

EXFOR Formats “DECAY-DATA” and “RAD-DET”

(N. Otsuka, 2015-04-27, Memo CP/D-874)

Addition to Memo CP-D/874 (summary): The following two changes are proposed:

1. To permit use of RAD-DET without DECAY-DATA when decay data (half-life, radiation energy, intensity) are unknown (e.g., the author explains that an alpha decay line was detected but without specification of decay data).
2. To treat one of half-life, radiation energy or intensity as mandatory information under DECAY-DATA.

In L0072.001 and L0115.001 retransmitted in PRELIM.L026, the keyword RAD-DET is used without the keyword DECAY-DATA. If we follow the current rule described in the EXFOR Formats “DECAY-DATA”, RAD-DET must always appear with DECAY-DATA, for example:

```
RAD-DET      (59-PR-140,AR)
DECAY-DATA   (59-PR-140,,AR)
```

in L0072.001. This repetition is obviously redundant. When none of numeral field (*i.e.*, half-life, radiation energy, abundance) are known, use of RAD-DET without DECAY-DATA looks more reasonable. This proposal is actually made in CP-C/393 in 2011 without any objection from centres, and I confirm that the proposed changes summarized below are accepted (Proposed additions in red). Note that I do not request any retransmission just because of this revision.

DECAY-DATA

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1. If the keyword RAD-DET is used, an entry should also be made for DECAY-DATA. **except if neither half-life nor radiation energy nor intensity are given, neither in coded form nor in free text.**

...

2. The general format of the coding string consists of three major fields which may be preceded by a decay flag:
(flag)nuclide,half-life,radiation).

...

Omission of both, half-life field and radiation field, is permitted only if decay data information in free text is following. Otherwise RAD-DET should be used instead. The same applies if only nuclide and radiation type are given but neither half-life nor radiation energy nor intensity.

RAD-DET

...

1. ***If the decay radiation detected is not evident from the DECAY-DATA code***, it must be specified either under this keyword, otherwise presence of this keyword is optional. If the keyword is present, it must have coded information, with or without free text.

If this keyword is present the keyword DECAY-DATA must also be present, **unless no actual decay data information at all can be given (half-life and/or radiation**

energy and/or radiation intensity, in coded form or in free text).

2. The general format of the code is: ((flag)nuclide, radiation)

...

Radiation field: One or more codes from Dictionary 33 with a D in the 1st position of the allowed subfields flags, each separated by a comma. **This field may be omitted, in which case the closing parenthesis immediately follows the nuclide.**

...

Examples:

g) RAD-DET (12-MG-29)