Memo CP-D/357

Date: 4 March 2003

To: Distribution

From: O. Schwerer

Subject: **Maxwellian distribution of outgoing particles:**
                        New proposal (Additions to dictionaries 24, 32, 34, 36)

Reference: **Memos CP-D/353** (18 February 2003)**,**
                        4C-4/138 (16 January 2003)**, 4C-4/134** (2 December 2002)
                        Entries 40472 and 40535 (PRELIM 4129)

1) DE,N,MXW and PR,DE,N,MXW: "Maxwell distribution of outgoing neutrons"

Actually in subentry 40535002 this is only used in denominator of a ratio; measured was ratio of neutron spectrum to calculated Maxwellian distribution.
Such data cannot be coded with MXW is SF8 because this means that the data were measured for an INCIDENT Maxwellian spectrum.
Since the denominator of the measured ratio is a calculated quantity which is a function of single number (spectrum temperature), it should not be coded as an explicit ratio but as single REACTION with a new modifier in SF8.

I propose to use MXD with the definition in **Dictionary 34**:

MXD = spectrum relative to Maxwellian distribution of given temperature

which would have to be given under a new data heading to be added to **Dictionary 24**:

KT-NORM   Temperature of reference Maxwellian spectrum

Subentry 40535002 would then be coded:

```
REACTION     (98-CF-252(0,F),PR,DE,N,MXD)

COMMON
KT-NORM
MEV
 1.42
ENDCOMMON
DATA
```
 (continued as in PRELIM 4129)

To be added to **Dictionary 36**:

`PR,DE,N,MXD`   Prompt neutron spectrum relative to Maxwellian distr. of given temperature

2) ,DE/TMP,N and PR,DE/TMP,N "Maxwell distribution of neutrons"

Similar to the above, except that the spectrum temperature is now the DATA coded under REACTION rather than a separate parameter.
I think it needs a new code for SF6, which would be used similarly as AKE and the newly proposed (CP-D/355) KEP (Most probable kinetic energy).

Therefore I propose to add to **Dictionary 32**:

`KEM`   Temperature of Maxwellian distribution of outgoing particles

The **dictionary 36** entries replacing those of 4C-4/134 and 138 would be

`,KEM,N`   Temperature of Maxwellian distribution of outgoing neutrons
`PR,KEM,N`   Temperature of Maxwellian distribution of prompt neutrons

The REACTION of subentry 40472.002 would then be coded

`(98-CF-252(0,F),PR,KEM,N)`

Distribution: