
$_{41}Nb(\alpha)^{93m}_{43}Tc$ 43,5 мин [92]	
40	54,0−2
41	17,8−1
42	63,0−1
43	20,8
44	44,0
45	80,2
46	13,0+1
47	18,4+1
48	26,3+1
49	34,6+1
50	43,9+1
51	55,6+1
52	64,4+1
54	86,8+1
56	11,0+2
58	13,3+2
60	15,3+2
64	18,4+2
72	22,2+2
$_{41}Nb(\alpha)^{93g}_{43}Tc$ 2,73 ч [92]	
40	17,0−4
41	90,5−4
42	50,0−3
43	16,4−2
44	42,4−2
45	78,6−2
46	12,7−1
47	17,8−1
48	23,8−1
49	29,0−1
50	35,6−1
52	46,3−1
54	55,0−1
56	62,4−1
60	74,5−1
64	84,1−1
72	97,3−1
$_{41}Nb(\alpha)^{94m}_{43}Tc$ 52 мин [92]	
26	12,0−2
27	71,5−2
28	41,0−1
29	16,5
30	44,4
31	92,5
32	17,0+1
33	26,7+1
34	37,8+1
35	51,2+1
36	67,0+1
37	83,8+1
38	10,1+2
39	11,9+2
40	13,6+2
42	17,1+2
44	19,9+2
48	23,9+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
56	28,6+2
72	32,1+2
$_{41}Nb(\alpha)^{94}_{43}Tc$ 4,88 ч [92]	
26	61,0−4
27	36,5−3
28	19,3−2
29	98,0−2
30	25,4−1
31	47,2−1
32	70,2−1
33	93,8−1
34	12,3
35	15,0
36	17,6
38	22,2
40	25,9
44	30,5
48	33,2
56	36,0
72	38,5
$_{41}Nb(\alpha)^{95m}_{43}Tc$ 61 сут [93]	
16	18,5−4
17	45,0−4
18	10,7−3
19	21,2−3
20	35,1−3
21	44,5−3
22	50,9−3
24	61,6−3
26	69,9−3
28	77,3−3
32	89,0−3
36	98,0−3
44	11,1−2
48	11,6−2
$_{41}Nb(\alpha)^{95g}_{43}Tc$ 20,0 ч [92]	
16	16,0−2
17	38,8−2
18	91,0−2
19	14,7−1
20	19,7−1
21	25,8−1
22	32,9−1
23	41,7−1
24	49,8−1
25	60,0−1
26	68,3−1
27	77,2−1
28	85,3−1
32	10,9
36	11,9
44	12,5
48	13,0
$_{41}Nb(\alpha)^{96m}_{43}Tc$ 51,5 мин [92]	
10	12,7−1
11	24,7−1
12	47,2−1
13	92,0−1
14	17,3
15	34,0
16	65,8
17	10,7+1
18	15,0+1
19	19,1+1
20	22,0+1
22	25,4+1
24	26,0+1
$_{41}Nb(\alpha)^{96g}_{43}Tc$ 4,28 сут [93]	
8	37,0−3
9	87,0−3
10	19,8−2
11	28,4−2
12	37,3−2
13	45,8−2
14	57,1−2
15	67,0−2
16	79,5−2
17	92,5−2
18	10,2−1
20	12,5−1
22	14,8−1
24	17,2−1
26	19,7−1
28	22,2−1
32	26,9−1
36	30,6−1
44	36,6−1
48	38,7−1
$_{41}Nb(\tau)^{88}_{39}Y$ 106,6 сут [21]	
20	48,1−7
21	13,9−6
22	31,1−6
23	56,8−6
24	86,6−6
25	13,4−5
26	19,9−5
27	28,0−5
28	39,0−5
29	52,8−5
30	69,2−5
31	88,7−5
32	11,0−4
$_{41}Nb(\tau)^{92m}_{41}Nb$ 10,13 сут [21]	
14	25,9−5
15	67,0−5
16	13,9−4
17	22,8−4
18	34,0−4
19	47,2−4
20	67,5−4
21	85,8−4
22	11,1−3
23	13,5−3
24	16,7−3
25	19,6−3
26	23,8−3
27	27,8−3
28	33,8−3
29	41,0−3
30	49,2−3
31	59,2−3
32	71,4−3
$_{41}Nb(\tau)^{95m}_{43}Tc$ 61 сут [21]	
8	25,9−6

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
9	38,8–6
10	55,5–6
11	78,2–6
12	10,3–5
13	12,9–5
14	15,3–5
15	17,6–5
16	19,7–5
18	23,6–5
20	27,2–5
24	33,8–5
28	40,7–5
32	47,7–5
$_{42}Mo(p)^{95m}_{43}Tc$ 61 сут [93]	
8	62,0–4
9	13,4–3
10	26,0–3
11	47,1–3
12	78,0–3
13	11,4–2
14	15,2–2
15	19,3–2
16	24,2–2
17	28,2–2
18	33,3–2
20	42,7–2
22	53,4–2
24	63,7–2
$_{42}Mo(p)^{96}_{43}Tc$ 4,28 сут [93]	
8	42,0–2
9	87,0–2
10	16,5–1
11	26,7–1
12	40,3–1
13	53,2–1
14	67,2–1
15	79,8–1
16	90,8–1
18	12,1
20	15,7
22	19,4
24	23,4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{42}Mo(p)^{97m}_{43}Tc$ 87 сут [93]	
8	31,0–4
9	42,9–4
10	65,0–4
11	10,4–3
12	17,5–3
13	29,5–3
14	48,4–3
15	73,0–3
16	10,7–2
17	14,3–2
18	18,8–2
19	22,3–2
20	27,9–2
21	32,8–2
22	38,6–2
24	49,7–2
$_{42}Mo(d)^{95m}_{43}Tc$ 61 сут [93]	
6	36,0–4
7	73,8–4
8	16,0–3
9	32,7–3
10	57,2–3
11	81,2–3
12	10,2–2
13	11,5–2
14	12,7–2
15	14,7–2
16	17,7–2
17	20,6–2
18	24,4–2
20	30,3–2
22	34,0–2
24	36,8–2
$_{42}Mo(d)^{96}_{43}Tc$ 4,28 сут [93]	
6	21,0–2
7	45,8–2
8	83,0–2
9	15,7–1
10	24,8–1
11	33,2–1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
12	42,9–1
13	52,1–1
14	59,4–1
15	68,8–1
16	83,8–1
17	11,0
18	14,3
20	18,8
22	23,0
24	26,9
$_{42}Mo(d)^{97m}_{43}Tc$ 87 сут [93]	
6	17,0–4
7	35,0–4
8	64,0–4
9	11,0–3
10	17,5–3
11	23,8–3
12	32,3–3
13	40,9–3
14	52,0–3
15	60,8–3
16	73,3–3
17	87,6–3
18	99,4–3
19	11,4–2
20	13,0–2
24	20,0–2
$^{92}_{42}Mo(\alpha)^{93m}_{43}Tc$ (к.) 43,5 мин [60]	
28	22,0–4
29	10,0–3
30	37,0–3
31	91,2–3
32	17,7–2
33	29,5–2
34	48,3–2
35	74,0–2
36	10,8–1
37	15,3–1
38	21,7–1
39	29,0–1
40	37,7–1
41	45,8–1
42	54,9–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
43	63,2–1
44	71,4–1
46	85,5–1
48	97,6–1
52	11,7
56	13,4
$^{92}_{42}Mo(\alpha)^{93g}_{43}Tc$ (к.) 2,73 ч [60]	
28	30,0–4
29	68,0–4
30	13,0–3
31	21,8–3
32	34,0–3
33	53,7–3
34	78,0–3
35	11,5–2
36	16,7–2
37	25,7–2
38	40,1–2
39	58,0–2
40	82,5–2
41	11,0–1
42	14,0–1
43	17,3–1
44	20,8–1
45	24,5–1
46	28,2–1
48	36,4–1
50	45,0–1
52	54,2–1
54	63,4–1
56	72,7–1
$^{92}_{42}Mo(\alpha)^{94m}_{43}Tc$ 52 мин [60]	
18	14,0–4
19	78,0–4
20	40,0–3
21	17,6–2
22	43,0–2
23	84,8–2
24	14,1–1
25	20,0–1
26	28,7–1
27	37,6–1
28	47,4–1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
29	57,8–1
30	67,4–1
32	87,2–1
36	11,7
40	13,1
$^{92}_{42}Mo(\alpha)^{94g}_{43}Tc$ 4,88 сут [60]	
18	14,5–4
19	78,0–4
20	41,0–3
21	16,5–2
22	41,9–2
23	82,8–2
24	15,4–1
25	24,6–1
26	35,5–1
27	50,0–1
28	65,7–1
29	84,2–1
30	10,5
31	12,6
32	14,9
34	19,5
36	23,8
40	30,4
44	34,6
$_{42}Mo(\alpha)^{95m}_{43}Tc$ (к.) 61 сут [93]	
12	43,0–5
13	72,0–5
14	11,2–4
15	16,7–4
16	22,2–4
17	29,3–4
18	37,5–4
19	44,8–4
20	50,2–4
22	63,8–4
24	78,4–4
26	89,3–4
28	96,2–4
30	10,6–3
32	11,9–3
34	13,5–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
36	15,2–3
40	18,1–3
44	21,1–3
46	22,5–3
$^{92}_{42}Mo(\alpha)^{95g}_{43}Tc$ 20,0 ч [60]	
14	30,0–4
15	93,0–4
16	27,0–3
17	72,0–3
18	14,8–2
19	25,3–2
20	40,0–2
21	56,7–2
22	72,9–2
23	90,0–2
24	10,5–1
26	12,9–1
30	15,5–1
$^{94}_{42}Mo(\alpha)^{95g}_{43}Tc$ 20,0 ч [60]	
28	30,0–5
29	20,0–4
30	89,8–4
31	20,0–3
32	34,0–3
33	53,2–3
34	78,0–3
35	11,7–2
36	17,3–2
37	26,0–2
38	40,1–2
39	58,8–2
40	82,5–2
41	10,9–1
42	14,0–1
43	17,5–1
44	20,8–1
45	24,1–1
46	28,2–1
48	36,4–1
50	45,0–1
52	54,2–1
54	63,4–1
56	72,7–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{42}Mo(\alpha)^{96}_{43}Tc$ 4,28 сут [93]	
20	19,0−3
21	24,4−3
22	31,0−3
23	39,1−3
24	49,0−3
25	63,2−3
26	78,2−3
27	98,0−3
28	12,2−2
29	15,0−2
30	18,2−2
31	21,9−2
32	25,2−2
33	31,3−2
34	37,7−2
35	46,7−2
36	56,0−2
37	65,8−2
38	75,8−2
40	91,4−2
44	11,7−1
46	12,9−1
$^{95}_{42}Mo(\alpha)^{96g}_{43}Tc$ 4,28 сут [60]	
28	15,0−4
29	39,5−4
30	10,5−3
31	17,5−3
32	24,8−3
33	32,6−3
34	42,7−3
35	62,0−3
36	91,2−3
37	13,2−2
38	17,8−2
39	22,2−2
40	27,6−2
41	34,5−2
42	43,5−2
43	52,1−2
44	61,1−2
46	79,5−2
48	97,6−2
50	11,4−1
52	13,0−1
56	15,5−1
60	17,5−1
$_{42}Mo(\alpha)^{101}_{43}Tc$ 14,2 мин [60]	
18	84,0−3
19	36,5−2
20	86,4−2
21	16,3−1
22	28,1−1
23	41,2−1
24	55,9−1
25	72,2−1
26	90,8−1
27	11,2
28	13,4
29	15,6
30	18,4
32	24,1
34	31,0
36	39,9
38	51,7
40	67,4
$^{100}_{42}Mo(\alpha)^{101}_{43}Tc$ 14,2 мин [60]	
26	35,8−2
27	88,5−2
28	14,9−1
29	23,8−1
30	35,3−1
31	48,4−1
32	66,7−1
33	87,0−1
34	11,4
35	14,7
36	18,6
37	23,5
38	29,8
39	36,3
40	43,7
41	52,2
42	61,0
43	70,8
44	80,2
46	10,1+1
48	12,3+1
50	14,5+1
52	16,7+1
54	19,0+1
58	23,6+1
$^{100}_{42}Mo(\alpha)^{102m}_{43}Tc$ 4,35 мин [60]	
24	83,0−3
25	12,8−1
26	19,5−1
27	36,5−1
28	65,9−1
29	10,1
30	14,3
31	18,7
32	24,3
33	30,0
34	35,7
35	41,8
36	48,2
37	55,0
38	61,1
40	73,6
42	85,1
46	10,5+1
50	12,0+1
$^{92}_{42}Mo(\alpha)^{94}_{44}Ru$ 51,8 мин [60]	
20	13,3−2
21	45,8−2
22	14,9−1
23	36,2−1
24	71,1−1
25	12,0
26	17,8
27	25,1
28	33,6
29	42,9
30	51,4
31	60,7
32	69,2
34	84,9
36	98,4
40	11,8+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
44	12,6+1
$^{92}_{42}Mo(\alpha)^{95}_{44}Ru$ 1,63 ч [60]	
14	22,8−2
15	85,0−2
16	28,3−1
17	60,0−1
18	10,0
19	15,3
20	20,0
21	25,6
22	30,5
24	38,0
28	44,6
32	47,3
$^{94}_{42}Mo(\alpha)^{95}_{44}Ru$ 1,63 ч [60]	
30	68,0−3
31	14,8−2
32	28,2−2
33	50,0−2
34	87,9−2
35	15,1−1
36	24,4−1
37	45,8−1
38	77,9−1
39	12,0
40	16,8
41	22,1
42	26,4
44	35,6
46	44,3
48	52,4
52	66,2
56	76,6
60	83,2
$^{94}_{42}Mo(\alpha)^{97}_{44}Ru$ 2,86 сут [60]	
16	38,0−3
17	84,0−3
18	16,3−2
19	25,8−2
20	37,0−2
21	46,9−2
22	55,6−2
24	66,2−2
28	78,3−2
30	81,7−2
36	87,5−2
44	92,0−2
60	98,6−2
$^{95}_{42}Mo(\alpha)^{97}_{44}Ru$ 2,86 сут [60]	
20	74,0−3
21	15,0−2
22	27,2−2
23	46,0−2
24	73,6−2
25	10,1−1
26	13,2−1
27	16,6−1
28	20,6−1
29	25,2−1
30	29,0−1
32	35,2−1
36	44,1−1
44	49,9−1
60	54,2−1
$_{42}Mo(\alpha)^{103}_{44}Ru$ (к.) 39,36 сут [60]	
8	14,0−6
9	18,0−5
10	27,4−5
11	58,8−5
12	11,2−4
13	16,9−4
14	23,6−4
15	30,6−4
16	37,4−4
17	45,0−4
18	50,4−4
20	60,5−4
24	74,5−4
28	84,6−4
36	98,3−4
44	10,6−3
$_{42}Mo(\tau)^{95m}_{43}Tc$ 61 сут [21]	
14	16,6−5
15	30,0−5
16	50,7−5
17	78,4−5
18	11,4−4
19	15,7−4
20	20,0−4
21	25,2−4
22	30,9−4
23	36,8−4
24	43,5−4
26	57,7−4
28	73,1−4
30	90,9−4
32	10,9−3
$_{42}Mo(\tau)^{96}_{43}Tc$ 4,28 сут [21]	
14	21,5−3
15	49,0−3
16	86,6−3
17	13,4−2
18	17,7−2
19	23,0−2
20	29,0−2
21	34,9−2
22	42,6−2
23	51,7−2
24	61,2−2
25	71,2−2
26	82,5−2
27	94,8−2
28	10,8−1
29	12,2−1
30	13,7−1
31	15,3−1
32	17,0−1
$_{42}Mo(\tau)^{97}_{44}Ru$ 2,89 сут [21]	
12	70,3−3
13	18,0−2
14	36,6−2
15	57,8−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
16	81,8−2
17	10,7−1
18	13,9−1
19	16,8−1
20	20,1−1
21	23,2−1
22	26,4−1
23	29,3−1
24	32,7−1
25	36,4−1
26	40,0−1
27	43,7−1
28	47,4−1
29	51,2−1
30	54,9−1
32	62,3−1
$_{45}Rh(p)\,^{97}_{44}Ru$ (к.) 2,89 сут [94]	
36	11,0−4
37	60,0−4
38	36,2−3
39	18,0−2
40	45,9−2
41	88,2−2
42	16,0−1
43	25,5−1
44	39,2−1
45	56,0−1
46	75,9−1
47	98,0−1
48	12,6
49	15,6
50	18,4
51	21,6
52	24,5
54	30,6
56	36,0
60	44,3
68	55,5
$_{45}Rh(p)\,^{103}_{46}Pd$ 16,96 сут [95]	
6	26,0−2
7	60,8−2
8	12,2−1
9	21,2−1
10	32,9−1
11	47,0−1
12	61,5−1
13	72,1−1
14	83,9−1
16	95,9−1
18	10,3
22	11,3
24	11,8
$_{45}Rh(d)\,^{103}_{46}Pd$ 16,96 сут [95]	
8	10,0−1
9	18,6−1
10	31,0−1
11	47,2−1
12	69,0−1
13	90,3−1
14	11,6
15	14,0
16	16,1
18	20,1
20	23,5
22	26,1
24	28,1
$_{45}Rh(\alpha)\,^{102m}_{47}Ag$ 7,7 мин [96]	
52	11,0−1
53	14,5
54	22,5
55	41,0
56	72,9
57	11,2+1
58	15,6+1
59	20,8+1
60	27,5+1
61	35,3+1
62	43,1+1
63	53,4+1
64	62,0+1
65	72,3+1
66	82,4+1
68	10,2+2
69	11,1+2
70	12,0+2
72	13,6+2
74	15,1+2
78	18,0+2
82	20,8+2
$_{45}Rh(\alpha)\,^{102g}_{47}Ag$ 12,9 мин [96]	
52	84,0−2
53	41,0−1
54	16,8
55	40,2
56	78,8
57	13,7+1
58	21,0+1
59	31,2+1
60	43,9+1
61	60,2+1
62	79,0+1
63	10,1+2
64	12,6+2
65	15,2+2
66	17,9+2
68	23,1+2
70	27,9+2
74	36,4+2
78	43,6+2
80	46,8+2
82	50,0+2
$_{45}Rh(\alpha)\,^{103}_{47}Ag$ 65,7 мин [96]	
42	92,0−2
43	12,0
44	19,8
45	46,5
46	91,9
47	15,2+1
48	22,5+1
49	31,0+1
50	42,4+1
51	53,7+1
52	68,8+1
53	82,2+1
54	97,1+1
56	12,6+2
58	15,2+2
62	19,5+2
66	22,8+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
74	26,6+2
82	28,9+2
$_{45}Rh(\alpha)\,^{104m}_{47}Ag$ 69,2 мин [96]	
26	36,0−2
27	77,0−2
28	16,2−1
29	34,5−1
30	72,8−1
31	14,8
32	27,0
33	46,4
34	73,5
35	10,7+1
36	14,7+1
37	18,8+1
38	22,8+1
39	26,6+1
40	31,0+1
42	41,6+1
44	51,1+1
46	60,1+1
50	74,8+1
58	87,9+1
66	95,7+1
82	10,8+2
$_{45}Rh(\alpha)\,^{104g}_{47}Ag$ 33,5 мин [96]	
26	81,0−3
27	21,8−2
28	57,0−2
29	15,0−1
30	40,2−1
31	72,0−1
32	46,2
33	11,7+1
34	13,0+1
35	18,2+1
36	25,2+1
37	33,6+1
38	43,8+1
39	54,0+1
40	65,2+1
41	74,8+1
42	82,7+1
44	10,3+2
46	12,5+2
50	16,2+2
58	19,5+2
66	21,3+2
82	23,6+2
$_{45}Rh(\alpha)\,^{105}_{47}Ag$ 41,29 сут [96, 97]	
18	29,6−3
19	71,0−3
20	13,7−2
21	22,4−2
22	32,7−2
23	43,5−2
24	55,9−2
25	67,2−2
26	77,4−2
28	98,1−2
32	12,7−1
36	14,2−1
44	15,2−1
52	16,2−1
$_{45}Rh(\alpha)\,^{106m}_{47}Ag$ 8,41 сут [97]	
12	14,0−4
13	12,9−3
14	10,2−2
15	19,4−2
16	26,4−2
17	33,2−2
18	38,8−2
20	45,7−2
28	54,6−2
44	57,9−2
52	58,7−2
$_{45}Rh(\alpha)\,^{106}_{47}Ag$ 23,96 мин [96]	
12	16,1−1
13	75,8−1
14	36,8
15	81,0
16	11,6+1
17	16,0+1
18	19,6+1
19	22,6+1
20	24,5+1
24	27,6+1
28	28,7+1
$_{47}Ag(p)\,^{107}_{48}Cd$ 6,49 ч [56]	
4	37,1−2
5	16,5−1
6	61,3−1
7	12,3
8	26,7
9	53,0
10	95,8
11	14,7+1
12	21,7+1
13	27,3+1
14	32,2+1
18	40,6+1
22	43,3+1
24	57,0+1
$_{47}Ag(p)\,^{109}_{48}Cd$ 453 сут [98]	
4	54,0−5
5	20,2−4
6	65,5−4
7	13,3−3
8	23,4−3
9	41,0−3
10	60,6−3
11	80,4−3
12	97,3−3
14	12,8−2
16	15,0−2
18	16,7−2
22	18,9−2
24	19,7−2
$_{47}Ag(d)\,^{109}_{48}Cd$ 453 сут [98]	
6	23,3−4
7	54,0−4
8	10,7−3
9	19,2−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
10	29,5−3	81	14,2+1	80	22,9+1
11	44,0−3	82	17,0+1	82	25,2+1
12	65,2−3	84	23,3+1	90	32,7+1
13	86,7−3	86	30,0+1	98	41,0+1
14	10,9−2	88	37,1+1		
15	13,3−2	90	42,1+1	$^{107}_{47}Ag(\alpha)\,^{104m}_{47}Ag$	
16	15,4−2	92	48,9+1	33,5 мин [99]	
18	19,9−2	94	53,2+1		
20	23,1−2	96	58,8+1	32	54,2−3
22	25,1−2	98	66,4+1	33	85,0−3
24	26,4−2	100	75,1+1	34	13,8−2
				35	21,8−2
$^{107}_{47}Ag(\alpha)\,^{102g}_{47}Ag$		$^{107}_{47}Ag(\alpha)\,^{103}_{47}Ag$		36	34,5−2
12,9 мин [99]		65,7 мин [99]		37	54,8−2
				38	83,9−2
48	13,0−3	42	27,0−2	39	11,2−1
49	31,0−3	43	38,8−2	40	14,8−1
50	74,8−3	44	54,0−2	41	19,4−1
51	17,8−2	45	75,0−2	42	24,1−1
52	40,1−2	46	99,2−2	43	30,1−1
53	74,0−2	47	12,7−1	44	37,9−1
54	10,8−1	48	15,7−1	45	46,0−1
55	14,5−1	49	19,0−1	46	57,8−1
56	18,9−1	50	22,2−1	47	69,8−1
57	23,2−1	51	26,0−1	48	85,7−1
58	29,0−1	52	30,8−1	49	10,4
59	35,8−1	53	37,9−1	50	12,6
60	43,4−1	54	46,6−1	51	13,0
61	52,6−1	55	58,7−1	52	17,9
62	62,0−1	56	73,8−1	53	21,1
63	71,8−1	57	93,0−1	54	25,2
64	80,9−1	58	11,7	55	29,2
65	91,0−1	59	14,4	56	34,4
66	10,3	60	19,2	57	39,8
67	11,5	61	22,8	58	45,7
68	13,0	62	28,5	60	59,1
69	14,6	63	34,3	62	74,8
70	16,3	64	41,6	64	91,9
71	18,6	65	49,0	66	10,9+1
72	21,7	66	58,2	70	13,8+1
73	26,3	67	68,2	74	15,1+1
74	32,8	68	78,2		
75	40,0	69	90,0	$^{107}_{47}Ag(\alpha)\,^{104g}_{47}Ag$	
76	49,4	70	10,2+1	69,6 мин [99]	
77	62,2	72	12,7+1		
78	77,7	74	15,5+1	32	26,5−3
79	95,8	76	17,8+1	33	55,0−3
80	11,8+1	78	20,6+1	34	10,9−2
				35	16,7−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
36	25,2−2	23	12,9−4	94	68,2
37	36,1−2	24	31,4−4	96	85,7
38	49,1−2	25	63,0−4	98	10,6+1
39	65,2−2	26	11,4−3	100	12,9+1
40	80,1−2	27	17,9−3		
41	10,1−1	28	26,0−3	$_{47}Ag(\alpha)\,^{107}_{48}Cd$	
42	12,5−1	29	35,3−3	6,49 ч [99]	
43	15,3−1	30	47,7−3		
44	19,2−1	31	61,5−3	34	19,5−3
45	24,0−1	32	76,7−3	35	30,0−3
46	30,2−1	33	92,2−3	36	46,5−3
47	39,0−1	34	11,4−2	37	73,2−3
48	50,8−1	35	13,5−2	38	11,3−2
49	68,2−1	36	15,8−2	39	17,2−2
50	94,1−1	38	20,5−2	40	25,0−2
51	12,7	40	24,0−2	41	36,5−2
52	16,6	44	28,0−2	42	52,3−2
53	21,0			43	85,3−2
54	26,6	$^{107}_{47}Ag(\alpha)\,^{104}_{48}Cd$		44	13,9−1
55	32,2	57,7 мин [99]		45	23,2−1
56	39,7			46	39,4−1
58	55,4	66	54,0−3	47	61,0−1
60	71,9	67	94,0−3	48	90,6−1
62	87,9	68	16,5−2	49	13,2
66	11,6+1	69	28,2−2	50	18,2
70	13,9+1	70	44,8−2	51	23,6
74	15,8+1	71	67,0−2	52	30,0
		72	91,1−2	53	37,6
$^{107}_{47}Ag(\alpha)\,^{105}_{47}Ag$		73	12,5−1	54	44,6
41,29 сут [59, 101]		74	17,4−1	55	53,9
		75	23,1−1	56	62,1
34	58,4−5	76	30,0−1	58	75,9
35	15,4−4	77	38,8−1	60	90,3
36	30,1−4	78	49,7−1	62	10,5+1
37	52,0−4	79	61,0−1	66	13,1+1
38	82,3−4	80	77,8−1	70	15,7+1
39	11,8−3	81	94,2−1	74	18,6+1
40	16,2−3	82	11,6	78	22,1+1
41	20,7−3	83	14,8	86	29,1+1
42	26,1−3	84	16,6	94	33,9+1
43	31,8−3	85	19,6		
44	37,2−3	86	23,1	$^{107}_{47}Ag(\alpha)\,^{107}_{48}Cd$	
45	44,1−3	87	26,9	6,49 ч [99]	
46	49,5−3	88	31,1		
		89	36,0	34	19,5−3
$^{107}_{47}Ag(\alpha)\,^{106m}_{47}Ag$		90	41,1	35	30,0−3
8,41 сут [59, 101]		91	46,9	36	46,5−3
		92	53,4	37	73,2−3
22	36,2−5			38	11,3−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
39	17,2−2
40	25,0−2
41	36,5−2
42	52,3−2
43	85,3−2
44	13,9−1
45	23,2−1
46	39,4−1
47	61,0−1
48	90,6−1
49	13,2
50	18,1
51	23,6
52	30,0
53	37,6
54	44,5
55	52,0
56	60,6
58	75,5
60	88,8
62	10,4+1
66	12,7+1
70	14,6+1
78	17,6+1
86	20,5+1
94	23,3+1
$^{109}_{47}Ag(\alpha)\,^{107}_{48}Cd$ 6,49 ч [99]	
52	51,0−3
53	68,0−3
54	89,8−3
55	11,8−2
56	15,8−2
57	21,2−2
58	28,8−2
59	39,8−2
60	55,4−2
61	77,8−2
62	10,8−1
63	15,3−1
64	22,1−1
65	29,8−1
66	40,0−1
67	53,6−1
68	69,3−1
69	89,2−1
70	11,5
71	14,0
72	17,5
73	20,9
74	25,3
75	29,5
76	34,4
77	39,6
78	45,4
80	57,2
82	67,0
84	78,6
88	92,7
96	11,2+1
$^{}_{47}Ag(\alpha)\,^{109}_{48}Cd$ (к.) 453 сут [98]	
18	10,5−4
19	22,0−4
20	42,2−4
21	68,7−4
22	10,5−3
23	14,0−3
24	18,3−3
25	23,2−3
26	28,3−3
27	34,3−3
28	39,3−3
30	48,6−3
32	57,1−3
36	69,8−3
40	78,1−3
48	82,1−3
$^{}_{47}Ag(\alpha)\,^{106m}_{49}In$ 6,26 мин [99]	
52	61,4
53	90,0
54	13,0+1
55	18,2+1
56	24,5+1
57	30,3+1
58	37,7+1
59	45,2+1
60	55,9+1
61	67,2+1
62	78,8+1
64	10,2+2
66	12,9+2
68	15,9+2
70	19,1+2
72	22,0+2
76	27,4+2
84	36,0+2
92	43,4+2
100	52,5+2
$^{109}_{47}Ag(\alpha)\,^{106m}_{49}In$ 6,26 мин [99]	
68	38,4−2
69	65,0−2
70	12,5−1
71	20,2−1
72	35,9−1
73	57,9−1
74	89,0−1
75	13,1
76	18,6
77	25,2
78	33,8
79	44,6
80	57,7
81	74,8
82	93,8
83	11,4+1
84	13,7+1
85	16,2+1
86	19,0+1
87	22,2+1
88	26,7+1
89	30,2+1
90	34,8+1
91	39,7+1
92	45,3+1
94	57,4+1
96	69,6+1
98	84,8+1
100	10,0+2
$^{}_{47}Ag(\alpha)\,^{107}_{49}In$ 32,4 мин [99]	
40	47,7−1
41	84,0−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
42	14,7
43	23,8
44	37,2
45	55,8
46	81,3
47	11,4+1
48	15,7+1
49	20,0+1
50	24,8+1
51	30,2+1
52	37,0+1
54	48,2+1
56	61,0+1
58	72,3+1
60	82,6+1
64	97,3+1
68	11,0+2
76	13,8+2
84	17,0+2
92	19,1+2
100	20,1+2
$^{109}_{47}Ag(\alpha)\,^{107}_{49}In$ 32,4 мин [99]	
60	76,5−1
61	11,7
62	16,8
63	23,4
64	31,8
65	40,0
66	51,8
67	61,2
68	75,1
69	88,8
70	10,4+1
71	12,0+1
72	13,8+1
73	16,5+1
74	17,9+1
76	22,4+1
78	27,6+1
80	33,1+1
84	44,8+1
92	58,1+1
100	60,5+1
$^{}_{47}Ag(\alpha)\,^{108m}_{49}In$ 58 мин [99]	
30	59,6−1
31	13,4
32	24,8
33	43,0
34	64,2
35	88,0
36	11,4+1
37	14,8+1
38	19,1+1
39	23,8+1
40	28,5+1
41	34,2+1
42	39,0+1
44	49,6+1
46	57,8+1
48	64,0+1
50	70,2+1
54	79,8+1
58	89,9+1
62	10,4+2
70	13,3+2
78	15,5+2
94	17,6+2
$^{109}_{47}Ag(\alpha)\,^{108m}_{49}In$ 58 мин [99]	
46	80,0−3
47	31,0−2
48	12,8−1
49	20,4−1
50	37,0−1
51	69,2−1
52	12,2
53	17,3
54	25,5
55	35,6
56	50,4
57	63,7
58	80,7
59	10,2+1
60	12,8+1
61	15,6+1
62	18,6+1
63	21,5+1
64	24,7+1
66	30,9+1
68	37,4+1
70	42,5+1
74	52,6+1
78	60,2+1
86	69,7+1
94	75,5+1
$^{107}_{47}Ag(\alpha)\,^{108}_{49}In$ 39.6 мин [99]	
28	82,0−3
29	32,0−2
30	12,0−1
31	40,8−1
32	90,0−1
33	17,1
34	26,5
35	40,6
36	54,6
37	70,2
38	90,0
39	10,8+1
40	12,9+1
41	15,0+1
42	17,0+1
44	21,2+1
$^{}_{47}Ag(\alpha)\,^{109}_{49}In$ 4,3 ч [99]	
18	22,2−1
19	48,8−1
20	91,1−1
21	15,1
22	23,2
23	32,6
24	41,8
25	52,2
26	64,3
27	78,7
28	95,3
30	12,2+1
32	14,9+1
36	18,4+1
40	20,4+1
44	23,4+1
48	27,9+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
52	33,6+1
60	42,4+1
68	47,4+1
84	52,2+1
100	55,6+1
$^{107}_{47}Ag(\alpha)^{109}_{49}In$ 4,3 ч [99]	
18	22,2−1
19	48,8−1
20	91,1−1
21	15,1
22	23,2
23	32,6
24	41,8
25	52,2
26	64,3
27	78,7
28	95,3
30	12,2+1
32	14,9+1
36	18,3+1
52	21,6+1
68	22,8+1
100	24,0+1
$^{109}_{47}Ag(\alpha)^{109}_{49}In$ 4,3 ч [99]	
36	74,0−2
37	13,8−1
38	26,4−1
39	41,7−1
40	64,8−1
41	10,2
42	15,4
43	20,9
44	27,4
45	36,2
46	45,6
47	56,2
48	67,3
49	78,8
50	91,8
52	11,9+1
54	14,4+1
56	16,5+1
60	20,1+1
68	24,6+1
84	28,6+1
100	31,7+1
$_{47}Ag(\alpha)^{110m}_{49}In$ 4,9 ч [99]	
10	72,2−3
11	18,8−2
12	36,8−2
13	61,2−2
14	99,2−2
15	14,7−1
16	20,4−1
17	26,8−1
18	35,1−1
19	44,1−1
20	54,0−1
21	64,2−1
22	74,7−1
23	85,8−1
24	95,4−1
25	10,4
26	11,2
28	12,5
29	13,5
30	14,9
31	19,4
32	24,2
33	32,0
34	40,5
35	50,2
36	60,5
37	71,2
38	82,5
40	10,4+1
42	12,8+1
44	13,2+1
48	16,7+1
54	18,4+1
$^{107}_{47}Ag(\alpha)^{110m}_{49}In$ 4,9 ч [99]	
10	72,2−3
11	18,8−2
12	36,8−2
13	61,2−2
14	99,2−2
15	14,7−1
16	20,4−1
17	26,8−1
18	35,1−1
19	44,1−1
20	54,0−1
21	64,2−1
22	74,7−1
23	85,8−1
24	95,4−1
26	11,2
30	13,0
38	15,0
54	17,2
$^{109}_{47}Ag(\alpha)^{110m}_{49}In$ 4,9 ч [99]	
26	30,0−3
27	70,0−3
28	18,9−2
29	62,0−2
30	18,6−1
31	51,8−1
32	10,6
33	18,3
34	26,5
35	35,8
36	46,0
37	56,2
38	67,5
39	80,2
40	90,2
42	11,2+1
46	14,3+1
54	16,7+1
$_{47}Ag(\alpha)^{110}_{49}In$ 69,1 мин [99]	
10	22,8−2
11	49,5−2
12	98,3−2
13	15,5−1
14	24,1−1
15	34,0−1
16	46,9−1
17	60,8−1
18	78,4−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
19	98,3−1
20	11,5
21	13,7
22	15,6
24	19,6
26	22,6
28	24,7
30	26,1
32	36,0
34	49,4
36	60,6
38	67,5
40	72,3
44	77,3
52	81,8
$^{107}_{47}Ag(\alpha)^{110}_{49}In$ 69,1 мин [99]	
10	22,8−2
11	49,5−2
12	98,3−2
13	15,5−1
14	24,1−1
15	34,0−1
16	46,9−1
17	60,8−1
18	78,4−1
19	98,3−1
20	11,5
21	13,7
22	15,6
24	19,6
28	24,5
36	26,4
44	27,7
52	28,4
$^{109}_{47}Ag(\alpha)^{110}_{49}In$ 69,1 мин [99]	
28	15,7−2
29	37,2−2
30	86,8−2
31	31,1−1
32	10,3
33	17,2
34	23,3
35	29,0
36	34,2
38	40,8
39	43,2
40	45,2
44	49,8
52	53,3
$_{47}Ag(\alpha)^{111}_{49}In$ 2,802 сут [102]	
12	40,7−4
13	91,3−4
14	19,2−3
15	45,6−3
16	10,4−2
17	20,0−2
18	36,9−2
19	62,2−2
20	96,2−2
21	14,1−1
22	19,4−1
23	25,2−1
24	32,3−1
25	40,1−1
26	47,1−1
27	54,2−1
28	62,5−1
30	77,5−1
32	90,0−1
36	10,5
40	11,3
48	12,2
$^{107}_{47}Ag(\tau)^{103}_{47}Ag$ 65,7 мин [99]	
18	44,4−5
19	21,0−4
20	10,0−3
21	18,9−3
22	28,0−3
23	37,6−3
24	50,0−3
25	63,3−3
26	79,2−3
27	10,0−2
28	12,9−2
29	18,8−2
30	27,2−2
31	41,0−2
32	61,3−2
33	93,7−2
34	14,7−1
35	23,0−1
36	37,2−1
37	57,2−1
38	89,5−1
39	12,7
40	16,7
$^{107}_{47}Ag(\tau)^{104m}_{47}Ag$ 33,5 мин [99]	
18	17,5−3
19	28,6−3
20	55,3−3
21	12,5−2
22	27,9−2
23	50,1−2
24	82,0−2
25	12,9−1
26	18,3−1
27	25,2−1
28	35,8−1
29	52,2−1
30	74,3−1
31	10,4
32	13,7
33	17,2
34	20,7
36	25,8
38	29,7
40	34,1
$^{107}_{47}Ag(\tau)^{104g}_{47}Ag$ 69,2 мин [99]	
16	77,3−4
17	12,3−3
18	22,5−3
19	44,0−3
20	84,3−3
21	15,2−2
22	27,1−2
23	49,0−2
24	8 2,7−2
25	13,0−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
26	19,1–1
27	26,5–1
28	36,6–1
29	47,7–1
30	61,4–1
31	74,8–1
32	94,3–1
33	11,2
34	13,6
35	16,0
36	18,6
37	21,4
38	24,2
40	29,6
$_{47}Ag(\tau)\,^{105}_{47}Ag$ 41,29 сут [99]	
4	11,0–6
5	22,8–6
6	46,0–6
7	76,5–6
8	11,5–5
9	16,5–5
10	23,0–5
11	31,1–5
12	40,4–5
13	53,7–5
14	72,3–5
15	10,2–4
16	14,8–4
17	21,5–4
18	31,9–4
19	42,5–4
20	59,1–4
21	73,0–4
22	92,7–4
23	11,2–3
24	13,0–3
26	16,7–3
28	20,3–3
30	23,9–3
32	28,5–3
34	35,1–3
36	44,2–3
38	56,3–3
40	72,5–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{107}_{47}Ag(\tau)\,^{105}_{47}Ag$ 41,29 сут [99]	
4	11,0–6
5	24,0–6
6	46,0–6
7	73,7–6
8	11,5–5
9	16,2–5
10	23,0–5
11	31,6–5
12	40,4–5
13	54,4–5
14	72,3–5
15	10,0–4
16	14,5–4
17	21,4–4
18	31,2–4
19	43,1–4
20	57,6–4
21	73,8–4
22	90,3–4
23	10,9–3
24	12,6–3
26	16,3–3
28	19,7–3
30	22,9–3
32	25,9–3
36	31,5–3
40	38,0–3
$^{109}_{47}Ag(\tau)\,^{105}_{47}Ag$ 41,29 сут [99]	
16	22,0–6
17	41,6–6
18	70,0–6
19	10,3–5
20	14,4–5
21	19,0–5
22	24,1–5
23	30,1–5
24	35,5–5
25	43,2–5
26	49,2–5
27	56,8–5
28	65,5–5
29	83,8–5

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
30	10,3–4
31	15,3–4
32	25,8–4
33	40,6–4
34	63,0–4
35	90,3–4
36	12,7–3
37	17,2–3
38	22,0–3
39	27,8–3
40	35,4–3
$_{47}Ag(\tau)\,^{106m}_{47}Ag$ 8,41 сут [99]	
4	70,0–7
5	15,4–6
6	30,0–6
7	52,2–6
8	81,0–6
9	11,8–5
10	17,4–5
11	23,8–5
12	31,8–5
13	42,5–5
14	54,0–5
15	72,8–5
16	95,1–5
17	12,0–4
18	15,6–4
19	19,1–4
20	24,2–4
21	31,7–4
22	42,1–4
23	60,0–4
24	86,8–4
25	12,0–3
26	16,8–3
27	22,1–3
28	29,2–3
29	36,8–3
30	46,1–3
31	56,5–3
32	68,2–3
33	82,0–3
34	95,5–3
36	12,7–2
38	16,2–2
40	20,3–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{107}_{47}Ag(\tau)\,^{106m}_{47}Ag$ 8,41 сут [99]	
4	70,0–7
5	15,5–6
6	30,0–6
7	53,0–6
8	81,0–6
9	11,7–5
10	17,4–5
11	23,5–5
12	31,8–5
13	42,5–5
14	54,0–5
15	68,8–5
16	87,7–5
17	10,8–4
18	13,4–4
19	16,2–4
20	19,8–4
21	23,4–4
22	28,0–4
23	33,1–4
24	38,7–4
25	44,4–4
26	51,4–4
27	59,7–4
28	67,4–4
29	76,8–4
30	87,5–4
31	10,0–3
32	11,3–3
33	12,6–3
34	14,2–3
35	16,5–3
36	18,9–3
37	22,0–3
38	25,2–3
40	37,9–3
$^{109}_{47}Ag(\tau)\,^{106m}_{47}Ag$ 8,41 сут [99]	
14	35,0–7
15	17,0–6
16	74,0–6
17	14,7–5
18	22,2–5

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
19	30,6–5
20	44,4–5
21	73,2–5
22	14,1–4
23	25,6–4
24	48,1–4
25	79,8–4
26	11,7–3
27	16,1–3
28	22,5–3
29	28,8–3
30	37,3–3
31	47,0–3
32	57,0–3
33	68,8–3
34	81,4–3
36	10,8–2
38	13,6–2
40	16,5–2
$_{47}Ag(\tau)\,^{110m}_{47}Ag$ 249,9 сут [99]	
4	37,0–8
5	65,8–8
6	11,1–7
7	16,2–7
8	22,2–7
9	30,0–7
10	40,7–7
11	50,4–7
12	62,9–7
13	77,7–7
14	99,9–7
15	13,4–6
16	18,5–6
17	25,5–6
18	35,9–6
19	48,4–6
20	67,0–6
21	89,2–6
22	11,9–5
23	15,2–5
24	19,6–5
25	23,8–5
26	30,0–5
27	37,2–5
28	43,4–5

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
29	52,2–5
30	60,0–5
31	69,5–5
32	79,4–5
33	90,0–5
34	10,1–4
36	12,5–4
38	15,0–4
40	17,6–4
$^{107}_{47}Ag(\tau)\,^{107}_{48}Cd$ 6,49 ч [99]	
12	11,1–3
13	14,5–3
14	22,6–3
15	40,8–3
16	81,5–3
17	17,0–2
18	35,1–2
19	78,2–2
20	16,3–1
21	26,5–1
22	42,8–1
23	61,0–1
24	84,9–1
25	11,0
26	14,4
27	17,8
28	22,3
29	27,3
30	32,1
32	43,0
34	54,1
36	64,0
38	72,4
40	79,1
$^{107}_{47}Ag(\tau)\,^{106m}_{49}In$ 6,26 мин [99]	
28	22,6–1
29	54,5–1
30	13,8
31	24,8
32	43,1
33	70,0
34	10,7+1
35	16,4+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/мкА·ч
36	24,4+1
37	34,2+1
38	45,5+1
39	57,5+1
40	69,8+1
$^{107}_{47}Ag(т)^{106}_{49}In$ 5,33 мин [99]	
28	15,4−2
29	42,0−2
30	11,3−1
31	23,3−1
32	36,9−1
33	58,8−1
34	95,8−1
35	21,8
36	41,6
37	64,2
38	87,6
39	11,1+1
40	12,8+1
$^{107}_{47}Ag(т)^{107}_{49}In$ 32,4 мин [99]	
16	82,6−3
17	33,0−2
18	12,6−1
19	27,0−1
20	52,6−1
21	97,7−1
22	16,9
23	26,0
24	38,1
25	51,2
26	69,7
27	87,7
28	11,2+1
29	13,7+1
30	16,1+1
31	18,8+1
32	20,7+1
36	26,7+1
40	32,7+1
$_{47}Ag(т)^{108m}_{49}In$ 58 мин [99]	
10	16,2−3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
11	23,5−3
12	46,0−3
13	14,5−2
14	44,2−2
15	10,5−1
16	21,3−1
17	40,0−1
18	66,8−1
19	10,0
20	14,0
21	17,2
22	20,6
23	22,8
24	25,8
25	28,2
26	30,3
27	33,0
28	35,4
29	39,4
30	43,9
31	50,0
32	57,5
33	66,4
34	76,2
35	87,0
36	99,8
38	12,7+1
40	15,9+1
$^{107}_{47}Ag(т)^{108m}_{49}In$ 58 мин [99]	
10	16,2−3
11	23,5−3
12	46,0−3
13	14,5−2
14	44,2−2
15	10,5−1
16	21,3−1
17	40,0−1
18	66,8−1
19	10,0
20	14,0
21	17,2
22	20,6
24	25,7
26	29,8
28	33,0

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
32	37,9
36	41,8
40	46,0
$^{109}_{47}Ag(т)^{108m}_{49}In$ 58 мин [99]	
24	59,2−3
25	18,0−2
26	53,1−2
27	12,0−1
28	23,9−1
29	45,8−1
30	82,1−1
31	13,3
32	19,5
33	27,0
34	36,3
35	47,3
36	58,0
37	69,7
38	83,7
39	97,7
40	11,3+1
$_{47}Ag(т)^{108}_{49}In$ 39,6 мин [99]	
8	79,6−4
9	14,3−3
10	22,0−3
11	30,5−3
12	54,4−3
13	24,5−2
14	10,7−1
15	31,0−1
16	57,0−1
17	86,0−1
18	12,1
19	15,8
20	18,9
21	21,3
22	23,5
24	26,6
26	30,2
28	36,4
30	47,6
32	64,0
34	80,9

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/мкА·ч
36	92,6
38	99,1
40	10,3+1
$^{107}_{47}Ag(т)^{108}_{49}In$ 39,6 мин [99]	
8	79,6−4
9	14,3−3
10	22,0−3
11	30,5−3
12	54,4−3
13	24,5−2
14	10,7−1
15	31,0−1
16	57,0−1
17	86,0−1
18	12,1
19	15,8
20	18,9
21	21,3
22	23,5
24	26,5
28	30,7
32	34,0
36	37,3
40	41,0
$^{109}_{47}Ag(т)^{108}_{49}In$ 39,6 мин [99]	
24	12,9−2
25	44,5−2
26	14,1−1
27	30,5−1
28	57,4−1
29	10,0
30	15,2
31	21,4
32	29,2
33	37,2
34	45,2
36	55,3
40	62,1
$_{47}Ag(т)^{109}_{49}In$ 4,3 ч [99]	
2	11,1−5
3	30,2−5

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
4	85,1−5
5	19,0−4
6	36,6−4
7	66,2−4
8	10,6−3
9	16,8−3
10	25,2−3
11	36,8−3
12	51,2−3
13	70,0−3
14	11,2−2
15	19,5−2
16	42,0−2
17	80,8−2
18	14,5−1
19	26,4−1
20	43,9−1
21	68,5−1
22	97,5−1
23	13,3
24	17,9
25	23,0
26	29,0
27	35,3
28	43,1
29	50,1
30	58,3
31	65,8
32	71,8
36	87,5
40	94,4
$^{107}_{47}Ag(т)^{109}_{49}In$ 4,3 ч [99]	
2	11,1−5
3	30,2−5
4	85,1−5
5	19,0−4
6	36,6−4
7	66,2−4
8	10,6−3
9	16,8−3
10	25,2−3
11	36,8−3
12	51,2−3
13	70,0−3
14	94,0−3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
15	12,4−2
16	16,0−2
17	20,8−2
18	26,4−2
19	32,8−2
20	40,1−2
21	48,5−2
22	57,3−2
23	67,1−2
24	77,5−2
25	87,7−2
26	99,4−2
28	12,1−1
30	14,1−1
32	16,0−1
36	19,1−1
40	21,6−1
$^{109}_{47}Ag(т)^{109}_{49}In$ 4,3 ч [99]	
14	18,2−3
15	71,0−3
16	26,0−2
17	60,0−2
18	11,8−1
19	23,1−1
20	39,9−1
21	63,8−1
22	91,8−1
23	12,6
24	17,1
25	22,1
26	28,0
27	34,2
28	41,9
29	48,8
30	56,9
31	64,3
32	70,2
34	79,8
36	85,3
40	92,3
$_{47}Ag(т)^{110m}_{49}In$ 4,9 ч [99]	
10	24,0−4
11	36,3−4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/ (мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
12	79,6−4	18	48,8−4	21	18,2+1
13	27,0−3	19	62,1−4	22	21,7+1
14	84,4−3	20	78,8−4	24	26,6+1
15	18,5−2	21	96,3−4		
16	34,7−2	22	11,5−3	$_{48}Cd(p)\,^{110m}_{49}In$	
17	57,0−2	23	13,5−3	4,9 ч [103, 105]	
18	82,7−2	24	15,4−3		
19	11,5−1	25	17,4−3	5	40,0−5
20	15,1−1	26	19,5−3	6	28,3−3
21	18,5−1	28	23,5−3	7	12,9−2
22	22,1−1	30	27,3−3	8	32,8−2
24	27,5−1	32	31,0−3	9	69,9−2
28	35,1−1	34	34,7−3	10	13,4−1
32	40,4−1	36	38,4−3	11	25,8−1
40	47,3−1	40	46,2−3	12	49,0−1
				13	86,5−1
$_{47}Ag(T)\,^{110}_{47}In$		$^{110}_{48}Cd(p)\,^{109}_{48}Cd$ (к.)		14	13,9
69,1 мин [99]		453 сут [103]		15	20,9
				16	29,3
8	43,7−4	12	13,8−6	17	39,1
9	12,0−3	13	10,3−5	18	50,9
10	25,0−3	14	87,8−5	19	64,7
11	40,2−3	15	61,3−4	20	80,9
12	63,5−3	16	16,2−3	21	99,7
13	21,1−2	17	27,8−3	22	12,0+1
14	62,2−2	18	39,6−3	23	13,6+1
15	15,8−1			24	15,1+1
16	29,6−1	$^{110}_{48}Cd(p)\,^{109}_{48}Cd$			
17	44,8−1	453 сут [103]		$^{110}_{48}Cd(p)\,^{110m}_{49}In$	
18	59,5−1			4,9 ч [105]	
19	73,8−1	12	13,8−6		
20	85,3−1	13	29,6−6	5	40,0−5
22	10,2	14	75,7−6	6	28,3−3
24	11,4	15	53,6−5	7	12,9−2
32	14,7	16	14,2−4	8	32,8−2
40	16,9	17	21,8−4	9	69,9−2
		18	30,3−4	10	13,4−1
$_{47}Ag(T)\,^{111}_{49}In$				11	25,8−1
2,802 сут [99]		$^{110}_{48}Cd(p)\,^{109}_{49}In$		12	49,0−1
		4,3 ч [104]		13	84,4−1
10	37,0−6			14	12,5
11	12,0−5	13	18,5−2	15	16,8
12	37,0−5	14	30,4−1	16	20,7
13	75,7−5	15	13,0	17	23,9
14	12,2−4	16	29,9	18	26,6
15	18,4−4	17	52,3	19	28,8
16	27,0−4	18	79,2	20	30,6
17	37,3−4	19	11,0+1	22	33,5
		20	14,5+1	24	35,5

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/ (мкА·ч)	Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
		15	53,0+1	27	35,1+1
$^{111}_{48}Cd(p)\,^{110m}_{49}In$		16	64,5+1	28	50,7+1
4,9 ч [105]		17	75,9+1	29	70,8+1
		18	87,7+1	30	92,3+1
13	20,9−2	19	99,7+1	31	11,7+2
14	13,9−1	20	11,1+2	32	13,9+2
15	40,6−1	22	13,4+2	33	15,9+2
16	85,7−1	24	15,6+2	34	18,3+2
17	15,2			36	22,1+2
18	24,3	$^{110}_{48}Cd(p)\,^{110}_{49}In$			
19	35,9	69,1 мин [105]		$_{48}Cd(p)\,^{111}_{49}In$	
20	50,2			2,802 сут [103]	
21	67,5	5	18,0−2		
22	86,0	6	39,3−1	4	14,6−3
23	10,1+1	7	13,7	5	68,2−3
24	11,0+1	8	31,7	6	28,9−2
		9	62,8	7	60,2−2
$^{112}_{48}Cd(p)\,^{110m}_{49}In$		10	11,0+1	8	10,9−1
4,9 ч [103]		11	17,4+1	9	17,1−1
		12	24,4+1	10	25,9−1
22	96,7−3	13	31,7+1	11	40,3−1
23	24,0−2	14	38,2+1	12	59,3−1
24	58,8−1	16	46,0+1	13	85,8−1
25	16,2	20	49,6+1	14	12,0
26	34,0	24	52,3+1	15	15,8
27	58,5			16	20,1
28	87,0	$^{111}_{48}Cd(p)\,^{110}_{49}In$		17	25,2
29	12,7+1	69,1 мин [105]		18	31,7
30	16,7+1			19	37,3
31	21,5+1	13	91,8−1	20	45,6
32	26,1+1	14	40,0	21	52,6
33	30,8+1	15	10,0+1	22	60,8
34	36,4+1	16	18,5+1	24	74,9
35	40,5+1	17	28,3+1		
36	46,8+1	18	39,0+1	$^{111}_{48}Cd(p)\,^{111}_{49}In$	
		19	50,1+1	2,802 сут [103]	
$_{48}Cd(p)\,^{110}_{49}In$		20	61,4+1		
69,1 мин [105]		21	72,2+1	4	14,6−3
		22	82,5+1	5	66,0−3
5	18,0−2	24	10,0+2	6	28,9−2
6	39,3−1			7	63,8−2
7	13,7	$^{112}_{48}Cd(p)\,^{110}_{49}In$		8	10,9−1
8	31,7	69,1 мин [103]		9	17,2−1
9	62,8			10	25,8−1
10	11,0+1	22	86,2−2	11	36,6−1
11	17,4+1	23	19,3	12	48,7−1
12	24,4+1	24	39,5	13	62,8−1
13	32,6+1	25	94,0	14	77,0−1
14	42,2+1	26	20,6+1	15	87,0−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
16	97,3−1
18	12,1
20	13,9
22	15,1
24	15,7
$^{112}_{48}Cd(p)^{111}_{49}In$ 2,802 сут [103]	
10	45,6−3
11	22,8−2
12	10,6−1
13	22,6−1
14	42,7−1
15	71,2−1
16	10,4
17	14,6
18	19,6
19	25,5
20	31,7
21	39,1
22	45,6
23	53,4
24	59,2
26	70,5
28	79,0
30	84,7
34	90,7
38	94,6
$_{48}Cd(p)^{112m}_{49}In$ 20,9 мин [105]	
4	95,0−4
5	33,6−2
6	34,2−1
7	18,4
8	66,9
9	16,2+1
10	31,3+1
11	51,9+1
12	79,1+1
13	11,2+2
14	14,9+2
15	18,7+2
16	22,5+2
17	26,3+2
18	30,0+2
20	37,3+2
22	44,4+2
24	49,4+2
$^{112}_{48}Cd(p)^{112m}_{49}In$ 20,9 мин [105]	
4	95,0−4
5	33,6−2
6	34,2−1
7	18,4
8	66,9
9	16,2+1
10	31,3+1
11	51,6+1
12	75,6+1
13	10,1+2
14	12,5+2
15	14,5+2
16	16,1+2
18	18,4+2
20	19,9+2
24	21,6+2
$^{113}_{48}Cd(p)^{112m}_{49}In$ 20,9 мин [105]	
10	97,0−3
11	66,9−1
12	35,3
13	10,7+1
14	23,8+1
15	41,9+1
16	64,0+1
17	89,2+1
18	11,7+2
19	14,5+2
20	17,4+2
21	20,5+2
22	23,4+2
24	27,8+2
$_{48}Cd(p)^{112g}_{49}In$ 14,4 мин [103, 105]	
4	13,8−1
5	13,0
6	57,0
7	17,1+1
8	39,8+1
9	75,4+1
10	12,0+2
11	17,1+2
12	23,1+2
13	30,1+2
14	37,4+2
15	44,4+2
16	51,0+2
18	63,8+2
20	76,2+2
22	87,7+2
24	96,6+2
$^{112}_{48}Cd(p)^{112g}_{49}In$ 14,4 мин [105]	
4	13,8−1
5	13,0
6	57,0
7	17,1+1
8	39,8+1
9	75,4+1
10	12,0+2
11	17,0+2
12	22,2+2
13	27,3+2
14	31,7+2
16	37,2+2
18	40,2+2
20	42,3+2
24	44,7+2
$^{113}_{48}Cd(p)^{112g}_{49}In$ 14,4 мин [105]	
10	14,1−1
11	14,6
12	90,4
13	27,8+1
14	57,2+1
15	94,8+1
16	13,8+2
17	18,6+2
18	23,6+2
19	28,8+2
20	33,9+2
22	43,9+2
24	51,9+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{48}Cd(p)^{113m}_{49}In$ 1,658 ч [104]	
4	20,6−3
5	14,2−2
6	15,4−1
7	52,3−1
8	11,7
9	21,5
10	34,6
11	56,6
12	87,2
13	12,5+1
14	17,1+1
15	22,4+1
16	28,1+1
17	34,1+1
18	40,3+1
20	51,5+1
22	59,7+1
24	64,5+1
$^{113}_{48}Cd(p)^{113m}_{49}In$ 1,658 ч [104]	
4	20,6−3
5	14,2−2
6	15,4−1
7	52,3−1
8	11,7
9	21,5
10	33,4
11	46,6
12	60,1
13	71,7
14	80,7
16	89,7
18	93,6
20	97,1
24	10,2+1
$^{114}_{48}Cd(p)^{113m}_{49}In$ 1,658 ч [104]	
9	44,0−3
10	11,4−1
11	10,0
12	27,1
13	53,5
14	90,0
15	13,7+1
16	19,2+1
17	25,0+1
18	30,9+1
20	41,8+1
22	49,7+1
24	54,3+1
$_{48}Cd(p)^{114m}_{49}In$ 49,51 сут [106]	
8	92,5−4
9	29,4−3
10	94,7−3
11	15,2−2
12	20,3−2
13	24,0−2
14	26,6−2
16	31,4−2
18	35,2−2
20	38,2−2
24	43,5−2
$_{48}Cd(p)^{115m}_{49}In$ 4,486 ч [104]	
8	40,0−3
9	53,1−2
10	21,2−1
11	48,9−1
12	90,1−1
13	14,5
14	21,4
15	29,2
16	37,6
17	46,3
18	54,8
19	63,0
20	70,6
22	84,2
24	94,4
$_{48}Cd(p)^{116m}_{49}In$ 54,15 мин [104]	
4	45,0−4
5	10,1−2
6	88,6−2
7	29,3−1
8	81,9−1
9	18,5
10	32,6
11	47,5
12	57,1
14	67,8
16	74,3
18	79,1
20	83,5
24	90,3
$_{48}Cd(d)^{111}_{49}In$ 2,802 сут [106]	
8	55,5−2
9	11,4−1
10	20,3−1
11	33,6−1
12	48,3−1
13	65,2−1
14	85,8−1
15	10,1
16	11,8
17	14,1
18	16,7
19	20,2
20	24,5
22	32,3
24	40,1
$_{48}Cd(d)^{114m}_{49}In$ 49,51 сут [106]	
8	66,6−4
9	22,9−3
10	77,0−3
11	16,0−2
12	26,4−2
13	36,5−2
14	46,9−2
15	57,4−2
16	65,0−2
17	73,6−2
18	81,0−2
20	97,2−2
22	11,3−1
24	12,7−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{48}Cd(\alpha)^{113}_{50}Sn$ 115,1 сут [107]	
12	29,6–4
13	32,0–4
14	34,6–4
15	38,0–4
16	42,0–4
17	46,1–4
18	51,8–4
19	57,8–4
20	66,6–4
21	76,5–4
22	89,0–4
23	10,4–3
24	12,3–3
25	14,2–3
26	16,1–3
27	18,5–3
28	20,9–3
29	23,8–3
30	27,8–3
31	30,8–3
32	36,1–3
33	40,0–3
34	46,1–3
35	51,9–3
36	58,3–3
37	66,5–3
38	76,6–3
39	85,8–3
40	98,6–3
41	11,6–2
42	13,4–2
43	16,1–2
44	19,7–2
45	24,0–2
46	29,2–2
48	34,3–2
$_{48}Cd(\alpha)^{117m}_{50}Sn$ 14,0 сут [107]	
10	51,8–4
11	60,2–4
12	72,2–4
13	82,0–4
14	94,4–4
15	11,2–3
16	12,6–3
17	15,3–3
18	18,1–3
19	20,5–3
20	24,0–3
21	27,2–3
22	32,0–3
24	41,6–3
26	52,5–3
28	64,9–3
30	82,3–3
34	14,9–2
36	19,4–2
38	24,9–2
40	34,8–2
42	44,7–2
44	54,6–2
46	64,5–2
48	74,4–2
$_{48}Cd(\tau)^{109}_{48}Cd(к.)$ 453 сут [21]	
14	42,9–4
15	71,8–4
16	10,5–3
17	14,4–3
18	17,5–3
19	22,0–3
20	26,9–3
22	37,8–3
24	48,7–3
26	59,8–3
28	70,9–3
30	82,3–3
32	93,6–3
34	10,5–2
$_{48}Cd(\tau)^{111}_{49}In$ (к.) 2,802 сут [21]	
16	95,2–3
17	14,4–2
18	21,2–2
19	33,1–2
20	47,2–2
21	60,6–2
22	89,4–2
23	10,7–1
24	14,7–1
25	17,7–1
26	20,8–1
28	27,1–1
30	33,2–1
32	39,5–1
34	45,2–1
$_{48}Cd(\tau)^{113}_{50}Sn$ 115,1 сут [21]	
16	12,6–4
17	19,2–4
18	28,9–4
19	41,5–4
20	58,5–4
21	78,8–4
22	10,1–3
23	12,6–3
24	15,5–3
25	18,6–3
26	21,6–3
28	27,6–3
30	33,6–3
32	39,6–3
34	45,5–3
$_{49}In(p)^{113}_{50}Sn$ 115,1 сут [107]	
6	40,7–4
7	67,2–4
8	10,7–3
9	16,9–3
10	24,0–3
11	30,1–3
12	35,5–3
13	40,2–3
14	45,9–3
16	53,3–3
18	59,0–3
20	64,2–3
21	75,0–3
22	10,4–2
23	14,7–2
24	20,7–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{49}In(d)^{113}_{50}Sn$ 115,1 сут [107]	
6	16,6–4
7	29,5–4
8	50,0–4
9	76,4–4
10	11,7–3
11	17,6–3
12	25,2–3
13	33,8–3
14	43,5–3
15	52,2–3
16	62,0–3
17	70,8–3
18	79,6–3
20	92,9–3
22	99,2–3
24	10,2–2
$_{49}In(\alpha)^{117m}_{50}Sn$ 14,0 ч [107]	
14	37,0–4
15	56,5–4
16	83,2–4
17	11,6–3
18	15,2–3
19	19,2–3
20	24,0–3
21	29,5–3
22	36,3–3
23	44,0–3
24	52,7–3
25	62,1–3
26	73,4–3
27	85,8–3
28	10,1–2
29	12,0–2
30	14,1–2
31	16,1–2
32	18,5–2
34	22,3–2
36	26,0–2
40	30,4–2
44	33,0–2
48	34,8–2
$^{124}_{50}Sn(\alpha)^{123m}_{50}Sn$ 40,0 мин [108]	
26	66,6–3
27	99,5–3
28	14,8–2
29	21,8–2
30	31,1–2
31	47,8–2
32	71,8–2
33	10,0–1
34	13,8–1
35	18,3–1
36	23,2–1
37	28,5–1
38	34,8–1
39	41,0–1
40	47,9–1
41	54,6–1
42	62,3–1
44	75,7–1
$^{124}_{50}Sn(\alpha)^{123}_{50}Sn$ 129,2 сут [108]	
26	17,0–6
27	29,0–6
28	46,6–6
29	71,0–6
30	10,7–5
31	15,2–5
32	20,3–5
33	27,2–5
34	34,2–5
35	42,8–5
36	51,8–5
38	63,4–5
40	78,4–5
44	86,8–5
$^{124}_{50}Sn(\alpha)^{125m}_{50}Sn$ 9,52 мин [108]	
26	40,7–4
27	54,5–4
28	70,3–4
29	84,6–4
30	10,7–3
31	18,2–3
32	30,0–3
33	54,0–3
34	93,2–3
35	15,2–2
36	21,9–2
37	30,5–2
38	42,2–2
39	56,8–2
40	73,9–2
41	90,2–2
42	10,6–1
44	13,8–1
$^{124}_{50}Sn(\alpha)^{125}_{50}Sn$ 9,64 сут [108]	
26	15,9–6
27	25,5–6
28	39,6–6
29	56,3–6
30	76,2–6
31	95,0–6
32	12,1–5
33	15,2–5
34	18,5–5
35	22,2–5
36	26,2–5
37	31,5–5
38	37,3–5
39	44,1–5
40	51,0–5
41	58,8–5
42	67,0–5
43	75,2–5
44	83,2–5
$_{50}Sn(\alpha)^{126m}_{51}Sb$ 19,0 мин [108]	
22	11,7–2
23	17,4–2
24	25,3–2
25	34,5–2
26	44,8–2
27	56,8–2
28	70,3–2
29	87,8–2
30	10,7–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
31	13,1–1
32	15,4–1
33	18,0–1
34	20,8–1
36	27,8–1
38	35,5–1
40	42,5–1
44	47,1–1
$_{50}Sn(\alpha)\,^{126g}_{51}Sb$ 12,4 сут [108]	
24	14,1–5
25	28,6–5
26	46,6–5
27	66,0–5
28	92,5–5
29	12,5–4
30	16,5–4
31	21,6–4
32	27,0–4
33	33,8–4
34	40,3–4
35	47,4–4
36	56,3–4
37	64,1–4
38	73,0–4
40	89,3–4
42	10,6–3
44	12,2–3
$_{50}Sn(\alpha)\,^{127}_{51}Sb$ 3,85 сут [108]	
18	42,6–3
19	76,6–3
20	12,4–2
21	19,0–2
22	26,6–2
23	36,4–2
24	49,0–2
25	62,1–2
26	75,1–2
27	90,0–2
28	10,0–1
30	12,2–1
32	14,2–1
34	16,5–1
36	18,6–1
44	22,8–1
$_{50}Sn(\alpha)\,^{118}_{52}Te$ 6,00 сут [109]	
18	18,0–4
19	69,3–4
20	22,4–3
21	44,0–3
22	68,5–3
23	98,2–3
24	13,3–2
25	18,0–2
26	23,7–2
27	31,2–2
28	39,3–2
29	48,9–2
30	59,6–2
31	72,0–2
32	84,4–2
34	11,2–1
36	14,0–1
38	16,6–1
40	19,2–1
44	23,7–1
$_{50}Sn(\alpha)\,^{119m}_{52}Te$ 4,7 сут [109]	
18	13,5–3
19	24,0–3
20	42,4–3
21	67,1–3
22	94,5–3
23	13,0–2
24	16,7–2
25	19,8–2
26	23,2–2
27	26,8–2
28	31,5–2
29	35,5–2
30	40,2–2
31	46,1–2
32	52,6–2
33	59,8–2
34	69,3–2
35	80,2–2
36	95,1–2
38	12,7–1
40	16,7–1
42	20,9–1
44	25,1–1
$_{50}Sn(\alpha)\,^{121m}_{52}Te$ 154 сут [109]	
18	12,2–4
19	24,8–4
20	43,9–4
21	66,8–4
22	89,9–4
23	11,5–3
24	13,7–3
25	16,0–3
26	18,6–3
27	20,3–3
28	22,6–3
29	25,1–3
30	28,4–3
31	32,9–3
32	38,3–3
33	44,0–3
34	50,1–3
35	58,0–3
36	67,8–3
37	75,1–3
38	88,0–3
40	11,0–2
42	13,1–2
43	14,1–2
44	15,1–2
$_{50}Sn(\alpha)\,^{121g}_{52}Te$ 17 сут [109]	
18	41,0–4
19	73,2–4
20	13,4–3
21	20,0–3
22	27,9–3
23	35,1–3
24	42,8–3
25	49,6–3
26	57,4–3
27	64,0–3
28	71,2–3
29	81,0–3
30	92,8–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
31	10,4–2
32	12,1–2
33	13,9–2
34	16,1–2
35	18,7–2
36	21,7–2
37	24,5–2
38	28,2–2
40	35,3–2
42	42,0–2
44	48,2–2
$_{50}Sn(\alpha)\,^{123m}_{52}Te$ 119,7 сут [109]	
16	75,9–5
17	14,7–4
18	23,4–4
19	32,5–4
20	40,0–4
21	47,9–4
22	52,7–4
23	57,9–4
24	60,1–4
25	63,2–4
26	66,2–4
27	70,0–4
28	75,3–4
29	82,8–4
30	93,8–4
31	10,5–3
32	12,4–3
33	14,1–3
34	16,5–3
35	18,9–3
36	21,5–3
38	26,8–3
40	32,2–3
42	37,1–3
44	41,4–3
$^{124}_{50}Sn(\alpha)\,^{125m}_{52}Te$ 57,4 сут [108]	
24	77,7–5
25	18,4–4
26	38,1–4
27	67,1–4
28	10,2–3
29	14,7–3
30	19,8–3
31	25,8–3
32	32,1–3
33	38,5–3
34	45,0–3
36	57,5–3
38	68,6–3
40	78,6–3
42	87,0–3
44	93,5–3
$_{50}Sn(\alpha)\,^{127m}_{52}Te$ 109 сут [108]	
12	38,8–6
13	87,2–6
14	18,9–5
15	33,2–5
16	48,7–5
17	68,8–5
18	88,4–5
19	10,1–4
20	11,4–4
22	13,3–4
24	15,0–4
28	17,8–4
32	20,2–4
36	22,3–4
40	24,5–4
44	26,7–4
$_{50}Sn(\alpha)\,^{127g}_{52}Te$ 9,35 ч [108]	
10	68,4–4
11	11,8–3
12	19,8–3
13	34,0–3
14	54,6–3
15	88,8–3
16	11,9–2
17	14,4–2
18	16,4–2
20	19,2–2
22	21,4–2
24	23,2–2
28	26,0–2
32	29,0–2
36	31,2–2
40	33,4–2
44	35,6–2
$_{51}Sb(p)\,^{121m}_{52}Te$ 154 сут [110]	
6	20,4–4
7	56,0–4
8	14,1–3
9	30,1–3
10	52,7–3
11	80,2–3
12	10,9–2
13	13,0–2
14	15,1–2
16	17,8–2
18	19,5–2
20	20,6–2
24	22,2–2
$_{51}Sb(p)\,^{121g}_{52}Te$ 17 сут [110]	
6	32,4–3
7	98,0–3
8	26,8–2
9	56,2–2
10	90,6–2
11	12,9–1
12	16,5–1
13	19,5–1
14	21,7–1
16	25,0–1
20	28,7–1
24	30,2–1
$_{51}Sb(p)\,^{123m}_{52}Te$ 119,7 сут [110]	
6	28,7–4
7	94,0–4
8	20,4–3
9	36,1–3
10	53,6–3
11	74,8–3
12	94,5–3
13	10,8–2
14	12,0–2
16	13,5–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	15,0−2
24	16,0−2
$_{51}Sb(d)\,^{121m}_{52}Te$ 154 сут [110]	
6	66,6−4
7	13,7−3
8	27,4−3
9	50,0−3
10	79,6−3
11	11,2−2
12	15,7−2
13	21,0−2
14	27,8−2
15	35,6−2
16	44,0−2
17	52,0−2
18	59,9−2
19	64,8−2
20	71,2−2
22	77,9−2
24	82,5−2
$_{51}Sb(d)\,^{121g}_{52}Te$ 17 сут [110]	
6	81,4−3
7	20,9−2
8	43,3−2
9	81,2−2
10	12,2−1
11	18,5−1
12	25,2−1
13	33,6−1
14	40,7−1
15	48,2−1
16	55,5−1
17	64,0−1
18	70,8−1
20	83,3−1
22	93,3−1
24	10,1
$_{51}Sb(d)\,^{123m}_{52}Te$ 119,7 сут [110]	
6	10,4−3
7	19,5−3
8	33,3−3
9	61,8−3
10	10,0−2
11	14,8−2
12	20,3−2
13	27,1−2
14	34,4−2
15	42,3−2
16	48,8−2
18	60,7−2
20	68,1−2
22	72,5−2
24	75,1−2
$_{51}Sb(\alpha)\,^{123}_{53}I$ 13,31 ч [111]	
16	38,8−2
17	68,5−2
18	11,8−1
19	18,7−1
20	27,4−1
21	38,7−1
22	51,8−1
23	67,9−1
24	88,6−1
25	11,0
26	13,8
27	16,5
28	19,6
29	22,4
30	25,9
32	31,7
34	36,4
38	44,2
42	48,9
46	51,4
$_{51}Sb(\alpha)\,^{124}_{53}I$ 4,18 сут [111]	
14	74,0−3
15	10,7−2
16	14,4−2
17	18,0−2
18	21,6−2
19	23,6−2
20	26,3−2
21	28,2−2
22	30,3−2
23	32,5−2
24	34,4−2
25	37,6−2
26	42,2−2
27	48,4−2
28	57,7−2
29	68,7−2
30	86,2−2
31	10,5−1
32	12,8−1
33	15,7−1
34	19,4−1
35	23,7−1
36	28,3−1
38	37,2−1
40	46,1−1
42	53,8−1
46	65,6−1
$_{51}Sb(\alpha)\,^{125}_{53}I$ 60,04 сут [111]	
16	14,8−4
17	24,0−4
18	42,6−4
19	76,2−4
20	12,8−3
21	20,2−3
22	28,9−3
23	40,6−3
24	54,6−3
25	69,0−3
26	82,7−3
28	11,1−2
30	13,5−2
32	15,5−2
36	18,2−2
40	19,0−2
48	19,6−2
$_{51}Sb(\alpha)\,^{126}_{53}I$ 12,93 сут [111]	
12	33,3−4
13	62,0−4
14	10,7−3
15	17,7−3
16	26,6−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
17	36,5−3
18	47,2−3
19	59,0−3
20	71,8−3
21	80,2−3
22	91,6−3
24	11,0−2
28	13,9−2
36	16,7−2
52	17,6−2
$_{51}Sb(\tau)\,^{121}_{53}I$ 2,12 ч [112]	
12	17,8−2
13	41,9−2
14	97,5−2
15	18,8−1
16	33,6−1
17	57,0−1
18	88,7−1
19	13,6
20	19,1
21	26,8
22	35,1
23	44,5
24	56,8
25	69,0
26	83,9
27	96,8
28	11,0+1
30	13,7+1
$_{51}Sb(\tau)\,^{124}_{53}I$ 4,18 сут [112]	
12	21,6−3
13	33,3−3
14	47,0−3
15	60,8−3
16	75,4−3
17	90,2−3
18	10,5−2
19	12,0−2
20	13,6−2
22	16,5−2
24	19,2−2
26	21,5−2
28	23,7−2
30	25,3−2
$_{52}Te(p)\,^{121}_{53}I$ 2,12 ч [154]	
13	35,9−3
14	77,6−2
15	37,4−1
16	10,0
17	20,4
18	33,3
19	48,5
20	66,6
21	86,2
22	10,8
23	13,3
24	15,9
25	18,8
26	21,8
28	27,8
30	33,5
32	38,4
34	42,1
36	45,5
$_{52}Te(p)\,^{123}_{53}I$ 13,31 ч [154]	
9	24,8−3
10	95,1−3
11	31,3−2
12	69,8−2
13	14,4−1
14	26,6−1
15	45,5−1
16	75,4−1
17	12,5
18	18,1
19	24,6
20	31,6
21	39,4
22	48,6
23	59,9
24	74,0
25	89,5
26	10,8+1
27	12,6+1
28	14,5+1
29	16,3+1
30	18,2+1
31	20,1+1
32	22,1+1
34	26,6+1
36	31,2+1
$^{124}_{52}Te(p)\,^{123}_{53}I$ 13,31 ч [154]	
12	12,1−3
13	18,4−2
14	85,4−2
15	25,8−1
16	55,5−1
17	10,8
18	17,0
19	24,8
20	33,4
21	42,5
22	51,8
23	61,1
24	70,1
25	78,2
26	85,3
28	95,4
30	10,2+1
$_{52}Te(p)\,^{124}_{53}I$ 4,18 сут [154]	
8	55,7−4
9	46,4−3
10	18,4−2
11	41,8−2
12	70,3−2
13	96,9−2
14	14,1−1
15	19,2−1
16	28,8−1
17	38,8−1
18	49,9−1
19	61,7−1
20	73,9−1
21	86,5−1
22	99,5−1
23	11,3
24	12,7
25	14,4
26	16,8

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
27	19,8
28	23,2
29	26,8
30	30,9
32	39,6
34	48,5
36	57,4
$^{124}_{52}Te(p)^{124}_{53}I$ 4,18 сут [154]	
8	55,7–4
9	46,4–3
10	18,4–2
11	40,7–2
12	66,6–2
13	85,1–2
14	11,5–1
15	13,9–1
16	15,7–1
18	17,8–1
20	19,5–1
22	20,9–1
26	23,2–1
30	25,2–1
$^{52}Te(p)^{125}_{53}I$ 60,04 сут [111]	
8	20,7–3
9	32,0–3
10	48,8–3
11	75,2–3
12	11,3–2
13	16,8–2
14	23,4–2
15	32,2–2
16	41,8–2
17	52,4–2
18	63,2–2
19	75,0–2
20	87,8–2
22	11,1–1
24	13,7–1
$^{52}Te(p)^{126}_{53}I$ 12,93 сут [154]	
10	33,4–3
11	13,3–2
12	30,7–2
13	52,9–2
14	78,8–2
15	10,5–1
16	13,0–1
17	15,3–1
18	17,2–1
19	18,8–1
20	20,0–1
21	21,6–1
22	25,3–1
23	32,7–1
24	44,1–1
25	58,9–1
26	78,6–1
27	10,1
28	12,7
29	15,4
30	18,2
31	21,0
32	23,6
34	27,9
36	31,0
$^{52}Te(p)^{128}_{53}I$ 25 мин [154]	
9	18,4–1
10	53,6
11	20,5+1
12	42,4+1
13	62,3+1
14	77,5+1
15	89,0+1
16	10,0+2
17	11,2+2
18	12,4+2
19	13,9+2
20	15,8+2
21	18,3+2
22	22,6+2
23	30,0+2
24	41,1+2
25	54,0+2
26	68,5+2
27	83,3+2
28	98,1+2
30	12,7+3
32	15,0+3
34	16,7+3
36	18,0+3
$^{52}Te(p)^{130}_{53}I$ 12,36 ч [154]	
9	14,7–2
10	20,0–1
11	71,8–1
12	14,2
13	20,5
14	24,9
15	28,3
16	30,9
18	35,3
20	39,2
22	43,0
24	46,7
28	54,1
32	61,4
36	67,6
$^{52}Te(d)^{123}_{53}I$ 13,31 ч [111]	
8	32,6–2
9	64,2–2
10	11,2–1
11	16,8–1
12	23,2–1
13	28,9–1
14	36,3–1
15	42,5–1
16	50,0–1
17	58,1–1
18	67,4–1
19	77,8–1
20	89,7–1
21	11,7
22	14,3
23	16,4
24	18,4
$^{52}Te(d)^{124}_{53}I$ 4,18 сут [111]	
8	74,0–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
9	21,5–3
10	64,4–3
11	14,4–2
12	25,7–2
13	43,5–2
14	68,4–2
15	10,0–1
16	13,7–1
17	18,3–1
18	23,0–1
19	28,1–1
20	33,9–1
22	46,4–1
24	59,6–1
$^{52}Te(d)^{125}_{53}I$ 60,04 сут [111]	
8	33,3–4
9	55,0–4
10	92,5–4
11	13,9–3
12	19,5–3
13	29,0–3
14	41,4–3
15	55,8–3
16	74,0–3
17	10,0–2
18	12,9–2
19	16,5–2
20	20,4–2
21	25,2–2
22	30,3–2
24	41,8–2
$^{52}Te(d)^{126}_{53}I$ 12,93 сут [111]	
8	14,4–2
9	22,5–2
10	43,7–2
11	59,1–2
12	79,6–2
13	10,4–1
14	13,0–1
15	15,9–1
16	19,2–1
17	22,6–1
18	25,2–1
20	30,0–1
22	33,4–1
24	35,2–1
$^{52}Te(d)^{130}_{53}I$ 12,36 ч [111]	
8	71,8–1
9	12,3
10	19,6
11	27,9
12	38,6
13	48,0
14	59,6
15	70,2
16	79,4
17	88,2
18	96,6
20	11,1+1
24	12,8+1
$^{52}Te(d)^{131}_{53}I$ 8,054 сут [111]	
8	19,2–2
9	39,3–2
10	66,6–2
11	98,2–2
12	13,1–1
13	16,5–1
14	19,2–1
15	22,0–1
16	25,0–1
18	30,0–1
22	38,4–1
24	41,5–1
$^{122}_{52}Te(d)^{120m}_{51}Sb$ 57,6 сут [166]	
12	13,0–6
13	42,5–6
14	11,1–5
15	23,6–5
16	44,1–5
17	79,4–5
18	13,7–4
19	21,1–4
20	29,5–4
21	38,4–4
22	48,0–4
23	57,2–4
24	67,2–4
25	77,0–4
26	86,1–4
28	10,5–3
30	12,4–3
32	14,2–3
34	16,1–3
38	19,8–3
42	23,5–3
$^{122}_{52}Te(d)^{121m}_{52}Te$ 154 сут [166]	
12	70,0–7
13	13,7–6
14	23,0–6
15	32,8–6
16	46,0–6
17	66,7–6
18	97,5–6
19	14,2–5
20	20,0–5
21	29,6–5
22	41,8–5
23	59,4–5
24	83,3–5
25	11,7–4
26	15,8–4
27	21,0–4
28	26,9–4
30	38,3–4
32	49,6–4
34	60,5–4
38	81,2–4
42	10,1–3
$^{122}_{52}Te(d)^{120g}_{52}Te$ 17 сут [166]	
12	17,0–5
13	31,7–5
14	55,2–5
15	89,3–5
16	14,0–4
17	21,6–4
18	32,4–4
19	51,8–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	83,5–4
21	13,4–3
22	20,3–3
23	29,8–3
24	43,0–3
25	58,8–3
26	77,9–3
27	99,3–3
28	12,2–2
29	14,4–2
30	16,6–2
32	20,6–2
34	24,4–2
38	31,7–2
42	39,0–2
$^{122}_{52}Te(d)^{123m}_{52}Te$ 119,7 сут [166]	
12	24,0–6
13	12,5–5
14	31,6–5
15	65,2–5
16	11,0–4
17	16,1–4
18	22,3–4
19	28,1–4
20	34,0–4
21	39,4–4
22	44,6–4
24	53,7–4
26	61,5–4
30	73,6–4
34	81,6–4
42	90,6–4
$^{122}_{52}Te(d)^{121}_{53}I$ 2,12 ч [166]	
18	91,0–4
19	28,2–3
20	86,5–3
21	24,0–2
22	51,0–2
23	10,4–1
24	19,1–1
25	32,2–1
26	51,0–1
27	79,4–1
28	11,8
29	16,1
30	20,0
32	27,8
34	34,7
36	42,0
38	48,7
42	59,8
46	66,3
50	68,4
$^{122}_{52}Te(d)^{122}_{53}I$ 3,62 мин [166]	
10	63,0–4
11	26,9–2
12	19,9–1
13	81,0–1
14	25,8
15	68,7
16	14,1+1
17	24,4+1
18	36,9+1
19	50,4+1
20	63,9+1
21	76,9+1
22	89,2+1
23	10,1+2
24	11,1+2
26	13,0+2
28	14,5+2
30	15,8+2
34	17,8+2
42	21,3+2
50	23,1+2
$^{122}_{52}Te(d)^{123}_{53}I$ 13,31 ч [166]	
8	10,9–3
9	91,0–3
10	23,3–2
11	50,2–2
12	86,5–2
13	12,1–1
14	15,2–1
15	18,0–1
16	20,5–1
18	24,5–1
20	27,6–1
22	30,7–1
26	34,8–1
34	44,8–1
42	50,8–1
50	55,2–1
$^{122}_{52}Te(\alpha)^{123}_{53}I$ (к.) 13,31 ч [111]	
14	48,1–5
15	94,0–5
16	18,5–4
17	36,5–4
18	62,9–4
19	77,0–4
20	88,2–4
21	96,8–4
22	10,4–3
23	11,8–3
24	13,5–3
25	15,8–3
26	19,2–3
27	22,2–3
28	26,6–3
29	32,8–3
30	40,7–3
31	49,5–3
32	61,8–3
33	79,2–3
34	10,5–2
35	14,2–2
36	19,6–2
37	26,7–2
38	35,5–2
39	51,0–2
40	68,1–2
41	87,2–2
42	10,9–1
43	13,2–1
44	15,5–1
46	19,8–1
48	24,0–1
50	28,1–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{52}Te(\alpha)^{124}_{53}I$ 4,18 сут [111]	
18	20,0–5
19	59,1–5
20	10,7–4
21	14,5–4
22	18,3–4
23	25,0–4
24	28,1–4
25	34,2–4
26	41,0–4
27	48,1–4
28	55,5–4
29	65,1–4
30	75,0–4
31	85,2–4
32	98,0–4
33	11,1–3
34	12,9–3
35	14,8–3
36	16,9–3
37	19,1–3
38	22,1–3
40	29,1–3
42	38,8–3
44	48,7–3
46	58,8–3
$^{52}Te(\alpha)^{125}_{53}I$ (к.) 60,04 сут [111]	
16	23,7–5
17	30,8–5
18	42,9–5
19	61,9–5
20	91,8–5
21	11,7–4
22	15,2–4
23	18,7–4
24	22,5–4
25	26,1–4
26	30,2–4
27	35,1–4
28	40,1–4
29	45,5–4
30	50,9–4
31	57,8–4
32	64,8–4
33	73,7–4
34	82,9–4
35	95,2–4
36	10,9–3
37	12,5–3
38	14,7–3
40	20,1–3
42	26,0–3
44	32,1–3
46	37,8–3
$^{52}Te(\alpha)^{126}_{53}I$ 12,93 сут [111]	
14	20,0–6
15	42,0–6
16	84,2–6
17	17,3–5
18	34,0–5
19	37,2–5
20	38,6–5
21	40,1–5
22	42,0–5
23	50,1–5
24	60,0–5
25	72,6–5
26	92,0–5
27	11,1–4
28	14,2–4
29	17,3–4
30	22,4–4
31	29,1–4
32	39,0–4
33	50,2–4
34	65,0–4
35	81,8–4
36	97,0–4
37	11,7–3
38	13,9–3
39	16,7–3
40	19,6–3
41	23,6–3
42	27,8–3
44	38,2–3
46	49,4–3
$^{52}Te(\alpha)^{130}_{53}I$ 12,36 ч [111]	
16	81,4–4
17	10,7–3
18	13,9–3
19	17,4–3
20	21,5–3
21	25,0–3
22	27,4–3
23	32,7–3
24	37,7–3
25	46,4–3
26	57,0–3
27	68,8–3
28	84,4–3
29	10,0–2
30	12,2–2
31	15,3–2
32	19,5–2
33	24,0–2
34	29,6–2
35	37,2–2
36	46,0–2
37	57,0–2
38	68,8–2
39	81,9–2
40	94,3–2
42	11,0–1
44	14,3–1
46	16,8–1
$^{52}Te(\alpha)^{131}_{53}I$ (к.) 8,054 сут [111]	
18	14,8–4
19	21,9–4
20	31,4–4
21	43,5–4
22	57,4–4
23	75,1–4
24	94,4–4
25	11,1–3
26	12,6–3
27	14,5–3
28	16,8–3
29	19,2–3
30	22,2–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
31	25,6–3
32	30,3–3
33	34,5–3
34	40,7–3
35	46,5–3
36	55,5–3
37	64,1–3
38	76,4–3
39	91,2–3
40	10,8–2
41	12,4–2
42	14,4–2
43	16,8–2
44	19,6–2
46	25,1–2
$^{}_{52}\mathrm{Te}(\alpha)^{132}_{53}\mathrm{I}$ 2,30 ч [111]	
16	31,1–3
17	38,2–3
18	48,8–3
19	65,0–3
20	87,3–3
21	11,3–2
22	15,1–2
23	18,9–2
24	24,1–2
25	31,0–2
26	41,1–2
27	54,2–2
28	74,2–2
29	95,6–2
30	12,2–1
31	15,8–1
32	20,0–1
33	25,1–1
34	31,6–1
35	39,1–1
36	47,9–1
38	59,6–1
40	69,5–1
42	77,7–1
44	84,1–1
46	88,8–1

Энергия частиц, МэВ	Выход радионуклида, МБк/ (мкА·ч)
$^{122}_{52}\mathrm{Te}(\alpha)^{123}_{54}\mathrm{Xe}$ 2,08 ч [111, 155]	
28	69,9–5
29	36,4–4
30	19,4–3
31	64,9–3
32	12,9–2
33	27,5–2
34	43,3–2
35	72,1–2
36	98,7–2
37	14,0–1
38	17,9–1
39	22,9–1
40	28,3–1
41	34,6–1
42	40,4–1
43	46,2–1
44	52,9–1
45	58,1–1
46	65,1–1
48	76,2–1
50	85,9–1
$^{123}_{52}\mathrm{Te}(\tau)^{123}_{53}\mathrm{I}$ 13,31 ч [155]	
12	96,5–6
13	36,0–5
14	94,0–5
15	19,4–4
16	35,2–4
17	58,6–4
18	93,1–4
19	14,0–3
20	20,3–3
21	28,3–3
22	38,2–3
23	50,8–3
24	66,0–3
25	84,1–3
26	10,5–2
27	13,0–2
28	15,8–2
29	18,8–2
30	22,0–2
32	27,9–2

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
34	33,2–2
36	37,9–2
38	42,4–2
40	46,8–2
$^{124}_{52}\mathrm{Te}(\tau)^{123}_{53}\mathrm{I}$ 13,31 ч [155]	
20	25,6–5
21	93,8–5
22	23,4–4
23	48,8–4
24	82,9–4
25	13,1–3
26	19,2–3
27	27,0–3
28	36,4–3
29	47,5–3
30	60,0–3
31	73,6–3
32	88,9–3
33	10,5–2
34	12,3–2
35	14,2–2
36	16,2–2
37	18,3–2
38	21,0–2
39	23,9–2
40	27,6–2
41	32,1–2
42	37,8–2
43	45,0–2
44	53,6–2
45	62,8–2
46	72,3–2
47	81,9–2
48	91,5–2
50	11,1–1
52	13,0–1
54	14,8–1
$^{123}_{52}\mathrm{Te}(\tau)^{123}_{54}\mathrm{Xe}$ 2,08 ч [155]	
14	25,8–5
15	17,1–4
16	58,9–4
17	14,6–3
18	30,9–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
19	58,9–3
20	10,5–2
21	16,7–2
22	24,8–2
23	35,0–2
24	46,9–2
25	60,3–2
26	75,4–2
27	92,2–2
28	11,0–1
30	14,5–1
32	17,0–1
34	18,7–1
36	20,0–1
40	22,5–1
$^{124}_{52}\mathrm{Te}(\tau)^{123}_{54}\mathrm{Xe}$ 2,08 ч [155]	
24	85,3–4
25	30,7–3
26	69,1–3
27	12,8–2
28	17,3–2
29	27,7–2
30	40,6–2
31	56,5–2
32	75,6–2
33	98,4–2
34	12,5–1
35	15,6–1
36	19,2–1
37	23,0–1
38	27,6–1
39	32,9–1
40	38,8–1
41	45,5–1
42	53,2–1
43	62,2–1
44	72,3–1
45	84,2–1
46	95,7–1
48	11,4
50	12,8
52	14,1
54	15,2

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{}_{53}\mathrm{I}(p)^{123}_{53}\mathrm{I}$ 13,31 ч [113]	
50	71,5–1
51	19,2
52	39,7
53	66,9
54	98,1
55	13,8+1
56	18,5+1
57	23,6+1
58	29,5+1
59	35,1+1
60	42,1+1
61	48,5+1
62	55,9+1
63	63,3+1
64	70,0+1
66	83,9+1
68	97,4+1
70	11,0+2
72	12,3+2
76	14,6+2
80	16,7+2
$^{}_{53}\mathrm{I}(p)^{124}_{53}\mathrm{I}$ 4,18 сут [113]	
40	68,2–3
41	15,8–2
42	30,6–2
43	55,7–2
44	87,8–2
45	13,0–1
46	18,3–1
47	24,5–1
48	32,0–1
49	40,1–1
50	50,0–1
51	59,4–1
52	72,4–1
53	83,6–1
54	99,3–1
55	11,2
56	13,0
58	16,4
60	20,1
62	23,9

Энергия частиц, МэВ	Выход радионуклида, МБк /(мкА· ч)
64	28,0
68	35,9
72	43,3
76	49,7
80	55,1
$^{}_{53}\mathrm{I}(p)^{125}_{53}\mathrm{I}$ 60,04 сут [113]	
18	60,6–4
19	92,1–4
20	13,4–3
21	18,8–3
22	25,7–3
23	34,5–3
24	43,9–3
25	55,3–3
26	65,1–3
27	76,6–3
28	87,5–3
29	10,3–2
30	12,0–2
31	14,0–2
32	15,9–2
33	18,6–2
34	22,1–2
35	26,2–2
36	31,3–2
37	37,6–2
38	45,4–2
39	54,2–2
40	64,7–2
41	75,7–2
42	88,0–2
43	99,8–2
44	11,5–1
46	14,8–1
48	18,2–1
50	22,4–1
52	26,8–1
54	31,3–1
56	36,0–1
58	41,0–1
62	51,0–1
66	60,7–1
70	70,1–1
74	78,8–1
82	92,7–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{53}I(p)^{126}_{53}I$	
12,93 сут [113]	
14	46,9–3
15	78,3–3
16	12,3–2
17	18,6–2
18	27,1–2
19	36,3–2
20	48,6–2
21	63,5–2
22	81,5–2
23	99,6–2
24	12,8–1
25	15,3–1
26	18,0–1
27	21,2–1
28	24,8–1
29	29,1–1
30	33,5–1
32	43,6–1
34	54,4–1
36	67,8–1
38	81,2–1
40	96,9–1
42	11,4
44	13,2
46	15,1
48	17,1
50	19,2
52	21,5
54	23,8
58	28,3
62	33,0
66	37,6
70	42,1
74	46,5
78	50,7
82	54,7
$_{53}I(p)^{121}_{54}Xe$	
40,1 мин [156]	
56	76,7–2
57	21,7–1
58	43,8–1
59	80,0–1
60	13,5
61	21,5
62	32,4
63	46,4
64	64,5
65	86,9
66	11,4+1
67	14,6+1
68	18,3+1
69	22,7+1
70	28,1+1
71	34,3+1
72	41,4+1
73	49,7+1
74	59,5+1
75	71,0+1
76	85,6+1
77	10,4+2
78	12,6+2
79	15,8+2
80	20,0+2
81	24,8+2
82	29,9+2
83	35,0+2
84	39,8+2
86	48,5+2
88	56,0+2
90	62,9+2
92	69,3+2
94	75,5+2
96	81,3+2
100	92,1+2
102	97,3+2
104	10,2+3
112	12,2+3
120	14,1+3
128	15,9+3
144	19,1+3
160	21,7+3
$_{53}I(p)^{123}_{54}Xe$	
13,31 ч [114, 156]	
36	31,3–2
37	11,7–1
38	26,6–1
39	37,4–1
40	61,1–1
41	12,0
42	29,0
43	60,1
44	11,2+1
45	18,5+1
46	30,2+1
47	45,6+1
48	69,5+1
49	87,8+1
50	13,6+2
51	18,0+2
52	23,2+2
53	38,4+2
54	35,6+2
55	42,2+2
56	49,3+2
57	56,9+2
58	63,4+2
60	76,4+2
62	87,0+2
64	96,6+2
68	11,3+3
72	12,8+3
76	14,3+3
84	16,9+3
92	19,0+3
100	20,8+3
116	24,2+3
132	27,3+3
148	30,1+3
164	32,6+3
$_{53}I(p)^{125}_{54}Xe$	
17,0 ч [156]	
18	65,0–3
19	11,6–1
20	48,2–1
21	16,2
22	43,7
23	82,7
24	13,3+1
25	19,3+1
26	25,9+1
27	33,2+1
28	41,1+1
29	49,5+1
30	58,3+1
31	67,6+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
32	77,1+1
33	86,8+1
34	96,7+1
36	11,7+2
38	13,6+2
42	16,6+2
46	18,6+2
50	20,0+2
58	22,3+2
66	24,0+2
82	27,1+2
98	30,1+2
114	33,0+2
130	36,1+2
146	39,0+2
162	41,8+2
$_{53}I(p)^{127}_{54}Xe$	
36,41 сут [113]	
10	25,7–2
11	49,3–2
12	86,8–2
13	14,3–1
14	21,1–1
15	29,6–1
16	38,1–1
17	45,6–1
18	51,4–1
19	54,1–1
20	54,4–1
22	54,9–1
26	56,1–1
34	57,9–1
50	61,9–1
66	66,6–1
$_{53}I(d)^{119}_{53}I$	
19 мин [157]	
84	11,3–2
85	12,7–1
86	68,2–1
87	24,6
88	60,2
89	12,3+1
90	23,4+1
91	39,4+1
92	59,6+1
93	82,8+1
94	10,8+2
95	13,4+2
96	16,2+2
97	19,1+2
98	22,1+2
$_{53}I(d)^{120}_{53}I$	
81,0 мин [157]	
80	25,5–3
81	13,1–2
82	44,9–2
83	15,9–1
84	54,3–1
85	12,9
86	23,7
87	38,2
88	58,4
89	86,8
90	12,5+1
91	17,2+1
92	22,7+1
93	28,5+1
94	34,6+1
95	41,0+1
96	47,6+1
97	54,4+1
98	61,4+1
$_{53}I(d)^{121}_{53}I$	
2,12 ч [157]	
66	46,8–3
67	20,3–2
68	57,5–2
69	12,1–1
70	21,5–1
71	34,8–1
72	52,2–1
73	73,6–1
74	10,2
75	13,9
76	18,6
77	24,5
78	32,5
79	43,5
80	57,6
81	75,1
82	96,6
83	12,3+1
84	15,7+1
85	19,6+1
86	24,2+1
87	29,4+1
88	35,2+1
89	41,1+1
90	48,1+1
91	55,7+1
92	63,8+1
93	72,4+1
94	81,4+1
95	90,8+1
96	10,0+2
$_{53}I(d)^{123}_{53}I$	
2,08 ч [157]	
52	43,0–2
53	15,2–1
54	35,1–1
55	67,2–1
56	11,5
57	18,3
58	27,6
59	40,0
60	56,1
61	76,4
62	10,2+1
63	13,3+1
64	17,3+1
65	22,4+1
66	28,9+1
67	36,8+1
68	46,0+1
69	56,7+1
70	68,7+1
71	81,6+1
72	95,2+1
72	95,2+1
73	10,9+2
74	12,4+2
76	15,3+2
78	18,3+2
80	21,4+2
82	24,5+2
84	27,6+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
88	34,0+2
92	40,4+2
96	47,1+2
100	54,0+2
$_{53}I(d)\,^{124}_{53}I$ 4,18 сут [157]	
38	40,9−5
39	55,9−4
40	18,2−3
41	40,0−3
42	70,9−3
43	11,2−2
44	16,3−2
45	22,4−2
46	30,0−2
47	41,7−2
48	59,3−2
49	85,6−2
50	12,3−1
51	17,1−1
52	23,0−1
53	30,2−1
54	38,8−1
55	49,0−1
56	60,8−1
57	74,8−1
58	91,1−1
59	11,0
60	13,2
61	15,6
62	18,2
63	21,1
64	24,2
65	27,4
66	30,9
68	38,9
70	47,0
72	56,1
74	65,5
76	75,2
78	85,2
80	95,3
84	11,6+1
88	13,6+1
92	15,7+1
96	17,8+1
100	20,0+1
$_{53}I(d)\,^{126}_{53}I$ 12,93 сут [157]	
16	11,1−5
17	41,1−4
18	16,5−3
19	42,0−3
20	81,9−3
21	13,7−2
22	21,2−2
23	31,2−2
24	44,7−2
25	62,1−2
26	84,5−2
27	11,3−1
28	15,0−1
29	19,6−1
30	25,0−1
31	31,3−1
32	38,4−1
33	46,3−1
34	55,0−1
35	64,4−1
36	74,5−1
37	85,3−1
38	96,8−1
40	12,2
42	15,0
44	18,0
46	21,2
48	24,5
50	28,0
52	31,7
56	38,9
60	45,9
64	52,8
68	59,6
72	66,3
76	72,9
84	86,3
92	99,4
100	11,2+1
$_{53}I(d)\,^{121}_{54}Xe$ 40,1 мин [157]	
72	55,6−3
73	26,8−2
74	82,0−2
75	19,9−1
76	43,0−1
77	85,8−1
78	16,9
79	35,0
80	68,0
81	11,4+1
82	17,5+1
83	24,6+1
84	33,0+1
85	43,1+1
86	55,5+1
87	70,0+1
88	86,8+1
89	10,5+2
90	12,6+2
91	14,8+2
92	17,2+2
93	19,6+2
94	22,2+2
96	27,7+2
98	33,6+2
$_{53}I(d)\,^{122}_{54}Xe$ 20,1 ч [157]	
56	87,5−5
57	11,7−3
58	47,1−3
59	13,0−2
60	29,8−2
61	61,3−2
62	11,7−1
63	20,6−1
64	34,4−1
65	55,2−1
66	84,9−1
67	12,5
68	17,5
69	23,6
70	30,8
71	39,2
72	48,6
73	59,1
74	70,5
75	83,1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
76	97,1
77	11,3+1
78	13,1+1
79	15,4+1
80	18,1+1
81	21,0+1
82	24,1+1
84	30,3+1
86	36,5+1
88	42,4+1
92	53,9+1
96	65,1+1
100	76,3+1
$_{53}I(d)\,^{123}_{54}Xe$ 2,08 ч [157]	
48	11,3−3
49	13,6−2
50	72,8−2
51	21,3−1
52	49,9−1
53	10,1
54	17,2
55	27,6
56	44,1
57	70,1
58	11,2+1
59	17,9+1
60	27,4+1
61	40,9+1
62	60,2+1
63	84,5+1
64	11,3+2
65	14,5+2
66	18,0+2
67	21,7+2
68	25,6+2
69	29,7+2
70	34,0+2
72	42,6+2
74	50,9+2
76	58,8+2
78	66,1+2
80	72,7+2
84	84,8+2
88	94,6+2
92	10,2+3
100	11,3+3
$_{53}I(d)\,^{125}_{54}Xe$ 17,0 ч [157]	
24	95,9−4
25	51,2−3
26	21,1−2
27	87,7−2
28	26,1−1
29	60,9−1
30	12,6
31	25,2
32	46,5
33	76,9
34	11,7+1
35	17,2+1
36	24,0+1
37	31,6+1
38	39,7+1
39	48,2+1
40	57,2+1
41	66,3+1
42	75,4+1
44	92,8+1
48	11,9+2
52	13,9+2
60	16,6+2
68	18,4+2
84	21,0+2
100	23,0+2
$_{53}I(d)\,^{127}_{54}Xe$ 36,41 сут [157]	
6	12,2−5
7	14,4−4
8	65,3−4
9	19,3−3
10	50,4−3
11	12,1−2
12	25,9−2
13	49,6−2
14	86,3−2
15	13,1−1
16	18,1−1
17	23,4−1
18	28,2−1
20	36,2−1
24	46,4−1
28	53,0−1
36	62,9−1
44	70,9−1
52	77,7−1
68	88,9−1
84	98,1−1
100	10,4−1
$_{53}I(\alpha)\,^{127}_{55}Cs$ 6,25 ч [115]	
38	33,3−2
39	82,2−2
40	16,2−1
41	28,0−1
42	41,5−1
43	56,8−1
44	74,7−1
45	92,8−1
46	10,8
47	12,6
48	14,1
$_{53}I(\alpha)\,^{129}_{55}Cs$ 32,06 ч [115]	
18	18,5−2
19	47,0−2
20	98,0−2
21	16,7−1
22	26,6−1
23	37,1−1
24	50,0−1
25	65,7−1
26	82,1−1
27	10,2
28	12,4
30	16,4
32	19,1
36	22,3
40	23,8
48	25,6
$_{55}Cs(p)\,^{133m}_{56}Ba$ 38,9 ч [116]	
7	38,8−2
8	77,7−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
9	15,1–1
10	30,1–1
11	53,1–1
12	79,1–1
13	10,2
14	12,4
16	15,3
20	17,7
24	19,2
$_{55}Cs(p)^{133}_{56}Ba$ 10,73 года [116]	
7	77,7–5
8	15,5–4
9	38,1–4
10	45,9–4
11	74,7–4
12	10,6–3
13	12,9–3
14	15,1–3
16	17,6–3
18	19,4–3
20	20,6–3
24	21,7–3
$_{55}Cs(d)^{133m}_{56}Ba$ 38,9 ч [116]	
8	16,3–1
9	37,7–1
10	61,0–1
11	10,2
12	15,3
13	22,6
14	30,2
15	38,5
16	47,0
17	56,1
18	63,0
20	71,0
22	86,0
24	92,5
$_{55}Cs(d)^{133}_{56}Ba$ 10,73 года [116]	
8	14,8–4
9	36,6–4
10	63,6–4
11	10,6–3
12	16,0–3
13	22,0–3
14	28,5–3
15	35,2–3
16	42,0–3
18	55,9–3
20	67,9–3
22	78,7–3
24	88,5–3
$_{55}Cs(\alpha)^{135m}_{56}Ba$ 28,7 ч [117]	
20	85,0–3
21	88,2–3
22	92,8–3
23	98,2–3
24	10,6–2
25	11,3–2
26	12,6–2
27	19,1–2
28	30,5–2
29	46,9–2
30	67,5–2
31	90,2–2
32	11,6–1
33	13,8–1
34	16,8–1
35	19,1–1
36	22,0–1
38	27,8–1
40	33,7–1
42	40,1–1
44	47,2–1
46	54,0–1
48	61,0–1
$_{57}La(p)^{135m}_{56}Ba$ 28,7 ч [117]	
14	11,1–3
15	18,8–3
16	29,6–3
17	36,5–3
18	40,7–3
19	66,6–3
20	21,5–2
21	15,7–1
22	79,6–1
23	18,8
24	29,4
$_{57}La(p)^{139}_{58}Ce$ 137,64 сут [118]	
6	74,0–4
7	17,9–3
8	42,9–3
9	84,8–3
10	13,6–2
11	18,9–2
12	23,3–2
14	30,6–2
16	34,2–2
20	38,2–2
24	39,7–2
$_{57}La(d)^{139}_{58}Ce$ 137,64 сут [118]	
7	14,1–3
8	41,4–3
9	85,8–3
10	18,1–2
11	30,3–2
12	41,9–2
13	54,7–2
14	67,7–2
15	80,3–2
16	93,2–2
17	10,6–1
18	11,9–1
19	12,5–1
20	14,1–1
21	14,9–1
22	16,0–1
24	17,3–1
$_{57}La(\alpha)^{141}_{58}Ce$ (к.) 32,5 сут [119]	
24	16,8–5
25	44,2–5
26	88,8–5
27	16,8–4
28	27,4–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
29	42,5–4
30	62,2–4
31	86,8–4
32	11,2–3
33	14,3–3
34	17,8–3
35	21,5–3
36	25,5–3
37	30,0–3
38	34,0–3
40	41,3–3
42	46,9–3
46	51,6–3
$_{57}La(\alpha)^{139}_{59}Pr$ 4,42 ч [119]	
36	25,0–3
37	21,8–2
38	15,9–1
39	38,5–1
40	56,6–1
41	72,8–1
42	88,8–1
43	10,4
44	12,1
45	13,7
46	15,4
$_{57}La(\alpha)^{140}_{59}Pr$ 3,39 мин [119]	
26	76,8–1
27	75,0
28	65,7+1
29	17,7+2
30	29,0+2
31	45,3+2
32	65,4+2
33	88,2+2
34	11,3+3
35	14,2+3
36	16,9+3
37	19,8+3
38	22,5+3
40	27,1+3
42	30,2+3
46	34,8+3
$_{57}La(\alpha)^{142}_{59}Pr$ 19,13 ч [119]	
12	11,7–3
13	69,0–3
14	18,7–2
15	35,5–2
16	60,2–2
17	93,2–2
18	12,9–1
19	17,4–1
20	21,4–1
22	26,7–1
24	30,3–1
28	36,4–1
32	41,1–1
36	44,9–1
40	47,2–1
48	50,0–1
$_{63}Eu(d)^{151}_{64}Gd$ 120 сут [120]	
7	34,0–4
8	77,0–4
9	13,9–3
10	22,5–3
11	36,6–3
12	54,9–3
13	83,4–3
14	11,2–2
15	14,8–2
16	18,1–2
17	20,9–2
18	23,3–2
20	27,7–2
22	31,4–2
24	34,4–2
$_{63}Eu(d)^{153}_{64}Gd$ 241,6 сут [120]	
7	13,3–4
8	41,4–4
9	84,4–4
10	15,2–3
11	24,3–3
12	39,2–3
13	57,0–3
14	76,7–3
15	95,2–3
16	11,3–2
18	14,4–2
20	16,8–2
22	18,8–2
24	20,2–2
$_{66}Dy(p)^{155}_{66}Dy$ (к.) 10,0 ч [121]	
58	16,0–2
59	14,7–1
60	12,4
61	24,8
62	39,3
63	58,8
64	87,4
65	12,3+1
66	16,5+1
67	22,5+1
68	30,9+1
69	44,8+1
70	63,9+1
71	85,7+1
72	11,6+2
73	14,7+2
74	18,8+2
75	23,2+2
76	28,2+2
77	34,5+2
78	39,6+2
80	53,4+2
82	69,4+2
84	87,5+2
86	10,7+3
88	12,9+3
90	15,1+3
$_{66}Dy(p)^{157}_{66}Dy$ (к.) 8,1 ч [121]	
30	24,0–3
31	92,0–3
32	35,0–2
33	12,0–1
34	42,3–1
35	69,8–1
36	97,8–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
37	13,0
38	16,8
39	21,2
40	26,4
41	33,1
42	40,4
43	49,4
44	59,8
45	71,7
46	85,4
47	10,2+1
48	12,3+1
49	14,7+1
50	17,4+1
51	20,3+1
52	23,8+1
54	31,8+1
56	41,0+1
58	51,5+1
60	61,8+1
62	73,3+1
64	85,2+1
66	94,3+1
68	10,5+2
70	11,7+2
72	13,4+2
74	15,2+2
76	17,4+2
78	19,8+2
80	22,5+2
82	25,4+2
86	31,3+2
90	37,2+2
$_{66}Dy(p)\,^{159}_{66}Dy$ 144,4 сут [121]	
10	20,0–5
11	74,5–5
12	25,5–4
13	72,8–4
14	12,7–3
15	19,2–3
16	27,8–3
17	39,8–3
18	54,0–3
19	77,8–3
20	10,7–2
21	14,7–2
22	19,6–2
23	26,1–2
24	33,0–2
25	41,2–2
26	51,3–2
27	60,3–2
28	71,6–2
29	83,5–2
30	97,6–2
32	12,3–1
34	15,3–1
36	19,5–1
38	23,4–1
40	28,6–1
42	34,8–1
44	41,5–1
46	48,9–1
48	56,8–1
50	64,1–1
52	72,2–1
54	79,1–1
58	93,8–1
62	10,8
66	12,2
74	14,7
82	17,1
$_{66}Dy(p)\,^{159}_{67}Ho$ 33 мин [121]	
14	20,0–2
15	62,0–2
16	20,2–1
17	62,8–1
18	19,3
19	29,5
20	42,8
21	57,7
22	75,4
23	97,2
24	12,6+1
25	16,0+1
26	20,3+1
27	25,5+1
28	31,7+1
29	39,0+1
30	45,7+1
31	57,2+1
32	67,8+1
33	78,8+1
34	90,3+1
35	12,8+2
36	17,9+2
37	24,2+2
38	32,1+2
39	42,2+2
40	54,1+2
41	66,2+2
42	79,4+2
43	91,8+2
44	10,6+3
45	12,2+3
46	14,3+3
48	17,6+3
50	20,8+3
58	27,9+3
66	31,4+3
82	37,6+3
$_{66}Dy(p)\,^{160m}_{67}Ho$ 5,02 ч [121]	
10	17,0–1
11	46,5–1
12	12,4
13	33,0
14	84,1
15	14,3+1
16	21,5+1
17	29,3+1
18	37,1+1
19	44,5+1
20	52,2+1
21	60,8+1
22	71,4+1
24	85,8+1
26	10,1+2
30	12,6+2
34	14,8+2
38	17,7+2
42	21,9+2
46	27,2+2
54	36,5+2
70	41,3+2
86	45,0+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{66}Dy(p)\,^{160g}_{67}Ho$ 25,6 мин [121]	
10	80,0–2
11	98,0–1
12	62,7
13	15,8+1
14	26,9+1
15	47,5+1
16	70,4+1
17	10,1+2
18	14,0+2
19	18,8+2
20	23,7+2
21	29,9+2
22	35,8+2
23	43,1+2
24	49,6+2
25	57,9+2
26	64,6+2
28	79,7+2
30	94,8+2
32	10,9+3
36	13,7+3
40	16,4+3
$_{66}Dy(p)\,^{161}_{67}Ho$ 2,5 ч [121]	
10	34,2–1
11	12,7
12	47,0
13	16,0+1
14	48,2+1
15	74,0+1
16	93,8+1
17	11,6+2
18	13,8+2
19	16,2+2
20	18,6+2
21	20,8+2
22	23,4+2
24	28,0+2
26	32,5+2
30	41,0+2
34	48,6+2
38	55,4+2
42	61,9+2
50	73,9+2
58	84,7+2
66	93,8+2
82	10,5+3
$_{66}Dy(p)\,^{162}_{67}Ho$ 15 мин [121]	
6	11,6–1
7	76,0–1
8	51,7
9	12,6+1
10	23,6+1
11	41,5+1
12	67,1+1
13	96,8+1
14	13,5+2
15	17,2+2
16	20,2+2
17	24,1+2
18	28,3+2
20	35,4+2
22	42,1+2
24	48,2+2
28	59,3+2
32	68,2+2
36	74,8+2
40	80,6+2
$_{67}Ho(p)\,^{161}_{68}Er$ 3,24 ч [122]	
30	97,8–1
31	48,5
32	18,8+1
33	23,8+1
34	29,8+1
35	38,0+1
36	46,9+1
37	58,3+1
38	72,3+1
39	87,8+1
40	10,7+2
41	12,8+2
42	15,0+2
43	17,7+2
44	20,2+2
46	26,0+2
48	32,4+2
50	39,2+2
52	46,1+2
54	52,7+2
$_{67}Ho(\alpha)\,^{165}_{69}Tm$ 29,6 ч [123]	
34	15,9–2
35	24,0–2
36	37,0–2
37	54,9–2
38	83,2–2
39	12,2–1
40	18,3–1
41	26,2–1
42	37,3–1
43	51,8–1
44	69,6–1
45	92,2–1
46	11,6
47	14,2
48	17,2
49	19,7
50	22,5
52	27,5
56	36,3
$_{67}Ho(\alpha)\,^{166}_{69}Tm$ 7,70 ч [123, 124]	
28	66,6–2
29	20,0–1
30	47,4–1
31	91,2–1
32	15,8
33	24,2
34	34,2
35	45,5
36	58,4
37	71,1
38	85,8
40	11,4+1
42	14,1+1
44	16,9+1
46	19,0+1
50	21,7+1
58	24,5+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{67}Ho(\alpha)\,^{167}_{69}Tm$ 9,25 сут [123, 124]	
18	61,0–3
19	11,5–2
20	19,1–2
21	33,2–2
22	52,4–2
23	74,1–2
24	97,9–2
25	12,1–1
26	14,8–1
27	17,3–1
28	19,9–1
29	21,8–1
30	23,8–1
32	27,0–1
36	31,0–1
44	36,4–1
52	42,0–1
60	45,2–1
$_{67}Ho(\alpha)\,^{168}_{69}Tm$ 93,1 сут [124]	
16	44,4–5
17	93,8–5
18	16,8–4
19	28,5–4
20	41,1–4
21	58,6–4
22	78,4–4
23	97,3–4
24	11,1–3
26	13,2–3
28	14,8–3
32	17,2–3
36	18,9–3
40	19,9–3
48	20,8–3
$_{68}Er(p)\,^{157}_{66}Dy$ (к.) 8,1 ч [125]	
60	19,8–3
61	49,0–3
62	12,2–2
63	27,2–2
64	49,7–2
65	85,2–2
66	13,3–1
67	19,8–1
68	28,1–1
69	38,0–1
70	50,8–1
71	65,9–1
72	80,8–1
73	98,8–1
74	12,0
75	14,2
76	16,5
77	19,0
78	21,6
79	24,2
80	27,3
82	33,6
84	40,4
86	47,6
88	55,1
$_{68}Er(p)\,^{159}_{66}Dy$ (к.) 144,4 сут [125]	
66	25,9–4
67	66,8–4
68	13,2–3
69	22,8–3
70	35,6–3
71	52,7–3
72	70,5–3
73	94,2–3
74	11,8–2
75	14,7–2
76	17,8–2
77	21,2–2
78	25,2–2
80	33,3–2
82	41,9–2
84	50,6–2
86	59,1–2
87	63,2–2
88	67,3–2
$_{68}Er(p)\,^{160m}_{67}Ho$ 5,02 ч [125]	
48	27,1–3
49	54,0–3
50	11,2–2
51	25,5–2
52	57,2–2
53	10,9–1
54	19,3–1
55	31,1–1
56	46,6–1
57	67,8–1
58	86,6–1
59	13,2
60	18,0
61	23,1
62	30,1
63	37,9
64	46,0
65	56,2
66	65,7
67	76,8
68	89,5
70	11,5+1
72	14,2+1
74	16,8+1
76	19,4+1
78	22,0+1
80	25,0+1
84	31,9+1
88	40,0+1
$_{68}Er(p)\,^{161}_{67}Ho$ 2,5 ч [125]	
44	50,8–3
45	40,0–2
46	26,3–1
47	63,0–1
48	11,3
49	19,4
50	29,3
51	42,9
52	61,0
53	84,6
54	11,2+1
55	14,5+1
56	18,8+1
57	23,8+1
58	29,8+1
59	36,9+1
60	44,9+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
61	53,7+1
62	63,6+1
63	74,0+1
64	85,7+1
66	11,0+2
68	13,6+2
70	16,4+2
72	19,1+2
74	21,8+2
78	27,0+2
$_{68}Er(p)\,^{161}_{68}Er$ (к.) 3,24 ч [125]	
22	46,7–3
23	15,8–2
24	51,0–2
25	16,5–1
26	42,4–1
27	61,2–1
28	83,0–1
29	10,7
30	13,7
31	16,8
32	20,2
33	24,5
34	29,2
35	35,0
36	40,9
37	46,8
38	54,5
39	60,0
40	67,9
41	75,8
42	84,9
44	10,5+1
46	13,0+1
48	15,6+1
50	20,0+1
52	26,8+1
54	37,2+1
56	53,2+1
58	76,2+1
60	10,7+2
62	15,7+2
64	21,8+2
66	30,2+2
68	38,7+2
70	48,2+2
72	57,2+2
74	65,2+2
76	72,8+2
78	80,4+2
82	94,4+2
86	10,8+3
$_{68}Er(p)\,^{160}_{68}Er$ (к.) 28,58 ч [125]	
40	41,0–4
41	29,5–3
42	19,9–2
43	42,0–2
44	73,2–2
45	10,6–1
46	14,7–1
47	19,9–1
48	26,1–1
49	33,0–1
50	40,8–1
51	50,2–1
52	64,0–1
53	82,6–1
54	10,8
55	14,1
56	18,4
57	22,7
58	27,5
60	37,4
62	48,6
64	61,8
66	77,7
68	97,5
70	12,2+1
72	15,4+1
74	19,1+1
76	23,6+1
78	28,8+1
80	34,7+1
82	41,0+1
84	47,7+1
86	54,7+1
88	61,9+1
$_{68}Er(p)\,^{165}_{68}Er$ 10,36 ч [125]	
22	14,6–2
23	28,8–2
24	50,8–2
25	83,9–2
26	13,2–1
27	19,5–1
28	27,8–1
29	38,5–1
30	50,1–1
31	63,0–1
32	76,8–1
33	93,7–1
34	11,4
35	14,3
36	17,8
37	22,2
38	28,2
39	35,0
40	44,4
41	56,3
42	70,0
43	85,8
44	10,5+1
45	12,7+1
46	15,3+1
47	18,1+1
48	21,3+1
49	25,0+1
50	29,6+1
51	34,0+1
52	39,5+1
53	45,6+1
54	51,6+1
55	58,8+1
56	66,6+1
57	74,0+1
58	83,4+1
60	10,4+2
62	12,6+2
64	15,1+2
66	17,6+2
68	20,3+2
70	23,0+2
74	28,5+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
78	33,6+2
86	40,9+2
$^{170}_{68}Er(p)^{169}_{68}Er$ (к.) 9,40 сут [125]	
12	38,5−4
13	53,9−4
14	74,1−4
15	10,0−3
16	13,4−3
17	16,5−3
18	19,8−3
19	23,5−3
20	27,5−3
21	31,5−3
22	35,9−3
23	40,2−3
24	45,8−3
25	50,7−3
26	56,5−3
27	63,9−3
28	71,3−3
29	80,0−3
30	88,2−3
31	10,2−2
32	11,4−2
33	13,1−2
34	15,4−2
35	18,0−2
36	21,1−2
37	25,2−2
38	29,9−2
39	35,2−2
40	42,6−2
41	49,5−2
42	58,6−2
43	69,2−2
44	82,2−2
46	10,9−1
48	14,2−1
50	17,9−1
52	22,3−1
54	26,9−1
56	31,9−1
58	36,9−1
60	42,2−1
64	52,7−1
68	63,2−1
72	73,5−1
76	83,4−1
80	92,6−1
88	10,8
$_{68}Er(p)^{163}_{69}Tm$ 1,81 ч [125]	
34	11,6−1
35	41,8−1
36	10,2
37	20,0
38	34,3
39	48,9
40	70,2
41	93,5
42	12,6+1
43	15,7+1
44	19,2+1
45	23,2+1
46	28,5+1
47	33,6+1
48	39,1+1
50	50,1+1
52	61,9+1
54	75,8+1
56	88,8+1
58	10,4+2
62	13,3+2
66	16,2+2
70	18,7+2
78	22,4+2
86	23,9+2
$_{68}Er(p)^{165}_{69}Tm$ 29,6 ч [124, 125]	
14	32,9−1
15	63,0−1
16	11,0
17	16,2
18	23,0
19	30,8
20	40,9
21	54,5
22	71,2
23	89,8
24	11,9+1
25	15,1+1
26	19,0+1
27	23,1+1
28	28,0+1
29	32,6+1
30	38,6+1
31	44,2+1
32	50,6+1
34	63,8+1
36	77,7+1
38	92,2+1
42	12,1+2
46	14,7+2
54	18,6+2
62	21,3+2
$_{68}Er(p)^{166}_{69}Tm$ 7,70 ч [124, 125]	
8	13,5−1
9	31,0−1
10	72,2−1
11	18,0
12	34,6
13	54,9
14	76,8
15	10,0
16	13,2+1
17	16,2+1
18	19,9+1
19	23,1+1
20	27,8+1
21	32,0+1
22	37,4+1
23	42,9+1
24	48,2+1
26	59,4+1
28	70,9+1
30	82,3+1
32	92,8+1
36	10,9+2
40	12,1+2
48	14,2+2
56	16,1+2
64	17,7+2
72	19,3+2
88	21,7+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{68}Er(p)^{167}_{69}Tm$ 9,25 сут [124, 125]	
10	11,8−2
11	28,9−2
12	56,2−2
13	94,8−2
14	14,1−1
15	19,3−1
16	26,5−1
17	34,5−1
18	42,8−1
19	53,4−1
20	62,7−1
21	72,9−1
22	82,8−1
24	95,8−1
28	11,7
32	13,8
36	16,4
40	19,6
44	22,8
52	25,6
60	27,4
76	30,8
92	33,4
$_{68}Er(p)^{168}_{69}Tm$ 93,1 сут [124]	
8	31,4−4
9	10,1−3
10	30,7−3
11	57,8−3
12	76,0−3
13	85,3−3
14	88,2−3
15	90,2−3
16	92,9−3
17	95,8−3
18	99,9−3
19	11,5−2
20	13,0−2
21	18,6−2
22	26,5−2
24	30,4−2
$_{68}Er(p)^{170}_{69}Tm$ 128,6 сут [124]	
8	24,4−5
9	12,0−4
10	47,0−4
11	75,8−4
12	99,0−4
13	11,8−3
14	13,2−3
16	14,8−3
20	16,4−3
24	16,7−3
$_{68}Er(d)^{165}_{69}Tm$ 29,6 ч [124]	
12	10,4−2
13	18,7−2
14	34,0−2
15	64,8−2
16	12,4−1
17	22,5−1
18	40,4−1
19	72,2−1
20	12,1
21	18,2
22	25,1
23	32,4
24	38,4
$_{68}Er(d)^{166}_{69}Tm$ 7,70 ч [124]	
10	35,5−1
11	90,0−1
12	18,9
13	32,8
14	51,1
15	74,7
16	10,3+1
17	13,1+1
18	16,6+1
19	20,0+1
20	24,0+1
21	27,9+1
22	32,0+1
23	35,8+1
24	40,1+1
$_{68}Er(d)^{167}_{69}Tm$ 9,25 сут [124]	
10	27,4−2
11	48,0−2
12	79,6−2
13	12,4−1
14	17,8−1
15	24,3−1
16	33,2−1
17	18,7−1
18	50,0−1
19	60,2−1
20	67,3−1
21	75,8−1
22	84,4−1
23	92,3−1
24	10,2
$_{68}Er(d)^{168}_{69}Tm$ 93,1 сут [124]	
10	15,9−3
11	32,9−3
12	58,8−3
13	99,0−3
14	14,6−2
15	19,7−2
16	25,7−2
17	30,1−2
18	34,6−2
19	38,2−2
20	41,9−2
22	46,1−2
24	48,5−2
$_{68}Er(d)^{170}_{69}Tm$ 128,6 сут [124]	
10	79,9−4
11	16,7−3
12	30,6−3
13	48,0−3
14	67,3−3
15	87,8−3
16	10,5−2
17	12,0−2
18	13,4−2
19	14,3−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	15,4–2
22	16,6–2
24	17,3–2
$_{68}Er(\alpha)\,^{163}_{69}Tm$ (к.) 1,81 ч [126]	
30	46,7–2
31	14,8–1
32	48,9–1
33	10,2
34	18,1
35	28,3
36	39,9
37	53,0
38	63,2
39	73,6
40	81,7
42	92,1
46	10,1+1
$_{68}Er(\alpha)\,^{165}_{69}Tm$ (к.) 29,6 ч [127]	
28	30,5–4
29	56,9–4
30	10,5–3
31	18,7–3
32	34,6–3
33	59,0–3
34	95,6–3
35	16,7–2
36	23,0–2
37	32,2–2
38	41,1–2
39	50,2–2
40	61,4–2
41	70,1–2
42	79,4–2
43	86,5–2
44	95,1–2
46	10,7–1
$_{68}Er(\alpha)\,^{167}_{69}Tm$ (к.) 9,25 сут [127]	
18	26,3–4
19	33,5–4
20	41,8–4
21	48,5–4
22	54,8–4
23	61,6–4
24	65,9–4
25	67,9–4
26	75,8–4
27	14,2–3
28	27,9–3
29	47,0–3
30	80,5–3
31	13,0–2
32	18,9–2
33	28,5–2
34	42,8–2
35	57,0–2
36	75,7–2
37	94,8–2
38	11,6–1
39	14,8–1
40	16,3–1
41	18,6–1
42	21,1–1
44	25,9–1
46	30,7–1
$_{68}Er(\alpha)\,^{168}_{69}Tm$ 93,1 сут [127]	
24	11,5–6
25	31,5–6
26	86,2–6
27	18,8–5
28	35,4–5
29	56,7–5
30	81,9–5
31	11,5–4
32	15,8–4
33	21,0–4
34	27,8–4
35	37,0–4
36	47,7–4
37	58,8–4
38	71,6–4
39	85,1–4
40	98,8–4
42	12,2–3
44	14,1–3
46	15,4–3
$^{166}_{68}Er(\alpha)\,^{168}_{69}Tm$ 93,1 сут [127]	
24	11,5–6
25	31,5–6
26	86,2–6
27	19,5–5
28	35,4–5
29	57,0–5
30	81,9–5
31	10,8–4
32	14,7–4
33	18,4–4
34	23,2–4
35	28,2–4
36	33,7–4
37	39,8–4
38	46,1–4
39	53,5–4
40	60,5–4
42	71,8–4
44	79,0–4
46	83,2–4
$_{68}Er(\alpha)\,^{166}_{70}Yb$	
18	18,3–4
19	34,5–4
20	61,8–4
21	96,1–4
22	14,0–3
23	18,9–3
24	26,7–3
25	34,2–3
26	45,6–3
27	58,0–3
28	72,5–3
29	90,2–3
30	11,0–2
31	13,0–2
32	15,0–2
33	16,0–2
34	17,1–2
35	19,1–2
36	21,6–2
37	24,3–2
38	29,1–2
39	33,6–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
40	38,8–2
41	45,2–2
42	52,4–2
44	65,8–2
46	79,4–2
$^{166}_{68}Er(\alpha)\,^{166}_{70}Yb$ 56.7 ч [127]	
36	26,8–3
37	47,5–3
38	88,5–3
39	13,0–2
40	17,5–2
41	24,1–2
42	31,4–2
43	39,2–2
44	46,5–2
45	54,1–2
46	61,3–2
$_{68}Er(\alpha)\,^{169}_{70}Yb$ 32,0 сут [126]	
20	19,2–6
21	89,0–6
22	42,5–5
23	10,4–4
24	18,9–4
25	32,2–4
26	48,3–4
27	68,2–4
28	91,6–4
29	12,2–3
30	16,6–3
31	20,3–3
32	26,4–3
33	32,4–3
34	38,3–3
35	44,0–3
36	50,7–3
38	62,3–3
40	73,9–3
42	86,0–3
44	97,8–3
46	11,0–2
$_{68}Er(\tau)\,^{165}_{69}Tm$ (к.) 29,6 ч [126]	
20	16,7–3
21	54,0–3
22	17,1–2
23	33,0–2
24	53,1–2
25	75,9–2
26	11,0–1
27	14,3–1
28	18,4–1
29	22,2–1
30	27,2–1
31	31,2–1
32	36,8–1
33	41,0–1
34	47,1–1
35	52,1–1
36	58,3–1
37	64,2–1
38	70,9–1
40	85,7–1
42	10,0
46	12,0
$_{68}Er(\tau)\,^{166}_{69}Tm$ 7,70 ч [126]	
20	64,2–3
21	22,0–2
22	75,4–2
23	15,0–1
24	26,1–1
25	41,5–1
26	62,0–1
27	90,2–1
28	12,0
29	16,7
30	20,4
31	25,5
32	32,0
33	38,6
34	47,1
35	56,2
36	67,1
37	78,0
38	91,7
40	12,0+1
42	15,1+1
44	18,3+1
46	21,6+1
$_{68}Er(\tau)\,^{167}_{69}Tm$ (к.) 9,25 сут [126]	
20	20,0–4
21	27,5–3
22	84,2–3
23	16,2–2
24	26,6–2
25	37,5–2
26	51,4–2
27	66,0–2
28	80,5–2
29	93,8–2
30	11,3–1
31	12,8–1
32	14,9–1
34	18,5–1
36	22,9–1
38	27,3–1
40	31,9–1
42	36,8–1
45	43,8–1
46	45,9–1
$_{68}Er(\tau)\,^{168}_{69}Tm$ 93,1 сут [126]	
20	23,7–5
21	57,0–5
22	14,0–4
23	38,0–4
24	75,4–4
25	11,5–3
26	17,3–3
27	23,0–3
28	29,6–3
29	36,6–3
30	44,2–3
31	51,2–3
32	59,7–3
33	66,1–3
34	73,6–3
36	86,6–3
38	99,1–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
42	12,4−2
46	14,3−2
$_{68}Er(\tau)\,^{169}_{70}Yb$ 32,0 сут [126]	
20	18,9−5
21	26,0−5
22	41,7−4
23	93,1−4
24	16,0−3
25	25,1−3
26	35,6−3
27	48,3−3
28	61,2−3
29	74,9−3
30	89,8−3
32	11.8−2
34	14,4−2
36	16,8−2
38	19,1−2
42	22,3−2
46	24,0−2
$_{69}Tm(\alpha)\,^{169}_{70}Yb$ 32,0 сут [123]	
38	15,4−3
39	45,9−3
40	82.9−3
41	11,3−2
42	14,1−2
43	19.4−2
44	25,8−2
45	33,5−2
46	42,0−2
47	51,2−2
48	61,1−2
49	71.2−2
50	81,7−2
52	10,3−1
54	12,4−1
56	14,5−1
58	16,5−1
$_{69}Tm(\alpha)\,^{168}_{71}Lu$ 5,3 мин [123]	
46	54,7
47	11,1+1
48	18,5+1
49	28,3+1
50	42,2+1
51	58,0+1
52	80,5+1
53	10,7+2
54	13,6+2
55	16,5+2
56	18,9+2
$_{69}Tm(\alpha)\,^{169}_{71}Lu$ 34,06 ч [123]	
38	33,4−2
39	75,0−2
40	14,4−1
41	22,5−1
42	34,1−1
43	48,0−1
44	62,8−1
45	81,2−1
46	10,1
47	12,2
48	14,8
49	17,2
50	19,8
52	24,7
54	29,0
56	33,8
$_{69}Tm(\alpha)\,^{170}_{71}Lu$ 2,0 сут [123]	
28	26,4−3
29	93,0−3
30	31,5−2
31	60,0−2
32	10,5−1
33	16,4−1
34	23,1−1
35	31,5−1
36	41,4−1
37	51,0−1
38	64,2−1
39	75,1−1
40	88,4−1
42	11,0
46	14,2
50	16,5
54	18,6
58	20,0
$_{69}Tm(\alpha)\,^{171}_{71}Lu$ 8,22 сут [123]	
20	28,1−3
21	62,0−3
22	11,9−2
23	19,8−2
24	29,8−2
25	41,6−2
26	57,4−2
27	74,0−2
28	91,4−2
29	11,1−1
30	12,7−1
32	14,9−1
34	16,6−1
36	18,0−1
40	20,2−1
44	21,8−1
48	23,1−1
56	24,4−1
$_{69}Tm(\alpha)\,^{172}_{71}Lu$ 6,70 сут [123]	
12	11,1−5
13	36,0−5
14	13,0−4
15	30,1−4
16	66,2−4
17	14,3−3
18	25,9−3
19	43,5−3
20	62,4−3
21	88,2−3
22	10,9−2
23	12,5−2
24	14,1−2
28	17,3−2
36	20,6−2
52	22.4−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{73}Ta(p)\,^{171}_{71}Lu$ 8,22 сут [128]	
42	11,0−6
43	64,1−6
44	25,0−5
45	37,6−5
46	55,3−5
47	75,2−5
48	94,5−5
49	11,8−5
50	14,3−4
51	16,7−4
52	19,8−4
53	22,5−4
54	26,1−4
56	33,4−4
58	42,4−4
60	52,3−4
62	63,4−4
64	75,6−4
66	88,9−4
68	10,3−3
70	12,0−3
72	15,6−3
73	18,9−3
74	23,2−3
75	32,1−3
76	43,0−3
77	60,3−3
78	80,6−3
79	10,4−2
80	13,6−2
81	16,9−2
82	21,0−2
83	25,3−2
84	30,4−2
$_{73}Ta(p)\,^{172}_{71}Lu$ 6,70 сут [128]	
38	70,0−7
39	25,1−6
40	86,0−6
41	26,8−5
42	80,7−5
43	11,6−4
44	14,1−4
45	17,2−4
46	20,6−4
47	23,5−4
48	27,6−4
50	35,5−4
52	45,7−4
54	58,0−4
56	72,3−4
58	87,4−4
60	10,4−3
62	12,2−3
64	14,6−3
65	16,0−3
66	18,6−3
67	22,2−3
68	27,8−3
69	34,6−3
70	44,3−3
71	57,0−3
72	72,1−3
73	91,2−3
74	11,6−2
75	14,4−2
76	18,1−2
77	22,4−2
78	27,2−2
79	32,7−2
80	38,7−2
82	52,8−2
84	69,6−2
$_{73}Ta(p)\,^{176m}_{72}Lu$ 3,68 ч [128]	
6	24,7−6
7	77,0−6
8	18,7−5
9	35,5−5
10	57,8−5
11	75,8−5
12	10,0−4
13	12,9−4
14	16,9−4
15	22,0−4
16	27,8−4
17	35,2−4
18	43,7−4
19	53,8−4
20	65,7−4
21	77,8−4
22	90,4−4
24	11,7−3
26	14,7−3
28	17,9−3
30	21,6−3
32	26,0−3
34	30,2−3
36	35,3−3
38	41,8−3
40	48,9−3
42	57,0−3
44	68,0−3
45	74,8−3
46	80,9−3
47	97,8−3
48	11,6−2
49	14,0−2
50	17,3−2
51	21,0−2
52	25,2−2
53	30,2−2
54	35,3−2
55	42,0−2
56	49,5−2
57	57,6−2
58	69,2−2
59	79,1−2
60	91,0−2
62	12,1−1
64	15,7−1
66	19,2−1
$_{73}Ta(p)\,^{171}_{72}Hf$ 12,1 ч [128]	
48	20,6−4
49	38,2−3
50	65,9−3
51	10,5−2
52	15,6−2
53	23,5−2
54	31,9−2
55	40,5−2
56	51,0−2
57	63,1−2
58	75,5−2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
59	88,8−2
60	10,3−2
62	13,4−1
64	17,1−1
66	21,4−1
68	26,1−1
70	32,0−1
72	40,4−1
74	55,1−1
75	68,7−1
76	87,5−1
77	11,2
78	14,2
79	17,6
80	21,9
81	26,3
82	31,9
83	38,0
84	44,5
$_{73}Ta(p)^{175}_{72}Hf$ 70 сут [128]	
12	16,3−6
13	78,0−6
14	19,9−5
15	36,5−5
16	56,6−5
17	72,8−5
18	92,2−5
19	11,3−4
20	13,6−4
21	16,6−4
22	19,9−4
23	24,0−4
24	28,2−4
25	33,2−4
26	38,9−4
27	46,0−4
28	52,7−4
29	63,2−4
30	73,6−4
31	84,2−4
32	96,8−4
33	11,4−3
34	13,5−3
35	16,2−3
36	19,1−3
37	22,8−3
38	26,9−3
39	32,0−3
40	38,3−3
41	45,9−3
42	54,0−3
43	62,4−3
44	72,7−3
46	98,0−3
48	12,8−2
50	16,6−2
52	20,6−2
54	24,8−2
56	29,5−2
58	34,0−2
60	38,8−2
64	47,6−2
68	53,6−2
76	60,0−2
84	64,1−2
$_{73}Ta(p)^{175}_{73}Ta$ 10,21 ч [128]	
52	10,7−1
53	21,5−1
54	38,2−1
55	67,0−1
56	10,6
57	15,9
58	22,2
59	31,8
60	43,1
61	57,0
62	77,9
63	10,5+1
64	13,7+1
65	18,0+1
66	24,4+1
67	31,1+1
68	40,1+1
69	50,2+1
70	60,7+1
71	73,7+1
72	86,5+1
73	10,0+2
74	11,7+2
76	14,8+2
78	17,9+2
80	20,8+2
84	25,9+2
$_{73}Ta(p)^{177}_{73}Ta$ 56,6 ч [128]	
36	14,7−2
37	46,0−2
38	14,4−1
39	30,1−1
40	54,1−1
41	90,2−1
42	13,1
43	18,4
44	26,2
45	34,2
46	45,3
47	57,0
48	70,5
49	82,2
50	97,3
52	12,5+1
54	15,3+1
56	17,9+1
58	20,3+1
60	22,6+1
64	26,6+1
68	30,5+1
72	34,7+1
76	39,3+1
80	44,4+1
84	50,2+1
$_{73}Ta(p)^{178}_{73}Ta$ 9,31 мин [128]	
26	52,4
27	95,0
28	16,3+1
29	26,4+1
30	40,8+1
31	62,3+1
32	93,8+1
33	14,3+2
34	19,9+2
35	24,7+2
36	30,1+2
37	36,5+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
38	44,0+2
39	50,6+2
40	59,6+2
41	69,1+2
42	81,7+2
43	94,8+2
44	11,5+3
45	13,2+3
46	16,0+3
47	18,3+3
48	21,5+3
50	27,7+3
52	34,1+3
54	40,7+3
$_{73}Ta(p)^{179}_{73}Ta$ 664,9 сут [128]	
20	18,5−5
21	51,0−5
22	11,8−4
23	20,8−4
24	36,6−4
25	56,8−4
26	84,4−4
27	11,9−3
28	16,9−3
29	23,0−3
30	30,7−3
31	41,1−3
32	53,3−3
33	66,2−3
34	86,1−3
35	10,8−2
36	13,1−2
37	16,4−2
38	20,7−2
$_{73}Ta(p)^{180m}_{73}Ta$ 8,1 ч [128]	
18	91,3−2
19	47,0−1
20	11,1
21	19,2
22	31,6
23	46,0
24	63,8
25	83,1
26	10,8+1
27	13,5+1
28	16,5+1
29	19,6+1
30	23,1+1
32	30,7+1
34	39,0+1
36	47,9+1
38	57,3+1
40	67,1+1
42	77,0+1
44	82,3+1
46	95,6+1
$_{73}Ta(p)^{176}_{74}W$ 2,3 ч [128]	
48	67,1
49	20,0+1
50	41,5+1
51	71,2+1
52	10,6+2
53	14,8+2
54	19,5+2
55	24,2+2
56	29,7+2
57	34,8+2
58	40,5+2
60	51,3+2
62	61,6+2
64	71,1+2
68	87,6+2
76	11,2+3
84	12,6+3
$_{73}Ta(p)^{177}_{74}W$ 2,25 ч [128]	
36	26,4+1
37	51,7+1
38	83,7+1
39	11,3+2
40	15,1+2
41	19,7+2
42	25,0+2
43	31,5+2
44	38,3+2
45	46,5+2
46	55,3+2
47	65,8+2
48	74,1+2
50	93,6+2
52	11,3+3
56	14,6+3
60	16,9+3
68	19,4+3
84	22,2−3
$_{73}Ta(p)^{178}_{74}W$ 21,7 сут [128]	
30	17,4−2
31	94,0−2
32	34,5−1
33	57,8−1
34	85,6−1
35	11,9
36	14,5
37	17,7
38	20,8
40	26,6
42	31,1
44	34,6
48	39,6
52	43,2
60	48,6
68	52,7
84	60,2
$_{73}Ta(p)^{179}_{74}W$ 37,5 мин [128]	
18	30,0+1
19	12,0+2
20	29,1+2
21	45,4+2
22	67,1+2
23	92,8+2
24	12,2+3
25	15,2+3
26	18,5+3
27	21,8+3
28	24,9+3
30	30,7+3
32	35,6+3
36	42,0+3
40	43,8−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{73}Ta(p)^{181}_{74}W$ 121,2 сут [128, 129]	
8	60,1–4
9	11,1–3
10	18,2–3
11	26,8–3
12	36,0–3
13	45,4–3
14	55,8–3
15	64,1–3
16	73,9–3
17	81,9–3
18	90,2–3
20	10,6–2
22	12,2–2
26	15,3–2
30	18,2–2
34	21,2–2
$_{73}Ta(d)^{173}_{72}Hf$ 24,0 ч [130]	
60	76,6–3
61	14,9–2
62	26,5–2
63	42,5–2
64	65,1–2
65	96,2–2
66	13,8–1
67	18,6–1
68	24,4–1
69	30,3–1
70	38,3–1
71	46,0–1
72	55,4–1
73	65,2–1
74	75,6–1
75	86,8–1
76	98,8–1
78	12,5
80	15,3
$_{73}Ta(d)^{175}_{72}Hf$ 70 сут [130]	
38	30,6–5
39	51,7–5
40	78,2–5
41	10,7–4
42	14,4–4
43	20,0–4
44	31,5–4
45	60,1–4
46	10,5–3
47	17,3–3
48	26,2–3
49	37,2–3
50	50,3–3
51	65,3–3
52	81,0–3
53	98,0–3
54	11,6–2
56	15,4–2
58	19,5–2
60	23,7–2
62	27,9–2
64	32,1–2
$_{73}Ta(d)^{181}_{72}Hf$ 42,38 сут [130]	
26	41,6–6
27	78,0–6
28	13,4–5
29	21,5–5
30	31,7–5
31	47,6–5
32	68,2–5
33	94,2–5
34	13,1–4
35	17,4–4
36	22,7–4
37	28,9–4
38	36,0–4
39	44,9–4
40	53,4–4
41	64,0–4
42	74,9–4
43	86,8–4
44	10,0–3
46	13,0–3
48	16,4–3
50	20,1–3
52	24,4–3
54	29,0–3
56	34,0–3
58	39,4–3
60	45,3–3
62	51,4–3
64	57,9–3
68	71,7–3
72	86,3–3
76	10,1–2
80	11,6–2
$_{73}Ta(d)^{178m}_{73}Ta$ 2,2 ч [130]	
42	62,9–1
43	12,3
44	21,3
45	34,2
46	48,2
47	68,2
48	94,1
49	13,0+1
50	16,9+1
51	21,8+1
52	27,9+1
53	34,0+1
54	42,4+1
55	48,9+1
56	59,3+1
57	68,1+1
58	78,3+1
59	84,8+1
60	98,5+1
62	12,0+2
64	14,1+2
66	16,4+2
68	18,7+2
72	23,5+2
76	28,4+2
80	33,5+2
$_{73}Ta(d)^{182}_{73}Ta$ 115,0 сут [130]	
12	15,5–4
13	79,8–4
14	20,0–3
15	37,5–3
16	64,5–3
17	10,0–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
18	14,2–2
19	18,7–2
20	23,9–2
21	28,9–2
22	34,7–2
24	46,3–2
26	58,4–2
28	70,3–2
30	81,0–2
32	90,3–2
36	10,6–1
40	12,0–1
48	14,6–1
56	17,0–1
64	19,3–1
80	23,7–1
$_{73}Ta(d)^{175}_{74}W$ 34 мин [130]	
66	25,3–1
67	54,0–1
68	98,5–1
69	15,2
70	21,2
71	27,1
72	35,7
73	43,4
74	52,5
75	61,1
76	71,0
78	88,2
80	10,4+1
$_{73}Ta(d)^{176}_{74}W$ 2,3 ч [130]	
56	37,3
57	90,0
58	18,3+1
59	29,0+1
60	45,0+1
61	64,1+1
62	85,3+1
63	10,9+2
64	13,9+2
65	17,1+2
66	20,8+2
67	24,9+2
68	29,1+2
70	38,2+2
72	47,9+2
74	57,6+2
76	67,1+2
78	76,2+2
80	84,9+2
$_{73}Ta(d)^{177}_{74}W$ 2,25 ч [130]	
46	46,1
47	10,2+1
48	19,8+1
49	35,3+1
50	58,4+1
51	89,0+1
52	12,6+2
53	17,2+2
54	22,4+2
55	28,9+2
56	34,9+2
57	42,0+2
58	48,7+2
59	55,7+2
60	62,4+2
62	74,5+2
64	85,0+2
72	11,6+3
80	14,0+3
$_{73}Ta(d)^{178}_{74}W$ 21,7 сут [130]	
34	95,2–3
35	21,8–2
36	42,7–2
37	74,0–2
38	11,7–1
39	18,1–1
40	26,8–1
41	39,1–1
42	54,4–1
43	75,8–1
44	95,1–1
45	12,1
46	14,6
47	17,3
48	19,8
50	24,7
52	28,7
56	35,3
64	45,2
72	53,0
80	59,5
$_{73}Ta(d)^{181}_{74}W$ 121,2 сут [129]	
8	62,9–4
9	20,0–3
10	42,6–3
11	79,6–3
12	12,7–2
13	17,4–2
14	22,3–2
15	26,6–2
16	31,2–2
17	34,8–2
18	38,4–2
20	44,1–2
22	48,0–2
24	50,9–2
$_{73}Ta(\alpha)^{177}_{75}Re$ 14,0 мин [131]	
86	10,6
87	35,3
88	84,4
89	15,2+1
90	24,1+1
91	34,4+1
92	48,4+1
93	65,0+1
94	82,7+1
95	10,7+2
96	12,6+2
97	14,9+2
98	17,5+2
100	22,9+2
102	28,5+2
104	34,1+2
$_{73}Ta(\alpha)^{178}_{75}Re$ 13,2 мин [131]	
74	86,9–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
75	26,0
76	59,0
77	11,2+1
78	18,7+1
79	30,8+1
80	45,1+1
81	65,9+1
82	90,0+1
83	11,8+2
84	14,7+2
85	17,7+2
86	21,3+2
88	28,3+2
90	35,2+2
92	41,7+2
96	52,6+2
100	60,3+2
$_{73}Ta(\alpha)\,^{179}_{75}Re$ 19,7 мин [131]	
64	29,7
65	59,0
66	12,2+1
67	21,8+1
68	33,5+1
69	47,5+1
70	65,7+1
71	83,0+1
72	10,6+2
73	12,8+2
74	15,3+2
76	20,5+2
78	25,8+2
80	30,9+2
84	39,7+2
88	45,9+2
92	49,7+2
100	55,7+2
$_{73}Ta(\alpha)\,^{180}_{75}Re$ 2,43 мин [131]	
50	14,7+1
51	30,2+1
52	63,0+1
53	11,2+2
54	18,1+2
55	28,5+2
56	43,3+2
57	63,0+2
58	84,6+2
59	10,9+3
60	13,7+3
61	16,6+3
62	19,6+3
63	22,9+3
64	26,0+3
66	32,7+3
68	39,4+3
70	45,9+3
74	56,6+3
78	63,1+3
80	65,1+3
84	67,5+3
$_{73}Ta(\alpha)\,^{181}_{75}Re$ 20 ч [131, 132]	
38	74,0–2
39	13,7–1
40	25,9–1
41	46,5–1
42	76,8–1
43	10,3
44	13,5
45	18,4
46	23,5
47	29,5
48	36,4
49	43,1
50	50,0
51	56,8
52	63,8
54	77,2
56	89,1
64	11,9+1
80	14,4+1
$_{73}Ta(\alpha)\,^{182m}_{75}Re$ 64,0 ч [132]	
28	13,7–2
29	23,9–2
30	46,6–2
31	91,0–2
32	14,8–1
33	20,5–1
34	26,9–1
35	39,8–1
36	41,0–1
37	47,7–1
38	55,5–1
40	68,1–1
42	78,9–1
46	93,9–1
50	10,2
$_{73}Ta(\alpha)\,^{182}_{75}Re$ 12,7 ч [132]	
28	77,7–3
29	16,3–2
30	31,1–2
31	67,5–2
32	11,1–1
33	16,2–1
34	20,5–1
35	25,5–1
36	29,7–1
37	35,0–1
38	40,0–1
40	48,1–1
42	53,8–1
46	62,4–1
50	68,3–1
$_{73}Ta(\alpha)\,^{183}_{75}Re$ 70 сут [132]	
18	14,8–4
19	32,5–4
20	70,3–4
21	13,3–3
22	23,3–3
23	43,0–3
24	67,3–3
25	96,2–3
26	12,2–2
27	14,8–2
28	17,5–2
30	22,9–2
32	26,7–2
40	31,9–2
48	34,3–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{73}Ta(\alpha)\,^{184m}_{75}Re$ 165 сут [132]	
16	19,8–6
17	49,0–6
18	95,4–6
19	15,9–5
20	23,4–5
21	31,8–5
22	40,5–5
23	47,7–5
24	56,7–5
25	64,8–5
26	72,9–5
28	90,0–5
32	11,9–4
40	15,4–4
48	16,3–4
$_{73}Ta(\alpha)\,^{184g}_{75}Re$ 38 сут [132]	
16	38,8–5
17	76,0–5
18	14,8–4
19	29,9–4
20	45,0–4
21	60,8–4
22	74,0–4
23	89,2–4
24	10,0–3
26	12,1–3
28	13,7–3
32	16,6–3
36	18,9–3
40	21,1–3
48	24,3–3
$_{73}Ta(\tau)\,^{177}_{75}Re$ 14,0 мин [133]	
48	21,2–1
49	32,2–1
50	46,2–1
51	67,8–1
52	97,6–1
53	12,8
54	16,4
55	20,0
56	24,5
57	29,4
58	35,7
59	45,5
60	57,2
61	76,6
62	10,8+1
63	15,3+1
64	22,1+1
65	31,2+1
66	43,3+1
67	59,9+1
68	80,9+1
69	10,7+2
70	13,5+2
71	17,2+2
72	20,7+2
73	25,4+2
74	29,0+2
76	37,4+2
78	46,1+2
80	54,8+2
$_{73}Ta(\tau)\,^{178}_{75}Re$ 13,2 мин [133]	
38	80,7–2
39	15,8–1
40	30,4–1
41	56,0–1
42	97,1–1
43	14,0
44	19,3
45	25,3
46	31,7
47	40,1
48	51,0
49	67,9
50	89,3
51	12,7+1
52	17,9+1
53	25,2+1
54	36,4+1
55	51,0+1
56	69,1+1
57	91,8+1
58	11,9+2
59	14,8+2
60	18,4+2
61	21,9+2
62	25,3+2
64	32,3+2
66	39,0+2
68	45,2+2
72	55,4+2
76	62,6+2
80	67,5+2
$_{73}Ta(\tau)\,^{179}_{75}Re$ 19,7 мин [133]	
30	60,5–2
31	15,0–1
32	29,5–1
33	45,5–1
34	69,4–1
35	98,0–1
36	14,6
37	20,3
38	29,7
39	41,5
40	60,8
41	10,2+1
42	17,5+1
43	26,5+1
44	39,1+1
45	54,1+1
46	71,1+1
47	88,8+1
48	11,4+2
49	13,5+2
50	16,5+2
51	19,2+2
52	21,8+2
54	27,2+2
56	31,9+2
60	38,8+2
64	43,0+2
72	47,8+2
80	50,1+2
$_{73}Ta(\tau)\,^{180}_{75}Re$ 2,43 мин [133]	
22	11,6
23	34,5

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
24	77,9
25	14,2+1
26	23,2+1
27	37,2+1
28	54,8+1
29	81,2+1
30	11,2+2
31	15,6+2
32	21,3+2
33	28,1+2
34	37,0+2
35	47,3+2
36	58,8+2
37	71,2+2
38	84,5+2
39	98,2+2
40	11,2+3
42	13,8+3
44	16,2+3
46	18,0+3
54	21,9+3
70	25,2+3
$_{73}Ta(\tau)\,^{181}_{75}Re$ 20 ч [133]	
18	16,9−3
19	68,0−3
20	25,8−2
21	55,0−2
22	87,5−2
23	13,3−1
24	19,1−1
25	26,5−1
26	34,0−1
27	43,2−1
28	53,5−1
29	64,5−1
30	75,2−1
31	86,0−1
32	98,4−1
34	12,2
36	14,3
40	17,5
44	19,7
52	22,6
60	23,8

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{74}W(p)\,^{181}_{75}Re$ 20 ч [132]	
12	41,6−2
13	16,6−1
14	48,6−1
15	92,5−1
16	16,0
17	26,9
18	39,8
19	55,0
20	70,6
21	85,8
22	10,3+1
24	13,6+1
$_{74}W(p)\,^{182m}_{75}Re$ 64,0 ч [132]	
10	55,5−3
11	17,6−2
12	29,6−2
13	51,8−2
14	80,5−2
15	11,5−1
16	16,5−1
17	22,5−1
18	30,5−1
19	42,0−1
20	57,0−1
21	72,1−1
22	89,2−1
23	10,2
24	11,3
$_{74}W(p)\,^{182}_{75}Re$ 12,7 ч [132]	
8	37,0−2
9	13,0−1
10	31,0−1
11	56,1−1
12	87,0−1
13	13,2
14	18,6
15	24,1
16	29,5
17	35,7
18	42,1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
19	48,0
20	54,9
21	61,8
22	68,0
23	75,9
24	81,1
$_{74}W(p)\,^{183}_{75}Re$ 70 сут [40, 132]	
10	10,2−3
11	21,0−3
12	44,4−3
13	87,2−3
14	15,2−2
15	25,0−2
16	37,5−2
17	52,1−2
18	66,0−2
19	80,2−2
20	94,7−2
22	12,3−1
24	14,5−1
26	16,3−1
28	18,9−1
30	21,8−1
32	26,2−1
34	32,9−1
38	44,7−1
46	58,3−1
54	66,2−1
70	75,4−1
$_{74}W(p)\,^{184m}_{75}Re$ 38 сут [132]	
14	33,5−5
15	41,5−5
16	59,2−5
17	11,2−4
18	19,6−4
19	42,0−4
20	98,4−4
21	18,2−3
22	29,1−3
23	43,6−3
24	57,9−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{74}W(p)\,^{184g}_{75}Re$ 38 сут [132]	
10	11,1−3
11	42,6−3
12	79,6−3
13	10,6−2
14	12,8−2
15	14,2−2
16	15,5−2
17	16,7−2
18	20,1−2
19	36,8−2
20	60,7−2
21	92,9−2
22	12,6−1
23	15,9−1
24	19,9−1
25	24,8−1
26	29,7−1
28	40,5−1
32	53,8−1
40	63,8−1
48	70,7−1
56	76,6−1
72	85,4−1
$^{184}_{74}W(d)\,^{182}_{73}Ta$ 115,0 сут [134]	
12	74,0−7
13	22,2−6
14	40,7−6
15	66,6−6
16	10,4−5
17	15,2−5
18	21,1−5
19	28,5−5
20	38,9−5
21	50,3−5
22	59,7−5
$^{186}_{74}W(d)\,^{183}_{73}Ta$ 5,1 сут [134]	
14	74,0−6
15	22,2−5
16	48,1−5

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
17	96,2−5
18	16,6−4
19	26,3−4
20	41,4−4
21	62,2−4
22	89,0−4
$^{186}_{74}W(d)\,^{184}_{73}Ta$ 8,7 ч [134]	
9	37,0−5
10	18,5−4
11	51,8−4
12	11,8−3
13	23,7−3
14	42,2−3
15	67,0−3
16	99,6−3
17	14,2−2
18	19,1−2
19	24,8−2
20	32,0−2
21	40,0−2
22	48,2−2
$_{74}W(d)\,^{181}_{75}Re$ 20 ч [132]	
12	44,4−3
13	13,3−2
14	25,2−2
15	79,9−2
16	21,6−1
17	42,6−1
18	71,5−1
19	11,0
20	16,3
21	22,1
22	28,9
23	35,9
24	41,5
$_{74}W(d)\,^{182m}_{75}Re$ 64,0 ч [132]	
10	19,5−2
11	35,0−2
12	62,8−2
13	10,7−2

Энергия частиц, МэВ	Выход радионуклида, МБк /(мкА· ч)
14	17,4−1
15	23,9−1
16	33,7−1
17	45,0−1
18	57,1−1
19	70,0−1
20	83,1−1
21	97,8−1
22	10,8
23	11,7
24	12,4
$_{74}W(d)\,^{182}_{75}Re$ 12,7 ч [132]	
8	35,5−2
9	11,6−1
10	27,2−1
11	45,5−1
12	72,8−1
13	10,9
14	15,5
15	20,2
16	25,0
17	29,8
18	34,5
19	39,1
20	43,4
22	50,2
24	54,7
$_{74}W(d)\,^{183}_{75}Re$ 70 сут [132]	
8	29,6−4
9	10,3−3
10	25,9−3
11	50,1−3
12	79,2−3
13	11,4−2
14	16,2−2
15	22,5−2
16	29,7−2
17	38,9−2
18	48,0−2
19	59,1−2
20	72,2−2
21	87,8−2
22	10,3−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
24	13,8–1
$_{74}W(d)\,^{184m}_{75}Re$ 165 сут [132]	
10	33,3–5
11	10,2–4
12	21,8–4
13	39,8–4
14	59,9–4
15	84,4–4
16	10,2–3
17	12,0–3
18	13,6–3
19	14,6–3
20	16,0–3
21	18,6–3
22	22,0–3
23	27,2–3
24	34,6–3
$_{74}W(d)\,^{184g}_{75}Re$ 38 сут [132]	
8	88,8–4
9	25,4–3
10	75,5–3
11	12,6–2
12	20,3–2
13	28,9–2
14	38,8–2
15	48,5–2
16	56,7–2
17	62,8–2
18	67,3–2
19	70,2–2
20	75,7–2
21	83,3–2
22	92,7–2
24	11,1–1
$_{74}W(\tau)\,^{185}_{74}W$ 75,3 сут [21]	
18	31,4–5
19	61,0–5
20	11,7–4
21	17,5–4
22	25,7–4
23	37,5–4
24	52,4–4
25	70,2–4
26	92,7–4
27	11,7–3
28	14,9–3
29	18,2–3
30	21,5–3
32	28,8–3
$_{74}W(\tau)\,^{183}_{75}Re$ (к.) 70 сут [21]	
18	77,7–5
19	28,8–4
20	47,0–4
21	76,1–4
22	10,2–3
23	14,0–3
24	19,0–3
25	27,8–3
26	39,4–3
27	52,1–3
28	66,5–3
29	80,8–3
30	93,1–3
32	12,0–2
$_{74}W(\tau)\,^{184g}_{75}Re$ 38 сут [21]	
18	74,0–6
19	55,0–5
20	17,0–4
21	35,5–4
22	57,0–4
23	93,2–4
24	13,5–3
25	18,7–3
26	25,9–3
27	34,5–3
28	45,0–3
29	55,8–3
30	64,8–3
32	83,8–3
$_{74}W(\tau)\,^{185}_{76}Os$ 93,6 сут [21]	
18	75,8–5
19	80,5–5
20	94,4–5
21	13,4–4
22	20,0–4
23	34,9–4
24	57,0–4
25	84,2–4
26	11,6–3
27	16,3–3
28	22,5–3
29	28,0–3
30	35,2–3
32	46,6–3
$^{187}_{75}Re(\alpha)\,^{184}_{77}Ir$ 3,2 ч [135]	
60	10,4–2
61	17,0–2
62	26,3–2
63	38,9–2
64	53,4–2
65	72,0–2
66	92,4–2
67	11,4–1
68	13,8–1
69	16,7–1
70	19,6–1
71	27,4–1
72	52,2–1
73	10,8
74	21,0
75	35,1
76	52,2
77	72,2
78	95,8
79	12,0+1
80	14,9+1
81	17,5+1
82	20,9+1
84	27,4+1
86	34,4+1
$^{187}_{75}Re(\alpha)\,^{185}_{77}Ir$ 14,0 ч [135]	
50	10,3–2
51	17,2–2
52	28,4–2
53	42,5–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
54	61,2–2
55	91,2–2
56	12,9–1
57	18,3–1
58	25,0–1
59	34,5–1
60	45,7–1
61	60,8–1
62	80,8–1
63	10,9
64	14,6
65	19,0
66	24,3
67	29,8
68	36,4
69	42,8
70	50,5
71	57,9
72	66,0
73	73,8
74	82,6
76	99,8
78	11,7+1
80	13,3+1
84	16,2+1
$^{187}_{75}Re(\alpha)\,^{186}_{77}Ir$ 15,8 ч [135]	
42	77,3–3
43	29,8–2
44	67,0–2
45	11,9–1
46	20,4–1
47	31,0–1
48	45,9–1
49	65,2–1
50	89,9–1
51	12,3
52	16,3
53	21,1
54	27,1
55	33,8
56	41,8
57	50,7
58	59,0
59	68,8
60	77,4
62	96,0
64	11,3+1
68	14,1+1
76	17,4+1
84	18,6+1
$^{187}_{75}Re(\alpha)\,^{187}_{77}Ir$ 10,5 ч [135]	
34	46,4–2
35	11,5–1
36	23,1–1
37	40,7–1
38	64,6–1
39	97,0–1
40	13,3
41	17,7
42	23,2
43	28,9
44	35,4
45	41,8
46	49,7
47	56,0
48	65,6
50	82,6
54	11,2+1
62	14,5+1
70	16,7+1
$^{187}_{75}Re(\alpha)\,^{188}_{77}Ir$ 41,5 ч [135]	
28	57,5–2
29	11,6–1
30	19,8–1
31	30,0–1
32	40,6–1
33	51,9–1
34	63,1–1
36	84,2–1
40	11,8
44	14,3
52	18,0
60	20,6
$^{187}_{75}Re(\tau)\,^{184}_{77}Ir$ 3,2 ч [135]	
38	91,2–3
39	14,7–2
40	23,3–2
41	34,0–2
42	52,8–2
43	10,2–1
44	20,5–1
45	37,1–1
46	60,0–1
47	96,8–1
48	14,7
49	20,8
50	29,8
51	40,1
52	53,2
53	67,2
54	84,3
55	99,2
56	11,9+1
58	15,4+1
60	18,9+1
62	22,2+1
64	25,1+1
68	29,6+1
72	32,6+1
$^{187}_{75}Re(\tau)\,^{185}_{77}Ir$ 14,0 ч [135]	
28	41,4–3
29	84,0–3
30	15,5–2
31	25,5–2
32	39,3–2
33	63,8–2
34	99,7–2
35	15,0–1
36	22,8–1
37	34,1–1
38	48,8–1
39	68,0–1
40	92,1–1
41	11,8
42	15,2
43	18,6
44	22,4
45	26,0
46	30,1
48	38,1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
50	45,2
52	50,7
56	57,5
64	63,2
72	65,0
$^{187}_{75}Re(\tau)^{186}_{77}Ir$ 15,8 ч [135]	
20	11,0–3
21	25,2–3
22	52,3–3
23	10,7–2
24	21,0–2
25	35,5–2
26	60,5–2
27	92,2–2
28	13,7–1
29	19,6–1
30	27,5–1
31	38,0–1
32	50,6–1
33	65,8–1
34	84,2–1
35	10,4
36	12,6
37	15,2
38	17,3
40	21,9
42	25,7
44	28,4
52	32,4
60	34,6
$^{187}_{75}Re(\tau)^{187}_{77}Ir$ 10,5 ч [135]	
12	17,5–3
13	10,5–2
14	26,7–2
15	48,5–2
16	88,4–2
17	13,6–1
18	20,7–1
19	29,5–1
20	39,6–1
21	51,8–1
22	67,6–1
23	83,1–1
24	10,4
25	12,4
26	14,6
28	18,8
30	22,6
32	25,4
36	29,0
44	32,7
52	35,9
$_{77}Ir(p)^{181}_{75}Re$ 20 ч [136]	
74	46,1–3
75	15,8–2
76	37,5–2
77	72,2–2
78	13,0–1
79	21,5–1
80	31,9–1
81	46,1–1
82	62,1–1
83	79,8–1
84	97,9–1
85	11,5
86	13,5
88	16,4
90	19,4
$_{77}Ir(p)^{182}_{76}Os$ 22 ч [136]	
52	92,3–3
53	23,5–2
54	49,5–2
55	92,0–2
56	15,5–1
57	22,2–1
58	30,1–1
59	38,9–1
60	47,1–1
61	57,0–1
62	68,1–1
63	78,9–1
64	93,2–1
66	12,2
68	15,3
70	18,9
72	22,7
74	26,9
78	36,2
82	46,8
86	59,2
88	68,2
90	80,2
92	95,6
$_{77}Ir(p)^{183}_{76}Os$ 13,0 ч [136]	
48	76,0–3
49	14,8–2
50	25,8–2
51	42,8–2
52	68,1–2
53	10,4–1
54	14,7–1
55	19,6–1
56	25,6–1
57	32,4–1
58	39,5–1
59	47,6–1
60	57,9–1
61	66,1–1
62	78,0–1
63	90,2–1
64	10,5
66	13,5
68	17,1
70	21,2
72	25,6
74	30,3
76	36,3
78	44,4
80	53,0
82	67,9
84	85,0
86	10,4+1
88	12,2+1
90	14,3+1
92	16,3+1
$_{77}Ir(p)^{185}_{76}Os$ 93,6 сут [136]	
50	22,6–4
51	42,5–4
52	73,0–4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
53	11,7–3
54	17,6–3
55	24,8–3
56	34,2–3
57	46,5–3
58	61,0–3
59	80,2–3
60	10,5–2
61	13,0–2
62	15,9–2
63	19,2–2
64	23,0–2
65	26,9–2
66	32,2–2
68	42,0–2
70	51,1–2
72	60,1–2
76	72,1–2
80	85,9–2
82	93,6–2
86	11,9–1
90	14,4–1
$_{77}Ir(p)^{185}_{77}Ir$ (к.) 14,0 ч [136]	
54	50,1–1
55	86,0–1
56	13,9
57	21,7
58	31,8
59	46,5
60	65,0
61	88,9
62	11,9+1
63	15,2+1
64	18,4+1
65	21,8+1
66	25,7+1
67	31,0+1
68	37,1+1
70	43,2+1
72	53,7+1
74	63,0+1
76	72,5+1
78	84,4+1
82	10,6+2
86	12,9+2
90	15,2+2
$_{77}Ir(p)^{186}_{77}Ir$ 15,8 ч [136]	
48	16,8–1
49	29,0–1
50	50,2–1
51	85,8–1
52	14,9
53	15,7
54	16,6
55	17,5
56	18,5
57	28,2
58	40,0
59	56,2
60	79,1
61	96,1
62	12,0+1
63	14,0+1
64	16,2+1
65	18,5+1
66	21,0+1
67	24,1+1
68	27,6+1
70	33,2+1
72	41,0+1
74	48,0+1
76	56,3+1
78	64,7+1
80	73,1+1
84	90,4+1
88	10,7+2
92	12,3+2
$_{77}Ir(p)^{188}_{77}Ir$ 41,5 ч [136]	
38	16,0–1
39	24,5–1
40	36,8–1
41	53,1–1
42	73,0–1
43	92,2–1
44	11,7
45	14,4
46	17,9
47	21,6
48	25,7
49	30,0
50	34,1
52	44,5
54	56,5
56	70,0
58	85,6
60	10,3+1
62	12,2+1
64	14,5+1
66	16,5+1
68	19,1+1
70	21,6+1
74	27,3+1
78	33,7+1
82	40,7+1
90	55,7+1
$_{77}Ir(p)^{190m}_{77}Ir$ 3,1 ч [136]	
24	47,4–3
25	25,3–2
26	60,0–2
27	11,2–1
28	18,8–1
29	30,2–1
30	43,3–1
31	62,8–1
32	87,4–1
33	11,8
34	15,6
35	19,8
36	25,0
37	30,4
38	37,2
39	44,0
40	52,4
41	61,1
42	70,7
43	81,6
44	92,4
46	11,7+1
48	14,4+1
50	16,9+1
$_{77}Ir(p)^{190g}_{77}Ir$ 12,1 сут [136]	
14	67,7–3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
15	10,1−2
16	14,7−2
17	20,2−2
18	27,2−2
19	33,5−2
20	40,9−2
22	55,6−2
24	71,8−2
26	90,0−2
28	10,8−1
30	13,5−1
32	17,0−1
34	22,2−1
36	29,2−1
38	42,8−1
40	58,8−1
42	87,9−1
44	12,0
46	16,0
48	20,3
50	24,4
52	29,1
56	35,8
60	43,6
64	51,2
72	64,5
80	77,1
88	87,4
90	89,7

$_{77}Ir(p)^{192}_{77}Ir$
74,08 сут [136]

16	15,0−4
17	41,5−4
18	88,2−4
19	16,7−3
20	29,0−3
21	45,1−3
22	68,9−3
23	98,2−3
24	13,2−2
25	16,8−2
26	21,1−2
27	26,5−2
28	32,3−2
29	39,2−2
30	45,8−2
31	53,0−2
32	60,6−2
34	78,3−2
36	98,4−2
38	12,2−1
40	14,5−1
42	17,3−1
44	20,0−1
46	23,2−1
48	26,1−1
52	32,6−1
56	39,4−1
60	45,8−1
64	52,4−1
72	65,4−1
80	77,9−1
88	89,8−1
96	10,0

$_{77}Ir(p)^{186}_{78}Pt$
2,1 ч [136]

44	40,0−1
45	52,5
46	72,0
47	10,0+1
48	15,0+1
49	23,9+1
50	36,0+1
51	52,9+1
52	73,0+1
53	93,9+1
54	11,7+2
55	14,5+2
56	17,9+2
57	21,1+2
58	24,6+2
59	28,2+2
60	31,6+2
62	38,5+2
64	46,2+2
66	54,0+2
68	61,2+2
72	75,9+2
76	90,4+2
80	10,5+3
88	13,2+3

$_{77}Ir(p)^{188}_{78}Pt$
10,2 сут [136]

32	14,3−1
33	26,9−1
34	45,5−1
35	73,0−1
36	10,9
37	15,1
38	19,8
39	24,2
40	28,0
42	35,0
44	40,7
46	46,5
48	51,0
50	58,1
52	64,7
54	76,1
56	87,7
60	11,4+1
68	14,5+1
76	16,4+1
92	19,6+1

$_{77}Ir(p)^{189}_{78}Pt$
10,87 ч [136]

20	21,0
21	40,5
22	71,1
23	11,5+1
24	17,0+1
25	24,0+1
26	33,1+1
27	44,4+1
28	59,2+1
29	73,0+1
30	88,6+1
32	11,5+2
34	13,9+2
36	16,7+2
38	19,2+2
40	21,4+2
42	25,2+2
44	30,6+2
46	36,9+2
48	44,8+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
50	52,2+2
52	58,9+2
56	68,7+2
60	74,4+2
68	83,7+2
76	91,7+2
92	10,8+3

$_{77}Ir(p)^{191}_{78}Pt$
3,0 сут [136]

10	23,1−2
11	65,0−2
12	17,6−1
13	27,2−1
14	35,6−1
15	41,5−1
16	45,5−1
17	58,0−1
18	85,9−1
19	12,2
20	18,8
21	26,1
22	36,4
23	48,3
24	61,5
25	76,0
26	89,3
28	11,8+1
30	14,3+1
32	16,4+1

$_{78}Pt(p)^{195}_{79}Au$
182,9 сут [137]

12	49,5−4
13	91,2−4
14	15,6−3
15	26,1−3
16	40,0−3
17	56,5−3
18	75,2−3
19	93,8−3
20	11,1−2
21	12,7−2
22	14,7−2
24	18,1−2

$_{78}Pt(d)^{195}_{79}Au$
182,9 сут [137]

8	27,5−4
9	37,0−4
10	93,5−4
11	14,2−3
12	21,4−3
13	30,5−3
14	43,1−3
15	59,0−3
16	79,9−3
17	10,1−2
18	12,8−2
19	15,2−2
20	18,5−2
21	21,1−2
22	23,8−2
23	26,8−2
24	29,1−2

$_{78}Pt(\alpha)^{195}_{79}Au$(к.)
182,9 сут [137]

30	12,1−4
31	22,8−4
32	42,9−4
33	78,2−4
34	12,6−3
35	17,5−3
36	23,6−3
37	31,6−3
38	40,9−3
39	49,0−3
40	57,6−3
41	64,5−3
42	73,5−3
43	81,8−3
44	91,1−3
46	10,8−2
48	12,4−2

$_{79}Au(p)^{195}_{79}Au$
182,9 сут [17]

6	44,0−6
7	21,5−5
8	77,7−5
9	14,8−4
10	26,6−4
11	42,0−4
12	60,3−4
13	80,1−4
14	10,5−3
15	13,0−3
16	15,8−3
17	18,7−3
18	21,2−3
20	26,0−3
22	30,3−3
26	37,3−3
30	42,7−3

$_{79}Au(p)^{196m}_{79}Au$
9,7 ч [138]

18	74,0−4
19	53,0−3
20	31,5−2
21	77,0−2
22	14,1−1
23	24,4−1
24	39,4−1
25	60,0−1
26	90,2−1
27	12,7
28	17,4
29	22,5
30	29,0
31	36,5
32	44,4
33	53,6
34	63,0
35	73,0
36	83,1
38	10,4+1
40	12,4+1
42	14,3+1
46	17,2+1
50	19,9+1
54	22,6+1

$_{79}Au(p)^{196g}_{79}Au$
6,18 сут [138]

16	50,0−4
17	38,0−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
18	22,3−2
19	54,6−2
20	98,6−2
21	16,0−1
22	24,3−1
23	34,5−1
24	46,0−1
25	59,0−1
26	75,5−1
27	93,0−1
28	11,1
29	13,1
30	15,2
31	17,0
32	19,4
34	23,7
36	28,2
37	31,8
38	32,7
40	37,3
42	42,0
46	51,7
50	61,6
54	71,8
$_{79}Au(p)\,^{195m}_{80}Hg$ 40 ч [138]	
21	80,0−4
22	67,4−2
23	22,4−1
24	58,4−1
25	13,1
26	24,9
27	41,6
28	63,4
29	90,6
30	12,2+1
31	15,4+1
32	18,7+1
33	21,9+1
34	24,9+1
36	29,8+1
38	33,3+1
40	36,1+1
$_{79}Au(p)\,^{195g}_{80}Hg$ 9,7 ч [138]	
21	34,0−3
22	11,4−1
23	46,6−1
24	12,1
25	26,5
26	49,3
27	81,1
28	12,2+1
29	17,3+1
30	22,8+1
32	33,9+1
34	42,1+1
36	46,7+1
40	50,4+1
$_{79}Au(p)\,^{197m}_{80}Hg$ 23,8 ч [138]	
6	63,4−4
7	48,6−3
8	10,8−2
9	26,5−2
10	71,2−2
11	17,7−1
12	33,4−1
13	55,5−1
14	79,8−1
15	10,0
16	11,2
18	12,6
22	13,8
$_{79}Au(p)\,^{197g}_{80}Hg$ 64,1 ч [138]	
6	38,5−3
7	74,1−3
8	14,6−2
9	31,8−2
10	76,0−2
11	16,1−1
12	28,2−1
13	41,8−1
14	55,7−1
15	66,9−1
16	72,1−1
18	78,4−1
20	84,5−1
22	86,5−1
$_{79}Au(d)\,^{192}_{79}Au$ 5,03 ч [139]	
44	27,0−2
45	49,5−2
46	82,7−2
47	13,7−1
48	19,8−1
49	27,2−1
50	34,6−1
51	43,5−1
52	53,0−1
53	64,1−1
54	78,1−1
55	91,0−1
56	10,7
57	12,3
58	14,4
59	16,3
60	19,1
61	22,2
62	26,5
63	31,3
64	37,9
65	44,8
66	55,4
67	66,0
68	81,2
69	95,2
70	11,7+1
72	16,3+1
74	22,2+1
76	29,0+1
78	36,8+1
80	45,6+1
82	55,3+1
84	65,9+1
86	77,2+1
$_{79}Au(d)\,^{194}_{79}Au$ 39,5 ч [139]	
28	48,7−3
29	72,2−3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
30	10,0−2
31	14,8−2
32	20,7−2
33	27,5−2
34	37,6−2
35	48,0−2
36	61,1−2
37	81,0−2
38	10,4−1
39	13,0−1
40	16,1−1
41	19,7−1
42	24,0−1
43	29,2−1
44	35,6−1
45	44,0−1
46	54,7−1
47	66,7−1
48	82,4−1
49	99,0−1
50	12,2
51	14,6
52	17,6
53	20,4
54	24,4
56	31,8
58	41,7
60	52,9
62	65,6
64	79,7
66	95,1
68	11,2+1
70	13,0+1
72	14,8+1
74	16,8+1
76	18,9+1
78	21,1+1
80	23,3+1
82	25,7+1
86	29,9+1
90	33,8+1
$_{79}Au(d)\,^{196}_{79}Au$ 6.18 сут [139]	
12	68,4−4
13	12,2−3
14	22,2−3
15	35,0−3
16	56,3−3
17	89,2−3
18	14,0−2
19	22,0−2
20	33,1−2
21	47,8−2
22	66,6−2
23	89,0−2
24	12,2−1
25	15,8−1
26	20,4−1
27	25,6−1
28	31,8−1
29	38,6−1
30	47,1−1
31	56,1−1
32	67,3−1
33	79,8−1
34	93,5−1
36	12,6
38	16,4
40	20,7
42	25,5
44	30,7
46	36,2
48	41,8
52	52,8
56	63,1
58	67,9
60	72,5
64	81,3
72	97,5
80	11,3+1
$_{79}Au(d)\,^{198}_{79}Au$ 2,695 сут [139]	
12	55,0−3
13	38,0−2
14	98,1−2
15	22,8−1
16	38,9−1
17	53,0−1
18	69,4−1
19	84,0−1
20	99,1−1
22	12,7
24	15,3
26	17,7
28	20,1
32	24,5
36	28,5
40	32,0
48	37,9
64	46,2
80	54,3
$_{79}Au(d)\,^{190}_{80}Hg$ 20,0 мин [139]	
80	38,0
81	12,8+1
82	30,9+1
83	58,0+1
84	10,2+2
85	15,4+2
86	22,0+2
87	29,5+2
88	37,0+2
$_{79}Au(d)\,^{191}_{80}Hg$ 50,8 мин [139]	
68	88,2−1
69	50,0
70	18,5+1
71	34,2+1
72	59,0+1
73	87,0+1
74	12,2+1
75	15,9+2
76	21,0+2
77	26,0+2
78	32,2+2
79	38,4+2
80	45,9+2
81	52,6+2
82	61,7+2
83	68,5+2
84	79,0+2
86	97,0+2
$_{79}Au(d)\,^{192}_{80}Hg$ 4,9 ч [139]	
56	67,3−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
57	27,0
58	68,9
59	12,1+1
60	19,1+1
61	26,8+1
62	37,5+1
63	49,4+1
64	62,4+1
65	78,9+1
66	93,5+1
67	11,2+2
68	13,0+2
69	15,0+2
70	17,1+2
72	21,4+2
74	25,7+2
78	33,5+2
82	39,4+2
90	47,5+2
$_{79}Au(d)\,^{193m}_{80}Hg$ 11,1 ч [139]	
46	50,7–2
47	45,0–1
48	22,8
49	42,5
50	75,4
51	11,3+1
52	16,0+1
53	21,8+1
54	27,9+1
55	35,6+1
56	43,4+1
57	52,8+1
58	62,1+1
59	72,2+1
60	82,4+1
62	10,2+2
66	13,6+2
70	16,1+2
78	19,8+2
86	23,2+2
$_{79}Au(d)\,^{195m}_{80}Hg$ 40,0 ч [139]	
22	20,1–2
23	43,0–2
24	84,2–2
25	14,4–1
26	24,3–1
27	38,0–1
28	61,3–1
29	96,0–1
30	14,2
31	21,8
32	30,4
33	41,0
34	54,9
35	70,2
36	88,5
37	10,7+1
38	12,6+1
40	16,0+1
42	18,9+1
44	21,3+1
48	24,8+1
56	29,7+1
64	33,4+1
72	36,3+1
80	38,7+1
$_{79}Au(d)\,^{197m}_{80}Hg$ 23,8 ч [140]	
8	31,3–3
9	14,3–2
10	58,6–2
11	20,0–1
13	46,8–1
12	94,2–1
14	15,3
15	22,0
16	29,9
17	36,5
18	42,8
20	52,1
22	59,0
24	64,7
$_{79}Au(d)\,^{197g}_{80}Hg$ 64,1 ч [140]	
8	52,0–3
9	16,7–2
10	53,7–2
11	15,7–1
12	33,7–1
13	59,8–1
14	89,6–1
15	11,8
16	14,4
17	16,3
18	18,3
20	20,9
22	22,7
24	24,2
$_{79}Au(\alpha)\,^{196}_{79}Au$ 6,18 сут [59, 141]	
32	27,4–4
33	63,0–4
34	11,9–3
35	19,8–3
36	31,5–3
37	46,8–3
38	67,5–3
39	93,8–3
40	12,2–2
41	15,4–2
42	19,3–2
43	23,8–2
44	28,0–2
46	37,8–2
48	48,6–2
50	60,2–2
52	71,9–2
$_{79}Au(\alpha)\,^{193m}_{80}Hg$ 11,1 ч [142]	
72	36,9–2
73	46,5–2
74	58,8–2
75	74,0–2
76	91,8–2
77	11,2–1
78	13,7–1
79	16,5–1
80	19,5–1
81	23,2–1
82	27,2–1
83	32,0–1
84	37,8–1
85	44,0–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
86	51,8–1
87	59,3–1
88	69,1–1
89	81,0–1
90	95,2–1
91	10,8
92	12,6
93	14,3
94	16,4
95	18,5
96	20,8
98	26,0
100	31,8
102	38,5
104	45,7
106	53,6
108	61,1
110	68,8
112	76,9
114	83,6
116	93,0
120	10,9+1
124	12,5+1
132	15,6+1
140	18,6+1
148	21,6+1
156	24,6+1
$_{79}Au(\alpha)\,^{195m}_{80}Hg$ 40,0 ч [142]	
56	14,4–3
57	17,2–3
58	22,1–3
59	32,6–2
60	52,4–3
61	10,0–2
62	17,5–2
63	26,5–2
64	38,4–2
65	48,0–2
66	59,0–2
67	72,2–2
68	87,0–2
69	10,4–1
70	12,4–1
71	14,7–1
72	17,6–1
73	20,1–1
74	23,3–1
76	30,6–1
78	38,7–1
80	48,0–1
82	57,9–1
84	68,4–1
86	79,3–1
88	91,2–1
92	11,5
96	13,8
100	16,2
104	18,6
108	21,0
116	25,8
124	30,4
140	39,1
156	47,1
$_{79}Au(\alpha)\,^{197m}_{80}Hg$ 23,8 ч [142]	
34	16,5–3
35	33,5–3
36	63,7–3
37	11,0–2
38	17,7–2
39	25,8–2
40	37,2–2
41	51,0–2
42	66,9–2
43	84,0–2
44	10,3–1
45	12,7–1
46	15,5–1
47	18,5–1
48	21,8–1
50	28,3–1
52	36,1–1
54	44,7–1
56	53,9–1
58	63,7–1
60	74,0–1
62	84,4–1
66	10,6
70	12,8
74	15,0
78	17,3
82	19,5
90	23,7
98	27,6
106	31,3
122	37,6
138	42,9
154	47,7
$_{79}Au(\alpha)\,^{197g}_{80}Hg$ 64,1 ч [141]	
42	60,0–5
43	98,0–4
44	17,1–3
45	33,8–3
46	56,0–3
47	80,5–3
48	11,4–2
49	14,7–2
50	18,7–2
51	23,0–2
52	27,3–2
53	31,4–2
54	37,0–2
55	42,0–2
56	48,2–2
$_{79}Au(\alpha)\,^{190}_{81}Tl$ 3,6 мин [142]	
98	61,0–1
99	79,0–1
100	10,8
101	14,8
102	21,8
103	33,5
104	50,0
105	72,1
106	99,6
107	12,7+1
108	16,0+1
109	20,2+1
110	25,2+1
111	31,2+1
112	37,9+1
113	45,0+1
114	52,5+1
115	63,9+1
116	76,0+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
117	88,8+1
118	10,1+2
119	12,0+2
120	13,8+2
121	15,7+2
122	18,0+2
123	20,8+2
124	24,7+2
126	30,0+2
128	38,6+2
130	47,7+2
132	58,4+2
134	71,7+2
136	83,0+2
138	10,0+3
142	13,2+3
146	16,2+3
150	18,9+3
154	21,4+3
158	23,7+3
$_{79}Au(\alpha)\,^{191}_{81}Tl$ 5,22 мин [142]	
88	19,4
89	29,3
90	43,0
91	60,8
92	83,8
93	10,8+1
94	13,8+1
95	17,3+1
96	21,7+1
97	26,3+1
98	32,0+1
99	38,2+1
100	45,2+1
101	53,8+1
102	63,0+1
103	74,2+1
104	87,8+1
105	10,1+2
106	11,7+2
107	13,6+2
108	15,9+2
109	18,4+2
110	21,2+2
112	27,8+2
114	35,1+2
116	44,6+2
118	54,5+2
120	66,2+2
122	78,0+2
124	90,5+2
128	11,6+3
132	14,1+3
136	16,5+3
140	18,8+3
148	22,8+3
156	26,0+3
$_{79}Au(\alpha)\,^{192}_{81}Tl$ 10,8 мин [142]	
94	39,3−1
95	84,0−1
96	18,5
97	41,2
98	85,1
99	14,6+1
100	23,2+1
101	35,4+1
102	50,4+1
103	65,8+1
104	84,0+1
105	10,7+2
106	13,4+2
107	16,2+2
108	19,3+2
109	22,5+2
110	25,9+2
112	33,2+2
114	41,8+2
116	50,5+2
118	59,0+2
120	67,8+2
122	75,7+2
126	89,9+2
130	10,2+3
138	12,1+3
154	15,1+3
170	17,3+3
$_{79}Au(\alpha)\,^{193}_{81}Tl$ 21 мин [142]	
84	37,2−1
85	12,2
86	33,4
87	70,2
88	11,9+1
89	18,5+1
90	27,5+1
91	40,3+1
92	57,7+1
93	71,0+1
94	88,2+1
95	10,7+2
96	13,1+2
97	15,0+2
98	17,5+2
99	20,0+2
100	22,9+2
102	27,5+2
104	33,0+2
106	38,1+2
108	42,9+2
112	51,8+2
116	59,1+2
124	71,7+2
132	80,9+2
140	90,2+2
156	10,3+2
$_{79}Au(\alpha)\,^{194}_{81}Tl$ 33,0 мин [142]	
74	59,2
75	90,2
76	14,0+1
77	20,1+1
78	28,3+1
79	38,5+1
80	52,0+1
81	68,1+1
82	91,1+1
83	11,1+2
84	13,5+2
85	15,9+2
86	18,4+2
88	22,9+2
90	28,2+2
94	37,0+2
98	44,0+2
102	49,6+2
110	57,7+2
126	67,4+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
142	73,2+2
158	77,0+2
$_{79}Au(\alpha)\,^{195}_{81}Tl$ 1,16 ч [142]	
58	29,7−1
59	10,0
60	24,8
61	50,0
62	87,0
63	12,8+1
64	18,8+1
65	25,7+1
66	34,9+1
67	42,8+1
68	52,3+1
69	63,7+1
70	74,1+1
71	86,0+1
72	97,8+1
74	11,7+2
76	13,7+2
78	15,4+2
82	18,8+2
86	21,4+2
94	25,1+2
110	29,2+2
126	31,6+2
158	34,3+2
$_{79}Au(\alpha)\,^{196g}_{81}Tl$ 1,84 ч [141, 142]	
50	36,8−1
51	12,0
52	22,4
53	30,5
54	42,3
55	56,0
56	71,0
57	88,2
58	10,6+1
60	14,3+1
62	19,1+1
64	24,2+1
66	31,0+1
68	40,8+1
70	52,8+1
72	63,3+1
74	72,7+1
78	86,7+1
86	10,4+2
94	11,7+2
110	13,3+2
126	14,3+2
158	15,2+2
$_{79}Au(\alpha)\,^{197}_{81}Tl$ 2,84 ч [141, 142]	
38	19,2−1
39	35,8−1
40	75,9−1
41	17,7
42	34,6
43	58,0
44	86,5
45	11,8+1
46	16,5+1
47	20,8+1
48	26,0+1
50	36,2+1
52	45,8+1
56	56,7+1
60	64,3+1
64	70,3+1
72	79,3+1
88	88,2+1
104	93,9+1
120	97,7+1
136	99,8+1
$_{79}Au(\alpha)\,^{198g}_{81}Tl$ 5,3 ч [141]	
30	14,2−1
31	51,0−1
32	12,1
33	21,0
34	35,4
35	50,1
36	71,0
37	91,8
38	11,7+1
39	14,2+1
40	16,7+1
41	19,2+1
42	21,4+1
44	25,0+1
48	29,7+1
52	32,7+1
60	37,2+1
$_{79}Au(\alpha)\,^{199}_{81}Tl$ 7,4 ч [141]	
22	16,1−1
23	29,5−1
24	51,4−1
25	84,0−1
26	12,9
27	18,1
28	23,9
29	30,1
30	36,7
31	43,0
32	48,7
34	57,5
36	63,4
40	70,1
44	73,8
52	76,2
$_{79}Au(\alpha)\,^{200}_{81}Tl$ 26,1 ч [141]	
18	19,6−4
19	91,0−4
20	44,5−3
21	92,0−3
22	14,8−2
23	19,6−2
24	25,0−2
25	29,8−2
26	34,0−2
28	41,1−2
32	49,6−2
36	55,9−2
40	59,8−2
48	64,2−2
$_{79}Au(T)\,^{193}_{81}Tl$ 21,0 мин [133]	
48	15,2−1
49	37,1−1
50	77,7−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
51	13,2
52	19,9
53	27,0
54	36,4
55	46,1
56	57,7
57	68,8
58	83,9
59	99,5
60	11,8+1
61	14,2+1
62	16,9+1
63	20,9+1
64	25,3+1
65	31,8+1
66	39,8+1
67	50,1+1
68	62,9+1
69	78,4+1
70	96,3+1
71	11,6+2
72	13,6+2
74	17,6+2
$_{79}Au(T)\,^{194}_{81}Tl$ 33,0 мин [133]	
42	15,3–1
43	36,5–1
44	74,1–1
45	13,2
46	21,4
47	32,5
48	45,6
49	67,3
50	95,3
51	13,6+1
52	19,5+1
53	26,5+1
54	36,4+1
55	47,2+1
56	60,2+1
57	75,7+1
58	91,8+1
60	12,8+2
62	16,7+2
64	20,3+2
66	23,6+2
70	29,1+2
74	33,8+2
$_{79}Au(T)\,^{195}_{81}Tl$ 1,16 ч [133]	
34	35,3–2
35	14,9–1
36	58,9–1
37	15,8
38	33,7
39	56,2
40	91,6
41	13,2+1
42	18,2+1
43	23,2+1
44	30,2+1
45	37,1+1
46	44,5+1
47	53,0+1
48	60,2+1
49	68,0+1
50	76,6+1
51	83,8+1
52	93,2+1
54	10,9+2
58	13,3+2
66	16,0+2
74	17,5+2
$_{79}Au(T)\,^{196g}_{81}Tl$ 1,84 ч [133]	
24	17,2–2
25	74,0–2
26	29,0–1
27	66,3–1
28	11,9
29	20,1
30	31,1
31	46,5
32	66,8
33	92,7
34	12,6+1
35	16,2+1
36	20,0+1
37	23,8+1
38	27,9+1
40	35,4+1
42	41,5+1
46	49,8+1
54	58,0+1
70	65,5+1
$_{79}Au(T)\,^{197}_{81}Tl$ 2,84 ч [133]	
16	41,0–3
17	12,3–2
18	33,2–2
19	68,0–2
20	12,0–1
21	20,1–1
22	32,9–1
23	54,8–1
24	88,5–1
25	13,2
26	18,5
27	24,8
28	31,5
29	38,8
30	45,2
32	57,8
34	67,3
35	70,0
36	74,8
40	86,2
44	94,2
52	10,6+1
$_{80}^{202}Hg(p)\,^{192}_{79}Au$ 5,03 ч [143]	
62	68,8–4
63	11,0–3
64	17,5–3
65	24,0–3
66	31,9–3
67	47,0–3
68	68,8–3
69	94,8–3
70	12,9–2
71	17,5–2
72	23,3–2
73	30,7–2
74	40,4–2
75	51,8–2
76	67,3–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
77	83,9–2
78	10,9–1
79	13,7–1
80	17,4–1
81	22,0–1
82	28,2–1
84	44,3–1
86	66,0–1
$_{80}^{202}Hg(p)\,^{193}_{79}Au$ 17,65 ч [143]	
58	93,2–4
59	20,0–3
60	38,0–3
61	59,9–3
62	87,1–3
63	12,4–2
64	16,0–2
65	20,2–2
66	25,2–2
67	31,4–2
68	38,4–2
69	47,2–2
70	57,2–2
71	68,0–2
72	83,3–2
73	10,2–1
74	12,6–1
75	16,2–1
76	20,4–1
77	25,2–1
78	31,4–1
80	44,8–1
82	60,0–1
84	76,6–1
86	94,1–1
$_{80}^{202}Hg(p)\,^{194}_{79}Au$ 39,5 ч [143]	
52	19,2–4
53	48,0–4
54	98,4–4
55	18,5–3
56	30,2–3
57	47,4–3
58	71,8–3
59	10,3–2
60	14,7–2
61	20,2–2
62	27,2–2
63	36,5–2
64	46,9–2
65	59,0–2
66	76,6–2
67	93,8–2
68	11,8–1
69	14,3–1
70	17,2–1
71	20,0–1
72	23,8–1
74	31,2–1
76	39,1–1
78	47,2–1
80	55,1–1
82	63,5–1
84	70,7–1
86	78,6–1
$_{80}^{202}Hg(p)\,^{196}_{79}Au$ 6,18 сут [143]	
28	14,8–5
29	26,5–5
30	48,1–5
31	76,0–5
32	11,8–4
33	17,7–4
34	24,8–4
35	34,0–4
36	48,1–4
37	67,0–4
38	94,7–4
39	15,1–4
40	23,7–4
41	36,1–3
42	52,5–3
43	73,2–3
44	94,8–3
45	12,2–2
46	14,5–2
47	17,0–2
48	21,1–2
49	24,0–2
50	28,9–2
51	32,8–2
52	37,5–2
54	47,1–2
56	57,4–2
58	68,2–2
60	79,6–2
62	91,2–2
66	11,4–1
70	13,4–1
74	15,3–1
78	17,1–1
86	21,1–1
$_{80}^{202}Hg(p)\,^{198}_{79}Au$ 2,695 сут [143]	
16	22,2–5
17	59,0–5
18	13,0–4
19	24,0–4
20	41,4–4
21	62,1–4
22	93,6–4
23	13,6–3
24	19,5–3
25	27,0–3
26	38,3–3
27	53,8–3
28	72,6–3
29	97,8–3
30	12,7–2
31	16,5–2
32	20,4–2
33	24,6–2
34	29,7–2
35	35,5–2
36	39,8–2
38	50,1–2
40	60,0–2
42	69,4–2
44	78,2–2
46	86,4–2
50	10,2–1
54	11,8–1
58	13,4–1
62	15,4–1
66	17,9–1
70	21,0–1
74	24,8–1
78	29,4–1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
82	35,0–1
86	41,6–1
$^{202}_{80}Hg(p)^{199}_{79}Au$ 7,4 ч [143]	
12	33,3–5
13	54,5–5
14	10,7–4
15	21,0–4
16	44,0–4
17	90,0–4
18	17,8–3
19	31,5–3
20	52,2–3
21	78,2–3
22	10,7–2
23	13,7–2
24	17,3–2
25	20,8–2
26	24,4–2
27	28,0–2
28	31,4–2
30	38,2–2
32	44,2–2
34	49,4–2
38	59,8–2
42	64,8–2
46	72,2–2
50	81,0–2
54	92,5–2
58	10,8–1
62	12,8–1
66	15,4–1
70	18,6–1
74	22,5–1
78	27,2–1
82	32,7–1
86	39,0–1
$^{202}_{80}Hg(p)^{200}_{79}Au$ 48,4 ч [143]	
30	13,3–4
31	23,0–4
32	41,4–4
33	63,0–4
34	10,0–3
35	16,3–3
36	25,4–3
37	35,2–3
38	46,3–3
39	60,8–3
40	78,0–3
41	10,0–2
42	12,5–2
43	15,0–2
44	18,7–2
45	22,2–2
46	26,9–2
47	31,2–2
48	37,2–2
49	42,5–2
50	50,0–2
51	56,8–2
52	65,4–2
53	73,1–2
54	83,6–2
56	10,5–1
58	12,9–1
60	15,7–1
62	18,8–1
64	22,4–1
66	26,4–1
68	30,8–1
70	35,7–1
72	41,0–1
76	53,0–1
80	66,6–1
82	73,9–1
86	89,2–1
$^{202}_{80}Hg(p)^{201}_{79}Au$ 26,4 мин [143]	
12	11,5–3
13	19,2–3
14	30,8–3
15	42,5–3
16	59,3–3
17	80,0–3
18	10,6–2
19	13,8–2
20	17,3–2
21	21,6–2
22	26,4–2
23	31,8–2
24	38,0–2
25	45,7–2
26	53,4–2
27	63,8–2
28	72,9–2
29	82,5–2
30	98,0–2
32	12,8–1
34	16,6–1
36	20,9–1
38	26,3–1
42	33,4–1
43	43,3–1
44	54,2–1
46	68,7–1
48	86,4–1
50	10,8
52	13,3
54	16,3
56	19,8
58	23,8
60	28,4
62	33,7
64	39,5
66	45,9
68	53,0
70	60,6
72	68,8
74	77,6
76	86,9
78	96,8
82	11,8+1
86	14,1+1
$^{80}Hg(p)^{200}_{81}Tl$ 26,1 ч [144]	
10	40,7–2
11	10,7–1
12	22,9–1
13	37,9–1
14	61,8–1
15	92,0–1
16	12,1
17	16,6
18	20,3
19	24,1
20	28,3

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
21	32,1
22	36,3
23	39,9
24	43,0
$^{80}Hg(p)^{201}_{81}Tl$ 73,5 ч [144]	
10	54,4–2
11	10,3–1
12	18,7–1
13	31,0–1
14	49,6–1
15	77,1–1
16	10,7
17	13,7
18	17,5
19	20,7
20	24,3
21	27,7
22	30,7
24	35,3
$^{80}Hg(p)^{202}_{81}Tl$ 12,2 сут [144]	
10	50,3–3
11	89,0–3
12	13,8–2
13	19,3–2
14	24,9–2
15	30,0–2
16	36,4–2
17	40,9–2
18	44,4–2
19	50,2–2
20	57,9–2
21	67,1–2
22	78,1–2
23	91,8–2
24	10,4–1
$^{80}Hg(d)^{200}_{81}Tl$ 26,1 ч [144]	
10	25,9–2
11	73,0–2
12	16,1–1
13	27,2–1
14	43,1–1
15	66,5–1
16	93,2–1
17	12,0
18	16,2
19	20,0
20	24,8
21	30,2
22	36,4
23	43,1
24	49,4
$^{80}Hg(d)^{201}_{81}Tl$ 73,5 ч [144]	
10	20,4–2
11	42,0–2
12	75,8–2
13	11,8–1
14	17,4–1
15	25,5–1
16	37,6–1
17	55,0–1
18	75,7–1
19	10,0
20	12,9
21	16,2
22	20,0
23	23,2
24	26,3
$^{80}Hg(d)^{202}_{81}Tl$ 12,2 сут [144]	
10	42,9–3
11	91,0–3
12	19,2–2
13	37,5–2
14	63,6–2
15	90,0–2
16	11,7–1
17	13,6–1
18	15,2–1
19	16,0–1
20	17,2–1
21	18,2–1
22	20,2–1
23	25,1–1
24	31,4–1
$^{81}Tl(p)^{201}_{81}Tl$ 73,5 ч [145]	
18	77,5–4
19	58,0–3
20	31,0–2
21	71,5–2
22	12,4–1
23	17,6–1
24	25,3–1
25	32,2–1
26	40,4–1
27	49,0–1
28	57,2–1
29	66,0–1
30	75,1–1
31	84,5–1
32	94,2–1
33	10,5
34	11,4
35	12,7
36	13,8
37	15,0
38	16,4
39	17,7
40	19,5
41	21,3
42	23,4
44	28,5
46	35,3
$^{81}Tl(p)^{202}_{81}Tl$ 12,2 сут [145]	
14	11,0–4
15	30,0–4
16	89,0–4
17	16,0–4
18	28,3–3
19	52,8–3
20	91,5–3
21	15,2–2
22	23,8–2
23	34,5–2
24	47,0–2
25	62,0–2
26	77,7–2
27	95,2–2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
28	11,5−1
29	13,6−1
30	15,8−1
31	18,2−1
32	20,6−1
33	23,0−1
34	25,9−1
36	31,7−1
38	38,1−1
40	45,2−1
42	53,4−1
44	63,6−1
46	76,9−1
$^{199}_{82}$Pb 90 мин [145]	
36	40,7−2
37	13,5−1
38	44,4−1
39	12,3
40	37,4
41	80,0
42	14,6+1
43	23,2+1
44	36,1+1
45	52,2+1
46	73,3+1
47	92,2+1
48	11,2+2
$^{200}_{82}$Pb 21,5 ч [146]	
28	44,4−2
29	12,5−1
30	35,2−1
31	97,0−1
32	21,8
33	37,5
34	59,4
35	83,0
36	10,9+1
37	13,2+1
38	15,9+1
39	18,5+1
40	20,4+1
42	24,7+1
44	28,3+1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
46	33,4+1
48	38,4+1
50	45,0+1
52	53,1+1
54	62,7+1
56	73,8+1
58	85,5+1
60	97,2+1
$^{203}_{81}$Tl(p)$^{200}_{82}$Pb 21,5 ч [145, 146]	
28	44,4−2
29	12,5−1
30	35,2−1
31	97,0−1
32	21,8
33	37,5
34	59,4
35	83,0
36	10,9+1
37	13,2+1
38	15,9+1
39	18,5+1
40	20,4+1
42	24,7+1
44	28,8+1
46	32,7+1
48	36,4+1
50	39,9+1
52	43,2+1
54	46,3+1
56	49,2+1
58	51,9+1
60	54,4+1
$^{200}_{82}$Pb 21,5 ч [147]	
42	40,4−2
43	87,0−2
44	17,2−1
45	37,1−1
46	66,0−1
47	12,4
48	20,3
49	34,5
50	52,0
51	74,8

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
52	99,1
53	12,5+1
54	16,4+1
55	19,8+1
56	24,6+1
57	28,9+1
58	33,6+1
59	38,8+1
60	42,8+1
$^{201}_{82}$Pb 9,4 ч [146]	
18	29,6−2
19	10,8−1
20	42,6−1
21	10,9
22	23,0
23	44,5
24	71,7
25	10,8+1
26	15,6+1
27	20,2+1
28	25,8+1
29	31,3+1
30	35,8+1
31	39,5+1
32	43,8+1
34	49,0+1
36	54,0+1
38	61,5+1
39	68,5+1
40	76,5+1
41	89,5+1
42	98,8+1
43	11,2+2
44	12,6+2
45	14,1+2
46	15,6+2
47	17,1+2
48	18,6+2
50	21,3+2
52	23,7+2
56	27,3+2
60	30,0+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{201}_{82}$Pb 9,4 ч [146, 147]	
18	29,6−2
19	10,8−1
20	42,6−1
21	10,9
22	23,0
23	44,5
24	71,7
25	10,8+1
26	15,6+1
27	20,2+1
28	25,8+1
29	31,3+1
30	35,8+1
32	43,8+1
34	49,0+1
36	52,0+1
40	56,7+1
44	61,9+1
48	68,0+1
52	79,1+1
56	85,8+1
60	90,0+1
$^{201}_{82}$Pb 9,4 ч [147]	
35	71,0−1
36	20,1
37	41,5
38	79,1
39	13,6+1
40	19,8+1
41	28,3+1
42	38,9+1
43	51,0+1
44	64,6+1
45	79,0+1
46	92,5+1
47	10,5+2
48	11,8+2
50	13,9+2
52	15,8+2
56	18,7+2
60	21,0+2

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{202m}_{82}$Pb 3,62 ч [72, 309]	
12	28,8−2
13	68,0−2
14	17,3−1
15	34,5−1
16	60,1−1
17	10,0
18	15,8
19	23,0
20	32,1
21	46,5
22	63,0
23	74,2
24	84,0
26	94,3
28	10,4+1
29	11,1+1
30	12,4+1
31	15,1+1
32	19,6+1
33	26,7+1
34	35,8+1
35	47,4+1
36	60,3+1
37	72,4+1
38	83,2+1
39	94,0+1
40	10,6+2
42	12,7+2
44	14,2+2
46	15,4+2
48	16,4+2
50	17,3+2
$^{202m}_{82}$Pb 3,62 ч [145 147]	
12	28,8−2
13	68,0−2
14	17,3−1
15	34,5−1
16	60,1−1
17	10,0
18	15,8
19	23,0
20	32,1

Энергия частиц, МэВ	Выход радионуклида, МБк /(мкА· ч)
21	46,5
22	63,0
23	74,2
24	84,0
26	94,3
30	10,7+1
34	11,7+1
38	12,6+1
42	14,0+1
50	15,0+1
$^{202m}_{82}$Pb 3,62 ч [145, 147]	
26	28,0−2
27	99,0−2
28	35,4−1
29	76,0−1
30	16,8
31	40,1
32	84,0
33	15,2+1
34	24,1+1
35	35,5+1
36	48,2+1
37	60,0+1
38	70,6+1
39	81,0+1
40	93,1+1
42	11,3+2
44	12,8+2
48	15,0+2
52	16,7+2
56	18,1+2
60	19,3+2
$^{203}_{82}$Pb 52,0 ч [145, 146]	
10	55,6−2
11	89,0−2
12	13,0−1
13	17,6−1
14	22,2−1
15	27,0−1
16	31,4−1
17	39,6−1
18	54,8−1
19	82,7−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
20	12,8
21	21,6
22	33,8
23	50,6
24	70,1
25	92,1
26	11,6+1
27	13,8+1
28	16,2+1
29	18,4+1
30	20,0+1
32	22,4+1
36	25,7+1
40	28,2+1
44	30,3+1
52	33,9+1
60	36,8+1
$_{81}Tl(p)^{204m}_{82}Pb$ 66,9 мин [145, 147]	
10	92,7−3
11	36,0−2
12	12,2−1
13	41,1−1
14	16,7
15	45,4
16	10,1+1
17	17,8+1
18	28,2+1
19	44,0+1
20	60,9+1
21	75,8+1
22	86,7+1
24	10,1+2
28	11,9+2
32	13,1+2
36	14,3+2
40	15,4+2
44	16,6+2
48	17,6+2
52	18,6+2
56	19,6+2
60	20,6+2
$_{81}Tl(d)^{203}_{82}Pb$ 52,0 ч [148]	
9	40,0−2
10	10,2−1
11	22,8−1
12	40,8−1
13	61,6−1
14	82,1−1
15	10,2
16	12,1
17	13,7
18	15,0
20	16,9
22	17,7
24	18,0
$_{82}Pb(p)^{205}_{83}Bi$ 15,31 сут [148]	
13	81,4−3
14	15,2−2
15	62,2−2
16	12,7−1
17	20,8−1
18	32,1−1
19	44,6−1
20	58,2−1
21	73,8−1
22	88,9−1
23	10,5
24	12,0
$_{82}Pb(p)^{206}_{83}Bi$ 6,24 сут [148]	
11	16,5−2
12	47,4−2
13	10,1−1
14	17,2−1
15	26,0−1
16	36,6−1
17	48,6−1
18	59,9−1
19	72,7−1
20	85,7−1
21	98,2−1
22	11,4
23	12,8
24	14,2
$_{82}Pb(p)^{207}_{83}Bi$ 33,4 года [148]	
11	13,3−5
12	34,8−5
13	71,0−5
14	12,6−4
15	22,3−4
16	35,8−4
17	52,1−4
18	70,4−4
19	88,6−4
20	10,8−3
21	13,0−3
22	15,1−3
23	17,1−3
24	19,2−3
$_{82}Pb(d)^{205}_{83}Bi$ 15,31 сут [148]	
15	88,8−3
16	15,5−2
17	30,3−2
18	63,6−2
19	12,3−1
20	20,9−1
21	32,9−1
22	42,8−1
23	53,9−1
24	65,1−1
$_{82}Pb(d)^{206}_{83}Bi$ 6,24 сут [148]	
10	11,8−2
11	36,3−2
12	77,6−2
13	13,8−1
14	22,6−1
15	34,5−1
16	48,5−1
17	62,0−1
18	75,9−1
19	90,8−1
20	10,3
21	11,6
22	13,0
24	15,8

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$_{82}Pb(d)^{207}_{83}Bi$ 33,4 года [148]	
10	10,4−5
11	26,6−5
12	45,1−5
13	64,0−5
14	91,8−5
15	13,5−4
16	18,9−4
17	28,0−4
18	42,8−4
19	57,1−4
20	74,5−4
21	94,2−4
22	11,5−3
23	13,5−3
24	15,4−3
$^{206}_{82}Pb(\alpha)^{206}_{84}Po$ 8,8 сут [149]	
42	20,1−3
43	51,0−3
44	10,0−2
45	18,1−2
46	29,4−2
47	43,6−2
48	59,5−2
49	80,0−2
50	10,0−1
$^{206}_{82}Pb(\alpha)^{207}_{84}Po$ 5,84 сут [150]	
32	23,1−2
33	98,0−2
34	23,6−1
35	42,8−1
36	67,9−1
37	10,2
38	13,7
39	18,0
40	22,3
41	26,2
42	31,3
43	35,0
44	38,9
46	44,0
48	47,1
$_{82}Pb(\alpha)^{208}_{84}Po$ 2,898 года [149]	
22	17,0−6
23	74,0−6
24	18,5−5
25	41,0−5
26	77,6−5
27	12,2−4
28	17,9−4
29	24,6−4
30	31,7−4
31	40,2−4
32	49,2−4
33	60,2−4
34	71,2−4
35	82,7−4
36	94,0−4
37	10,6−3
38	11,7−3
39	13,0−3
40	14,4−3
41	15,9−3
42	17,7−3
43	19,8−3
44	22,1−3
46	27,7−3
48	34,2−3
50	39,9−3
$^{206}_{82}Pb(\alpha)^{208}_{84}Po$ 2,898 года [149]	
22	17,0−6
23	74,0−6
24	18,5−5
25	41,0−5
26	77,8−5
27	12,2−4
28	17,8−4
29	24,6−4
30	31,5−4
31	39,5−4
32	47,4−4
33	55,7−4
34	62,5−4
36	72,2−4
40	80,9−4
44	85,0−4
52	92,5−4
$^{207}_{82}Pb(\alpha)^{208}_{84}Po$ 2,898 года [149]	
28	60,0−7
29	11,3−6
30	24,0−6
31	70,0−6
32	18,5−5
33	45,0−5
34	86,9−5
35	14,2−4
36	21,7−4
37	29,6−4
38	39,2−4
39	48,2−4
40	59,6−4
41	69,2−4
42	79,9−4
44	96,9−4
46	10,9−3
50	12,0−3
$^{208}_{82}Pb(\alpha)^{208}_{84}Po$ 2,898 года [149]	
36	10,0−6
37	34,4−6
38	82,0−6
39	17,0−5
40	35,1−5
41	75,0−5
42	13,7−4
43	24,5−4
44	39,0−4
45	59,0−4
46	81,1−4
47	10,6−3
48	13,5−3
49	16,1−3
50	18,8−3
$^{208}_{82}Pb(\alpha)^{209}_{84}Po$ 102 года [149]	
30	90,0−7
31	19,6−6

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
32	36,0−6
33	59,8−6
34	90,0−6
35	12,9−5
36	17,2−5
37	22,8−5
38	27,5−5
39	33,4−5
40	38,7−5
41	44,5−5
42	50,0−5
44	60,2−5
46	68,1−5
50	75,8−5
$_{82}Pb(\alpha)^{210}_{84}Po$ 138,4 сут [149]	
18	50,0−7
19	20,8−6
20	80,0−6
21	32,0−5
22	13,0−4
23	36,0−4
24	72,0−4
25	12,5−3
26	19,0−3
27	27,2−3
28	36,7−3
29	47,8−3
30	58,9−3
31	71,2−3
32	83,0−3
34	10,0−2
$^{207}_{82}Pb(\alpha)^{210}_{84}Po$ 138,4 сут [149]	
18	50,0−7
19	14,6−6
20	46,0−6
21	22,5−5
22	54,2−5
23	10,3−4
24	13,7−4
26	16,2−4
34	18,3−4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{208}_{82}Pb(\alpha)^{210}_{84}Po$ 138,4 сут [149]	
20	34,0−6
21	16,5−5
22	76,3−5
23	26,2−4
24	58,3−4
25	10,5−3
26	17,4−3
27	25,2−3
28	35,0−3
29	46,0−3
30	57,2−3
31	69,8−3
32	81,2−3
34	98,2−3
36	10,8−2
44	12,5−2
52	13,3−2
$^{207}_{82}Pb(\tau)^{207}_{84}Po$ 5,84 ч [150]	
22	18,8−2
23	44,5−2
24	89,0−2
25	14,8−1
26	22,4−1
27	32,5−1
28	42,2−1
29	51,9−1
30	61,4−1
31	69,0−1
32	76,5−1
34	86,9−1
36	93,2−1
40	10,8
$_{83}Bi(p)^{199}_{83}Bi$ 24,4 мин [151]	
110	10,7
111	24,1
112	47,0
113	83,2
114	13,6+1
115	20,3+1

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
116	29,8+1
117	41,0+1
118	55,5+1
119	67,0+1
120	81,2+1
121	97,3+1
122	11,6+2
124	14,8+2
126	17,4+2
128	20,1+2
130	24,5+2
132	30,3+2
134	39,5+2
136	50,0+2
138	60,0+2
140	71,5+2
142	82,0+2
144	92,8+2
146	10,4+3
150	12,4+3
$_{83}Bi(p)^{200}_{83}Bi$ 35 мин [151]	
106	28,5
107	71,8
108	15,1+1
109	27,5+1
110	45,3+1
111	64,9+1
112	87,7+1
113	10,7+2
114	12,6+2
115	14,7+2
116	16,9+2
117	19,5+2
118	22,4+2
120	27,8+2
122	33,5+2
123	36,9+2
124	39,5+2
126	45,7+2
128	51,8+2
130	59,0+2
132	65,9+2
134	73,2+2
136	80,6+2
138	88,1+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
142	10,4+3
150	13,6+3
$_{83}Bi(p)^{201}_{83}Bi$ 100 мин [151]	
86	75,0−1
87	20,3
88	43,0
89	75,8
90	11,2+1
91	15,4+1
92	20,8+1
93	27,6+1
94	36,7+1
95	46,5+1
96	57,0+1
97	67,8+1
98	78,3+1
99	92,2+1
100	10,6+2
102	13,7+2
104	17,0+2
106	20,6+2
108	24,1+2
110	27,9+2
114	35,3+2
118	42,7+2
122	50,0+2
126	57,8+2
134	70,2+2
142	82,2+2
150	92,2+2
$_{83}Bi(p)^{202}_{83}Bi$ 1,79 ч [151]	
58	15,0−1
59	39,5−1
60	79,2−1
61	13,3
62	20,4
63	28,0
64	39,1
65	51,8
66	66,8
67	82,2

Энергия частиц, МэВ	Выход радионуклида, МБк/ (мкА·ч)
68	10,1+1
69	12,2+1
70	14,6+1
71	17,6+1
72	20,9+1
73	24,5+1
74	28,3+1
75	32,8+1
76	37,7+1
77	43,3+1
78	49,0+1
79	56,1+1
80	63,6+1
81	71,1+1
82	77,8+1
83	87,6+1
84	96,1+1
86	11,6+2
88	14,2+2
90	17,1+2
92	21,7+2
94	26,6+2
96	32,6+2
98	38,9+2
100	45,0+2
102	51,0+2
104	57,7+2
106	62,1+2
110	72,3+2
114	81,8+2
118	90,9+2
126	10,8+3
134	12,5+3
150	15,9+3
$_{83}Bi(p)^{203}_{83}Bi$ 11,76 ч [151]	
60	23,4−2
61	93,5−2
62	23,0−1
63	45,1−1
64	73,8−1
65	10,3
66	14,7
67	20,6
68	28,0
69	37,0

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
70	47,1
71	58,2
72	69,9
73	85,2
74	10,2+1
75	12,4+1
76	15,1+1
77	17,9+1
78	21,2+1
79	24,8+1
80	28,6+1
81	33,0+1
82	37,2+1
84	45,6+1
86	54,2+1
88	63,4+1
90	72,1+1
92	81,1+1
96	98,6+1
100	11,6+2
104	13,3+2
112	16,6+2
120	19,7+2
128	22,7+2
136	25,5+2
152	30,4+2
$_{83}Bi(p)^{204}_{83}Bi$ 11,2 ч [151]	
56	30,0−2
57	11,7−1
58	40,8−1
59	97,0−1
60	17,6
61	28,8
62	42,1
63	57,0
64	77,8
65	99,4
66	12,5+1
67	15,4+1
68	18,1+1
69	21,6+1
70	24,8+1
72	32,0+1
74	39,6+1
76	47,6+1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
78	56,0+1
80	64,7+1
82	73,5+1
$_{83}Bi(p)^{205}_{83}Bi$ 15,31 сут [151]	
44	71,4−3
45	12,0−2
46	21,0−2
47	35,8−2
48	63,0−2
49	10,8−1
50	17,6−1
51	26,1−1
52	36,0−1
53	46,0−1
54	55,6−1
55	66,0−1
56	76,7−1
57	88,2−1
58	10,1
60	12,5
61	13,8
62	15,0
64	17,5
66	20,5
68	23,7
72	29,9
76	36,1
80	42,3
84	48,3
88	54,1
96	65,0
104	75,5
112	85,7
120	95,8
136	11,7+1
152	13,3+1
$_{83}Bi(p)^{206}_{83}Bi$ 6,24 сут [151, 152]	
26	78,6−3
27	18,5−2
28	37,0−2
29	65,9−2
30	10,5−1
31	17,0−1
32	26,6−1
33	38,5−1
34	54,7−1
35	73,8−1
36	95,0−1
37	12,0
38	14,1
39	16,5
40	18,5
42	22,1
44	25,0
48	30,2
52	35,8
56	41,1
60	46,1
62	48,5
68	56,0
76	66,1
84	76,5
92	87,0
100	97,7
116	11,9+1
132	14,1+1
$_{83}Bi(p)^{198}_{84}Po$ 1,8 мин [151]	
116	15,1
117	29,8
118	60,0
119	12,0+1
120	24,9+1
121	40,2+1
122	64,0+1
123	91,2+1
124	12,3+2
125	16,2+2
126	21,2+2
127	27,5+2
128	35,3+2
129	44,5+2
130	55,2+2
131	68,0+2
132	83,2+2
133	10,1+3
134	12,1+3
135	14,1+3
136	16,0+3
137	18,5+3
138	21,0+3
140	26,7+3
142	32,9+3
144	39,4+3
146	45,9+3
148	53,1+3
150	60,2+3
152	67,5+3
154	75,0+3
156	82,4+3
160	97,8+3
$_{83}Bi(p)^{199}_{84}Po$ 5,2 мин [151]	
106	48,0
107	14,3+1
108	30,5+1
109	58,2+1
110	10,1+2
111	14,0+2
112	19,6+2
113	26,8+2
114	34,7+2
115	42,3+2
116	51,0+2
117	60,2+2
118	70,7+2
119	80,1+2
120	96,0+2
122	11,5+3
124	13,9+3
126	16,6+3
128	19,4+3
130	22,0+3
134	27,8+3
138	33,8+3
142	40,1+3
146	46,7+3
150	53,6+3
154	60,7+3
158	68,0+3
$_{83}Bi(p)^{200}_{84}Po$ 11,8 мин [151]	
94	11,0
95	30,0
96	69,8

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
97	13,8
98	24,3+1
99	37,3+1
100	56,0+1
101	81,0+1
102	11,6+2
103	15,6+2
104	21,2+2
105	27,8+2
106	34,8+2
107	45,0+2
108	55,8+2
109	68,3+2
110	85,0+2
111	10,2+3
112	11,5+3
114	14,5+3
116	17,0+3
118	19,8+3
122	24,5+3
126	28,9+3
130	33,2+3
138	41,7+3
146	50,3+3
154	59,5+3
158	64,3+3
162	68,4+3
$_{83}Bi(p)^{201}_{84}Po$ 14,5 мин [151]	
70	10,5
71	25,8
72	54,0
73	10,0+1
74	15,9+1
75	21,2+1
76	28,5+1
77	38,0+1
78	49,2+1
79	62,8+1
80	79,2+1
81	95,8+1
82	11,5+2
83	13,5+2
84	16,2+2
85	19,5+2
86	23,8+2
87	29,0+2
88	35,4+2
89	42,8+2
90	51,6+2
91	60,8+2
92	72,1+2
93	84,3+2
94	98,8+2
96	12,6+3
98	15,4+3
100	18,0+3
102	21,2+3
106	27,1+3
114	37,3+3
122	45,5+3
130	52,6+3
138	59,3+3
154	71,8+3
$_{83}Bi(p)^{202}_{84}Po$ 43,8 мин [151]	
62	38,7−1
63	86,2−1
64	18,9
65	41,0
66	81,2
67	12,0+1
68	17,9+1
69	25,6+1
70	35,2+1
71	45,8+1
72	58,8+1
73	76,0+1
74	96,3+1
75	12,3+2
76	15,9+2
77	20,2+2
78	25,3+2
79	32,0+2
80	39,2+2
81	48,1+2
82	58,6+2
83	69,0+2
84	79,7+2
85	91,2+2
86	10,2+3
88	12,2+3
90	14,2+3
94	17,7+3
102	22,8+3
110	26,5+3
126	32,8+3
142	38,6+3
158	44,8+3
$_{83}Bi(p)^{203}_{84}Po$ 36,0 мин [151]	
58	60,0
59	16,0+1
60	34,3+1
61	63,2+1
62	10,2+2
63	14,4+2
64	19,8+2
65	26,9+2
66	35,8+2
67	44,8+2
68	55,0+2
69	66,2+2
70	78,1+2
71	91,1+2
72	10,6+3
74	13,8+3
76	17,4+3
78	20,8+3
80	24,0+3
82	27,1+3
90	36,1+3
98	42,4+3
114	51,8+3
146	64,6+3
$_{83}Bi(p)^{204}_{84}Po$ 3,52 ч [151]	
49	82,0
50	16,6+1
51	27,2+1
52	41,6+1
53	59,0+1
54	82,9+1
55	10,8+2
56	14,0+2
57	17,5+2
58	21.3+2

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
60	29,6+2
62	38,5+2
64	47,6+2
66	55,7+2
70	69,3+2
74	78,8+2
78	86,5+2
82	93,6+2
$_{83}Bi(p)^{205}_{84}Po$ 1,8 ч [151]	
40	22,6
41	46,2
42	96,2
43	20,0+1
44	41,1+1
45	84,0+1
46	14,7+2
47	22,6+2
48	33,4+2
49	40,0+2
50	48,4+2
51	58,2+2
52	69,0+2
54	86,8+2
56	10,6+3
60	13,7+3
64	15,7+3
72	18,5+3
80	20,5+3
96	23,7+3
112	26,3+3
128	28,3+3
144	30,0+3
$_{83}Bi(p)^{206}_{84}Po$ 8,8 сут [151, 152]	
26	34,8−3
27	14,5−2
28	40,3−2
29	84,2−2
30	16,1−1
31	27,9−1
32	45,7−1
33	71,2−1
34	10,6
35	15,4
36	22,0
37	28,5
38	36,8
40	51,7
42	65,3
44	76,3
46	84,8
50	97,1
66	12,7+1
82	14,4+1
114	16,8+1
146	18,6+1
$_{83}Bi(p)^{207}_{84}Po$ 5,84 ч [152]	
18	19,1−1
19	65,0−1
20	22,6
21	70,2
22	15,2+1
23	27,1+1
24	42,5+1
25	59,0+1
26	81,6+1
27	10,2+2
28	12,4+2
29	14,8+2
30	16,7+2
32	20,2+2
34	22,8+2
38	25,6+2
46	28,8+2
54	31,7+2
$_{83}Bi(p)^{208}_{84}Po$ 2.898 года [151]	
10	10,4−4
11	21,3−4
12	41,8−4
13	78,8−4
14	14,9−3
15	27,7−3
16	46,1−3
17	66,0−3
18	90,2−3
19	12,0−2
20	15,2−2
21	18,6−2
22	22,9−2
23	27,2−2
24	32,7−2
25	38,5−2
26	44,6−2
28	59,6−2
30	68,2−2
34	77,0−2
42	89,0−2
58	10,3−1
90	12,1−1
$_{83}Bi(\alpha)^{207}_{85}At$ 1,8 ч [135]	
56	25,7−2
57	51,0−2
58	10,5−1
59	22,5−1
60	41,6−1
61	74,8−1
62	12,5
63	19,2
64	28,8
65	41,5
66	58,2
67	81,2
68	11,3+1
69	14,8+1
70	19,4+1
71	23,5+1
72	28,8+1
73	93,8+1
74	38,4+1
75	43,0+1
76	47,9+1
77	52,0+1
78	57,0+1
79	60,6+1
80	65,2+1
$_{83}Bi(\alpha)^{208}_{85}At$ 1,63 ч [135]	
46	73,5−2
47	22,9−1
48	47,8−1
49	83,1−1

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
50	13,9
51	20,9
52	31,0
53	43,5
54	59,3
55	78,3
56	10,4+1
57	13,3+1
58	17,2+1
59	21,2+1
60	26,7+1
61	31,8+1
62	37,9+1
63	43,0+1
64	49,9+1
65	55,4+1
66	62,0+1
68	72,7+1
70	81,9+1
72	90,0+1
74	97,4+1
76	10,4+2
80	11,6+2
$_{83}Bi(\alpha)^{209}_{85}At$ 5,3 ч [135]	
38	98,4−2
39	18,7−1
40	31,2−1
41	53,0−1
42	81,8−1
43	12,2
44	17,4
45	25,0
46	34,0
47	47,1
48	60,5
49	76,8
50	97,1
51	11,7+1
52	13,9+1
53	16,2+1
54	18,3+1
55	20,3+1
56	22,6+1
58	26,3+1
60	29,7+1
64	34,5+1
72	38,9+1
80	40,9+1
$_{83}Bi(\alpha)^{210}_{85}At$ 8,3 ч [135]	
30	98,4−2
31	29,2−1
32	64,3−1
33	10,4
34	16,4
35	22,8
36	31,2
37	39,2
38	49,4
39	59,0
40	70,2
41	81,7
42	92,9
44	11,7+1
48	15,6+1
56	18,1+1
64	19,1+1
$_{92}^{233}U(\alpha)^{233}_{93}Np$ 32,6 мин [153]	
34	34,0−5
35	83,3−4
36	23,9−3
37	49,1−3
38	85,9−3
39	13,5−2
40	20,0−2
41	28,3−2
42	39,1−2
43	52,8−2
44	69,5−2
45	89,4−2
46	11,2−1
$_{92}^{233}U(\alpha)^{234}_{93}Np$ 4,4 сут [153]	
27	17,6−5
28	65,7−5
29	14,6−4
30	26,0−4
31	41,3−4
32	60,6−4
33	84,8−4
34	11,4−3
35	14,9−3
36	19,2−3
37	24,2−3
38	30,0−3
39	36,8−3
40	44,5−3
41	53,4−3
42	63,4−3
43	74,8−3
44	87,5−3
46	11,8−2
$_{92}^{233}U(\alpha)^{235}_{93}Np$ 396 сут [153]	
26	16,0−8
27	13,0−7
28	38,1−7
29	79,3−7
30	14,3−6
31	23,7−6
32	26,8−6
33	51,7−6
34	73,0−6
35	10,1−5
36	14,0−5
37	19,0−5
38	25,4−5
39	33,3−5
40	42,3−5
41	54,0−5
42	66,8−5
43	81,4−5
44	97,8−5
45	11,6−4
46	13,6−4
$_{92}^{233}U(\alpha)^{236m}_{93}Np$ 22,5 ч [153]	
24	10,0−6
25	13,0−5
26	46,4−5
27	11,0−4
28	20,6−4

Продолжение табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
29	33,3–4
30	49,1–4
31	67,7–4
32	88,9–4
33	11,2–4
34	13,7–4
35	16,4–4
36	19,1–3
37	21,9–3
38	24,6–3
40	29,9–3
42	34,6–3
44	38,6–3
46	41,8–3
$^{233}_{92}U(\alpha)^{233}_{94}Pu$ 20,9 мин [153]	
37	56,0–6
38	63,0–5
39	18,0–4
40	65,7–4
41	17,5–3
42	39,8–3
43	91,4–3
44	24,5–2
45	51,6–2
46	81,5–2
$^{233}_{92}U(\alpha)^{234}_{94}Pu$ 8,8 ч [153]	
26	20,0–7
27	19,0–6
28	12,8–5
29	42,4–5
30	11,3–4
31	29,6–4
32	67,6–4
33	12,6–3
34	20,3–3
35	28,6–3
36	37,0–3
38	51,2–3
40	60,7–3
42	67,1–3
44	71,8–3
46	75,8–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{233}_{92}U(\alpha)^{235}_{94}Pu$ 25,6 сут [153]	
22	35,0–6
23	98,5–6
24	21,3–5
25	39,0–5
26	70,3–5
27	11,0–4
28	16,6–4
29	23,1–4
30	30,7–4
31	36,0–4
32	41,3–4
36	49,5–4
40	54,3–4
44	59,8–4
48	66,9–4
$^{233}_{92}U(\alpha)^{236}_{94}Pu$ 2,851 года [153]	
18	91,0–10
19	51,2–9
20	27,8–8
21	64,2–8
22	12,5–7
23	20,1–7
24	29,9–7
25	41,0–7
26	54,7–7
27	69,2–7
28	86,8–7
29	10,5–6
30	12,5–6
31	14,6–6
32	16,9–6
33	18,8–6
34	21,6–6
36	26,6–6
38	31,9–6
40	37,3–6
42	42,9–6
44	48,7–6
46	54,6–6
48	60,5–6

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{235}_{92}U(\alpha)^{236m}_{93}Np$ 22,5 ч [153]	
24	50,0–9
25	93,9–8
26	38,2–7
27	10,8–6
28	24,0–6
29	45,9–6
30	78,0–6
31	12,2–5
32	17,9–5
33	25,2–5
34	34,2–5
35	45,0–5
36	57,9–5
37	73,0–5
38	90,2–5
39	11,0–4
40	13,2–4
41	15,6–4
42	18,3–4
43	21,1–4
44	24,1–4
46	30,1–4
$^{235}_{92}U(\alpha)^{238}_{93}Np$ 2,117 сут [153]	
22	11,0–9
23	33,0–9
24	23,3–8
25	41,0–7
26	10,6–6
27	17,5–6
28	27,6–6
29	39,2–6
30	54,4–6
31	72,0–6
32	90,9–6
33	11,2–5
34	13,4–5
35	15,8–5
36	18,1–5
38	22,9–5
40	27,4–5
42	31,6–5
44	35,3–5
48	41,8–5

Окончание табл. 4

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
$^{235}_{92}U(\alpha)^{234}_{94}Pu$ 8,8 ч [153]	
42	11,0–9
43	39,0–9
44	78,4–8
45	24,3–7
46	50,7–7
$^{235}_{92}U(\alpha)^{235}_{94}Pu$ 25,6 сут [153]	
37	55,0–9
38	40,7–8
39	13,0–7
40	27,6–7
41	47,6–7
42	70,8–7
43	95,3–7
44	12,0–6
46	15,7–6
$^{235}_{92}U(\alpha)^{236}_{94}Pu$ 2,851 года [153]	
27	53,5–10
28	18,2–9
29	42,7–9
30	87,4–9
31	17,8–8
32	32,3–8
33	50,0–8
34	68,6–8
35	85,6–8
36	97,9–8
38	11,6–7
40	13,1–7
44	15,4–7
48	17,3–7
$^{235}_{92}U(\alpha)^{237}_{94}Pu$ 45,63 сут [153]	
20	10,5–8
21	35,5–8
22	12,6–7
23	39,5–7
24	86,3–7
25	14,0–7
26	21,6–6

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
27	28,2–6
28	35,0–6
30	45,5–6
32	52,6–6
36	64,2–6
40	75,2–6
44	86,1–6
48	96,5–6
$^{235}_{92}U(\alpha)^{238}_{94}Pu$ 87,74 года [153]	
20	30,6–11
21	62,2–11
22	11,2–10
23	16,2–10
24	24,0–10
25	31,5–10
26	40,9–10
27	51,0–10
28	61,2–10
29	71,3–10
30	84,6–10
31	95,4–10
32	11,1–9
34	14,0–9
36	17,1–9
38	20,4–9
40	23,9–9
42	27,6–9
44	31,5–9
48	39,1–9
$^{238}_{92}U(\alpha)^{237}_{92}U$ 6,75 сут [153]	
26	18,4–5
27	52,5–5
28	10,5–4
29	17,5–4
30	25,7–4
31	37,3–4
32	56,6–4
33	89,7–4
34	14,6–3
35	23,4–3
36	36,3–3
37	53,3–3
38	74,6–3

Энергия частиц, МэВ	Выход радионуклида, МБк/(мкА·ч)
39	10,0–2
40	13,0–2
41	16,3–2
42	19,8–2
43	23,5–2
44	27,3–2
45	31,2–2
46	35,1–2
$^{238}_{92}U(\alpha)^{238}_{93}Np$ 2,117 сут [153]	
36	37,5–6
37	61,3–5
38	28,0–4
39	64,6–4
40	11,8–3
41	18,7–3
42	27,5–3
43	37,8–3
44	50,0–3
45	64,0–3
46	80,0–3
$^{238}_{92}U(\alpha)^{239}_{93}Np$ 2,355 сут [153]	
23	24,1–6
24	39,8–5
25	13,2–4
26	30,1–4
27	55,1–4
28	90,8–4
29	13,8–3
30	19,8–3
31	27,1–3
32	36,0–3
33	46,5–3
34	58,6–3
35	72,8–3
36	89,1–3
37	10,8–2
38	13,0–2
39	15,5–2
40	18,3–2
41	21,5–2
42	25,1–2
44	33,6–2
46	44,0–2

ПРИЛОЖЕНИЕ

Распространенность изотопов, %

Элемент	Изотоп	Содержание	Элемент	Изотоп	Содержание
$_{1}H$	^{1}H	99,9852		^{41}K	6,77
	^{2}H	0,0148	$_{20}Ca$	^{40}Ca	99,97
$_{2}He$	^{3}He	$1,3 \cdot 10^{-4}$		^{42}Ca	0
	^{4}He	≈100		^{43}Ca	0,15
$_{3}Li$	^{6}Li	7,42		^{44}Ca	2,13
	^{7}Li	92,58		^{46}Ca	0,0036
$_{4}Be$	^{9}Be	100		^{48}Ca	0,185
$_{5}B$	^{10}B	19,7	$_{21}Sc$	^{45}Sc	100
	^{11}B	80,3	$_{22}Ti$	^{46}Ti	7,99
$_{6}C$	^{12}C	98,992		^{47}Ti	7,32
	^{13}C	1,108		^{48}Ti	73,99
$_{7}N$	^{14}N	99,635		^{49}Ti	5,46
	^{15}N	0,365		^{50}Ti	5,25
$_{8}O$	^{16}O	99,759	$_{23}V$	^{50}V	0,25
	^{17}O	0,037		^{51}V	99,75
	^{18}O	0,204	$_{24}Cr$	^{50}Cr	4,31
$_{9}F$	^{19}F	100		^{52}Cr	83,76
$_{10}Ne$	^{20}Ne	90,92		^{53}Cr	9,55
	^{21}Ne	0,257		^{54}Cr	2,38
	^{22}Ne	8,82	$_{25}Mn$	^{55}Mn	100
$_{11}Na$	^{23}Na	100	$_{26}Fe$	^{54}Fe	5,84
$_{12}Mg$	^{24}Mg	78,60		^{56}Fe	91,68
	^{25}Mg	10,11		^{57}Fe	2,17
	^{26}Mg	11,29		^{58}Fe	0,31
$_{13}Al$	^{27}Al	100	$_{27}Co$	^{59}Co	100
$_{14}Si$	^{28}Si	92,18	$_{28}Ni$	^{58}Ni	67,76
	^{29}Si	4,71		^{60}Ni	26,16
	^{30}Si	3,12		^{61}Ni	1,25
$_{15}P$	^{31}P	100		^{62}Ni	3,66
$_{16}S$	^{32}S	95,0		^{64}Ni	1,16
	^{33}S	0,760	$_{29}Cu$	^{63}Cu	69,1
	^{34}S	4,22		^{65}Cu	30,9
	^{36}S	0,014	$_{30}Zn$	^{64}Zn	48,89
$_{17}Cl$	^{35}Cl	75,53		^{66}Zn	27,81
	^{37}Cl	24,47		^{67}Zn	4,11
$_{18}Ar$	^{36}Ar	0,337		^{68}Zn	18,56
	^{38}Ar	0,063		^{70}Zn	0,62
	^{40}Ar	99,600	$_{31}Ga$	^{69}Ga	60,2
$_{19}K$	^{39}K	93,22		^{71}Ga	39,8
	^{40}K	0,0118	$_{32}Ge$	^{70}Ge	20,55
				^{72}Ge	27,37

Продолжение приложения

Элемент	Изотоп	Содержание	Элемент	Изотоп	Содержание
	^{73}Ge	7,67		^{102}Ru	31,6
	^{74}Ge	36,74		^{104}Ru	18,87
	^{76}Ge	7,67	$_{45}Rh$	^{103}Rh	100
$_{33}As$	^{75}As	100	$_{46}Pd$	^{102}Pd	0,96
$_{34}Se$	^{74}Se	0,87		^{104}Pd	10,97
	^{76}Se	9,02		^{105}Pd	22,2
	^{77}Se	7,58		^{106}Pd	27,3
	^{78}Se	23,52		^{108}Pd	26,7
	^{80}Se	49,82		^{110}Pd	11,8
	^{82}Se	9,19	$_{47}Ag$	^{107}Ag	51,35
$_{35}Br$	^{79}Br	50,52		^{109}Ag	48,65
	^{81}Br	49,48	$_{48}Cd$	^{106}Cd	1,22
$_{36}Kr$	^{78}Kr	0,354		^{108}Cd	0,88
	^{80}Kr	2,27		^{110}Cd	12,39
	^{82}Kr	11,56		^{111}Cd	12,75
	^{83}Kr	11,55		^{112}Cd	24,07
	^{84}Kr	56,90		^{113}Cd	12,26
	^{86}Kr	17,37		^{114}Cd	28,86
$_{37}Rb$	^{85}Rb	72,15		^{116}Cd	7,58
	^{87}Rb	27,85	$_{49}In$	^{113}In	4,23
$_{38}Sr$	^{84}Sr	0,56		^{115}In	95,77
	^{86}Sr	9,86	$_{50}Sn$	^{112}Sn	0,95
	^{87}Sr	7,02		^{114}Sn	0,65
	^{88}Sr	82,56		^{115}Sn	34
$_{39}Y$	^{89}Y	100		^{116}Sn	14,24
$_{40}Zr$	^{90}Zr	51,46		^{117}Sn	7,57
	^{91}Zr	11,23		^{118}Sn	24,01
	^{92}Zr	17,11		^{119}Sn	8,58
	^{94}Zr	17,40		^{120}Sn	32,97
	^{96}Zr	2,80		^{122}Sn	4,71
$_{41}Nb$	^{93}Nb	100		^{124}Sn	5,98
$_{42}Mo$	^{92}Mo	15,86	$_{51}Sb$	^{121}Sb	57,25
	^{94}Mo	9,12		^{123}Sb	42,75
	^{95}Mo	15,70	$_{52}Te$	^{120}Te	0,089
	^{96}Mo	16,50		^{122}Te	2,46
	^{97}Mo	9,45		^{123}Te	0,87
	^{98}Mo	23,75		^{124}Te	4,61
	^{100}Mo	9,62		^{125}Te	6,99
$_{44}Ru$	^{96}Ru	5,46		^{126}Te	18,71
	^{98}Ru	1,868		^{128}Te	31,79
	^{99}Ru	12,63		^{130}Te	34,49
	^{100}Ru	12,53	$_{53}I$	^{127}I	100
	^{101}Ru	17,02	$_{54}Xe$	^{124}Xe	0,096

Продолжение приложения

Элемент	Изотоп	Содержание	Элемент	Изотоп	Содержание
	^{126}Xe	0.090		^{156}Gd	20,47
	^{128}Xe	1.919		^{157}Gd	15,68
	^{129}Xe	26,44		^{158}Gd	24,9
	^{130}Xe	4,08		^{160}Gd	21,9
	^{131}Xe	21,18	$_{65}$Tb	^{159}Tb	100
	^{132}Xe	26,89	$_{66}$Dy	^{156}Dy	0,0524
	^{134}Xe	10,40		^{158}Dy	0,0902
	^{136}Xe	8,87		^{160}Dy	2,294
$_{55}$Cs	^{133}Cs	100		^{161}Dy	18,88
$_{56}$Ba	^{130}Ba	0,101		^{162}Dy	25,53
	^{132}Ba	0,097		^{163}Dy	24,97
	^{134}Ba	2,42		^{164}Dy	28,18
	^{135}Ba	6,59	$_{67}$Ho	^{165}Ho	100
	^{136}Ba	7,81	$_{68}$Er	^{162}Er	0,136
	^{137}Ba	11,32		^{164}Er	1,56
	^{138}Ba	71,66		^{166}Er	33,41
$_{57}$La	^{138}La	0,089		^{167}Er	22,94
	^{139}La	99,911		^{168}Er	27,07
$_{58}$Cl	^{136}Ce	0,193		^{170}Er	14,88
	^{138}Ce	0,250	$_{69}$Tm	^{169}Tm	100
	^{140}Ce	88,48	$_{70}$Yb	^{168}Yb	0,140
	^{142}Ce	11,07		^{170}Yb	3,03
$_{59}$Pr	^{141}Pr	100		^{171}Yb	14,31
$_{60}$Nd	^{142}Nd	27,13		^{172}Yb	21,82
	^{143}Nd	12,20		^{173}Yb	16,13
	^{144}Nd	23,87		^{174}Yb	31,84
	^{145}Nd	8,29		^{176}Yb	12,73
	^{146}Nd	17,18	$_{71}$Lu	^{175}Lu	97,40
	^{148}Nd	5,72		^{176}Lu	2,60
	^{150}Nd	5,60	$_{72}$Hf	^{174}Hf	0,163
$_{62}$Sm	^{144}Sm	3,16		^{176}Hf	5,21
	^{146}Sm	$2 \cdot 10^{-7}$		^{177}Hf	18,56
	^{147}Sm	15,07		^{178}Hf	27,10
	^{148}Sm	11,27		^{179}Hf	13,75
	^{149}Sm	13,82		^{180}Hf	35,22
	^{150}Sm	7,47	$_{73}$Ta	^{180}Ta	0,0123
	^{152}Sm	26,63		^{181}Ta	99,9877
	^{154}Sm	22,53	$_{74}$W	^{180}W	0,135
$_{63}$Eu	^{151}Eu	47,77		^{182}W	26,4
	^{153}Eu	52,23		^{183}W	14,4
$_{64}$Gd	^{152}Gd	0,20		^{184}W	30,6
	^{154}Gd	2,15		^{186}W	28,4
	^{155}Gd	14,7	$_{75}$Re	^{185}Re	37,07

Окончание приложения

Элемент	Изотоп	Содержание	Элемент	Изотоп	Содержание
	^{187}Re	62,93	$_{80}$Hg	^{196}Hg	0,145
$_{76}$Os	^{184}Os	0,018		^{198}Hg	10,02
	^{186}Os	1,59		^{199}Hg	16,84
	^{187}Os	1,64		^{200}Hg	23,13
	^{188}Os	13,3		^{201}Hg	13,22
	^{189}Os	16,1		^{202}Hg	29,80
	^{190}Os	26,4		^{204}Hg	6,85
	^{192}Os	41,0	$_{81}$Tl	^{203}Tl	29,50
$_{77}$Ir	^{191}Ir	38,5		^{205}Tl	70,50
	^{193}Ir	61,5	$_{82}$Pb	^{204}Pb	1,40
$_{78}$Pt	^{190}Pt	0,0127		^{206}Pb	25,1
	^{192}Pt	0,78		^{207}Pb	21,7
	^{194}Pt	32,9		^{208}Pb	52,3
	^{195}Pt	33,60	$_{83}$Bi	^{209}Bi	100
	^{196}Pt	25,2	$_{90}$Th	^{232}Th	100
	^{198}Pt	7,19	$_{92}$U	^{234}U	0,0057
$_{79}$Au	^{197}Au	100		^{235}U	0,7196
				^{238}U	99,276

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