WP 2002-7

Several "straightforward" new quantities

Apart from some "trivial" additions (containing only new code combinations with respect to "particle considered" in REACTION SF7), the following new quantities were proposed and already introduced in dictionaries 36 and 30,resp.:

,MLT/DA/DE,,TT Double-diff. particle multiplicity d2/dA/dE (Memo CP-C/291)

6-C-13(6-C-13,**FUS**),,SIG) Total fusion cross section (CP-C/298)

SPL,AKE (Average kinetic energy of the spallation residue) and
FIS,AKE,FF (Average kinetic energy of the fission fragments at high energy fission) (CP-A/118)

The relevant memos are attached below.

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Memo CP-C/291

DATE: July 24, 2001
TO: Distribution
FROM: V. McLane
SUBJECT: Differential neutron multiplicity

I have received two data sets that measure neutron multiplicity as a function of angle and secondary energy for which I need to introduce a new quantity and units.

Proposed dictionary additions follow.

Dictionary 25 (UNITS)
P/MEVMUCSR Particles/(MeV muC sr)

Dictionary 36 (Quantities)
,MLT/DA/DE,,TT Diff. particle multiplicity d/dA/dE

I have attached a sample coded entry. Has anybody else encountered similar data?

TRANS

```
ENTRY            C0825
SUBENT        C0825001
BIB
INSTITUTE  (1USAOHO)
REFERENCE  (J,NSE,129,175,1998)
AUTHOR     (T.N.Massey,S.Al-Quraishi,C.E.Brent,J.F.Guillemette,
           S.M.Grimes,D.Jacobs,J.E.O'Donnell,J.Oldendick,
           R.Wheeler)
TITLE      A Measurement of the 27Al(d,n) Spectrum for Use in
            Neutron Detector Calibration
FACILITY   (ACCEL,1USAOHO) Ohio tandem accelerator.
SAMPLE     Thick aluminum foils.
METHOD     (TOF)
DETECTOR   (FISCH) 235U thick and thin foils.
ANALYSIS   Results of measurements on 2 thick foils combined.
MONITOR    (92-U-235(N,F),,SIG) Data taken from ENDF/B-VI.
CORRECTION Corrected for background, and absorption on neutrons
            by aluminum of chamber, cadmium shield, and air.
ERR-ANALYS (ERR-S) Statistical uncertainty.
            Normalization uncertainty of 4.9% is the dominant
            source of uncertainty.
STATUS     Data received by email from T. Massey, 17 August 1999.
HISTORY    (20010731C) VM
ENDBIB
NOCOMMON
ENDSUBENT
SUBENT        C0825002
BIB
REACTION   (13-AL-27(D,X)0-NN-1,,MLT/DA/DE,,TT)
ENDBIB
COMMON
EN         ANG
MEV        ADEG
  7.44     120.
ENDCOMMON
DATA
E          DATA       ERR-S
MEV        P/MEVMUCSR P/MEVMUCSR
   0.2200   3.5395E+07 6.0147E+06
   0.2700   4.1417E+07 5.4801E+06
   0.3200   5.6495E+07 5.1177E+06
…
  13.7094   1.9483E+05 5.8838E+04
ENDDATA
ENDSUBENT
ENDENTRY
```

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Memo CP-C/298

DATE: November 27, 2001

TO: Distribution

FROM: V. McLane

SUBJECT: Total fusion cross section

Entry C0821 contains total fusion cross sections for the $^{13}C + ^{13}C$ reaction. I would understand the term total fusion to mean the reaction for the formation of the 26Mg nucleus. I suggest these be coded, analogous to fission, using the code FUS in SF3.

Example: 6-C-13(6-C-13,FUS),,SIG)

This would require the following dictionary addition.

Dictionary 30 (Process)

FUS	Total fusion

Distribution:

M. Chiba, Sapporo
F. E. Chukreev, CAJaD
S. Dunaeva, Sarov
O. Gritzay, KINR
K. Kato, JCPDG
M. Kellett, NEADB
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F. T. Tárkányi, ATOMKI
V. Varlamov, CDFE
Zhuang Youxiang, CNDC
NNDC File

MEMO CP-A/118

13 Dec 2001

To: **Distribution**
From: **F.E. Chukreev**
Subject: **Additions to Dictionary 36**

Add to dictionary 36

```
SPL,AKE              (Average kinetic energy of the spallation residue)
FIS,AKE,FF           (Average kinetic energy of the fission fragments
                      At high energy fission)
```

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