

NATIONAL NUCLEAR DATA CENTER
Bldg. 197D
Brookhaven National Laboratory
P. O. Box 5000
Upton, NY 11973-5000 U.S.A.

(Internet) "NNDC@BNL.GOV

Telephone: (516)344-2902
FAX: (516)344-2806

Memo CP-C/354

DATE: January 31, 2005
TO: Distribution
FROM: V. McLane
SUBJECT: Use of nuclide code SF7 (again) and addition to Dictionary 24

For data set C1118, transmitted in preliminary TRANS C071, it is difficult to specify the reaction. The problem: the cross section is given for the ^{12}C - ^{12}C inelastic scattering, partially integrated from 40-95 degrees, as a function of the angle between the decay products (α and ^8Be) from the 9.64 MeV level of ^{12}C .

The best we can do is:

(6-C-12(6-C-12,INL)6-C-12,PAR,DA/DA,RSD+RSD/A+LCP,IPA)

ANG1 is the c.m. angle between the two scattered ^{12}C nuclides, one in the excited state.

For this please add to Dictionary 24 (Field headings), please add:

ANG1-CM-MN Lower limit of 1st angle in c.m. system.

ANG1-CM-MX. Upper limit of 1st angle in c.m. system.

ANG2 is the angle between the decay alphas and decay product ^8Be .

As it is we don't have a way to specify both of the ^{12}C nuclides or the decay product ^8Be in the reaction. We should reconsider using the nuclide code in SF7. The REACTION code would then be:

(6-C-12(6-C-12,INL)6-C-12,PAR,DA/DA,6-C-12+6-C-12/A+4-BE-8,IPA)

or (6-C-12(6-C-12,INL)6-C-12,PAR,DA/DA,C12+C12/A+BE8,IPA)

Alternately, we could introduce nuclide codes for scattering nucleus (SCN) and decay product (DCP). I think this solution will only delay the problem again.

Another problem is how to link (for the computer) the IPA to the correct angle, i.e., the angle between the ^{12}C nuclides or the angle between the alpha and ^8Be . One suggestion is that for partially integrated angles we should replace the DA,,IPA with IPA in SF6.

(6-C-12(6-C-12,INL)6-C-12,PAR,IPA/DA,C12+C12/A+BE8)

Can anyone suggest something better?

Distribution:

F. E. Chukreev, CAJaD
S. Dunaeva, NDS
Ge Zhigang, CNDC
O. Gritzay, KINR
H. Henriksson, NEADB
K. Kato, JCPDG
S. Maev, CJD
M. Mikhaylyukova, CJD

N. Otsuka, JCPDG
O. Schwerer, NDS
S. Takács, ATOMKI
S. Taova, Sarov
F. T. Tárkányi, ATOMKI
V. Varlamov, CDFE
NNDC Distributio