

**Memo CP-D/338**

26 April 2002

From: O. Schwerer

To: Distribution

**Subject: Modification of Dictionary 8 and 27  
(Reply to Memos CP-C/301 and CP-A/124)**

General remark: The dates on CP-C memos often appear incorrect. In this case, memo CP-C/301 is dated November 29, 2001 and is replying to memo CP-A/124 dated 14 April 2002.

Remarks on the proposed reform / elimination of the nuclide dictionary 27.

- 1) The basic idea of simplification is welcomed since it will not only reduce the number of error messages but also the work of the dictionary updates to be done at NDS.
- 2) In the reference to the description of the current dictionary 27 (obviously taken from the latest version of the NNDC EXFOR manual), I notice 2 inconsistencies:
  - a) Col.15 (flag '3') - valid also for REACTION SF7: This is in contradiction with what the same manual says about REACTION SF7, "Particle Considered" (page 7.5), which says "Codes are taken from Dictionary 33". No nuclide codes from dictionary 27 are allowed in SF7. There are no such cases in the NDS or NNDC master file, and I do not remember a change of this rule.
  - b) Col.17 - flag 'F' for fission product: not implemented, this flag does not exist in the file, and I do not remember a conclusion to this effect. It may be useful but it would be lost again with the new proposal.
- 3) I hesitate to get rid of the "Stable" flag. For DECAY-DATA it is good to check that no decay information is given for stable nuclei (except X-ray data). It is not clear to me what is meant in memo CP-C/301 by the sentence *"The nuclear structure databases would be used to check on whether a nuclide is stable or radioactive and whether a known isomer exists."* Who would do this check? A new EXFOR check program on the fly? I do not expect much change in the number of known stable isotopes, so I don't see the advantage of getting rid of this flag.
- 4) Presently in many cases, the range of nuclides in dict. 27 has one or more gaps. E.g., for Pa, we have isotopes 213-218 and then from 221 up, or Rn: 201-217 and 223. In some cases also the Chart of Nuclides has gaps in between isotopes of an element. If we want to keep some meaning to checking nuclides, we may have to allow more than 1 range of isotopes.
- 5) In CP-C/301, last line of item 2, "Columns 35-43": "SF3 or SF4" should read "SF2 or SF3". (In SF4, the nuclide codes must be used, not the particle codes.)

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