

1 Half-life, Q-value and Decay mode

| | | | | | |
|------------|---|--------|------|------------------|-----|
| $T_{1/2}$ | : | 4.468 | (5) | $\times 10^9$ | y |
| Q_α | : | 4269.7 | (29) | | keV |
| α | : | 100 | | | % |
| SF | : | 5.45 | (4) | $\times 10^{-5}$ | % |

2 α Emissions

| | Energy keV | Probability $\times 100$ |
|----------------|---------------|-----------------------------|
| $\alpha_{0,2}$ | 4038 (5) | 0.13 (3) |
| $\alpha_{0,1}$ | 4151 (5) | 22.33 (50) |
| $\alpha_{0,0}$ | 4198 (3) | 77.54 (50) |

3 Electron Emissions

| | | Energy keV | Electrons per 100 disint. |
|---------------------|------|-----------------|------------------------------|
| e _{AL} | (Th) | 5.8 - 20.3 | 8.43 (25) |
| e _{AK} | (Th) | | 0.00012 (4) |
| | KLL | 68.406 - 76.745 | } |
| | KLX | 83.857 - 93.345 | } |
| | KXY | 99.29 - 109.64 | } |
| ec _{1,0 L} | (Th) | 29.08 - 33.20 | 16.3 (8) |
| ec _{1,0 M} | (Th) | 44.37 - 46.22 | 4.46 (21) |
| ec _{1,0 N} | (Th) | 48.22 - 49.22 | 1.19 (6) |
| ec _{2,1 L} | (Th) | 93.0 - 97.2 | 0.080 (22) |
| ec _{2,1 M} | (Th) | 108.3 - 110.2 | 0.022 (6) |

4 Photon Emissions

4.1 X-Ray Emissions

| | | Energy keV | Photons per 100 disint. | |
|---------------|------|-----------------|----------------------------|--------------|
| XL | (Th) | 11.118 — 19.504 | 7.94 (28) | |
| XK α_2 | (Th) | 89.954 | 0.00109 (30) | } K α |
| XK α_1 | (Th) | 93.351 | 0.0018 (5) | } |
| XK β_3 | (Th) | 104.819 | } | |
| XK β_1 | (Th) | 105.604 | } | K β'_1 |
| XK β'_5 | (Th) | 106.239 | } | |
| XK β_2 | (Th) | 108.509 | } | |
| XK β_4 | (Th) | 108.955 | } | K β'_2 |
| XK $O_{2,3}$ | (Th) | 109.442 | } | |

4.2 Gamma Transitions and Emissions

| | Energy keV | $P_{\gamma+ce}$ $\times 100$ | Multipolarity | α_T | P_γ $\times 100$ |
|---------------------------|---------------|---------------------------------|---------------|------------|----------------------------|
| $\gamma_{1,0}(\text{Th})$ | 49.55 (6) | 22.5 (5) | E2 | 321 (10) | 0.0697 (26) |
| $\gamma_{2,1}(\text{Th})$ | 113.5 (1) | 0.13 (3) | [E2] | 6.47 (19) | 0.0174 (47) |

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