

Memo 4C-3/143

To: Distribution  
From: *Syian* *HDC* *10.*  
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3 October 1975

Subject: Proposed Cinda quantity N4N resp. NXN

References: 4C-1/63  
our telex to G. Thompson of Sept. 18, 1975  
4C-1/64  
Action 14 of the 1975 4C-Meeting

When questioning the introduction of a Cinda quantity code N4N this was mainly done because we knew that adding to the Cinda quantities list

- is technically not as trivial as adding to the Exfor quantities dictionary,
- should not be done without careful consideration.

As distinct from Exfor, most "quantities" in Cinda are not meant to be definitions of unique quantities but rather boxes which may include a variety of quantities and reactions, and these boxes, for various reasons, should not be too detailed.

Cinda has, for neutron-emitting reactions, the four quantities N2N, N3N, NEM, NPR (not mentioning others like SNE, etc.), and we believe that this distinction is already too detailed. We suggested earlier to combine N3N, NEM and NPR into a single quantity-code which would also include N4N. At the 1975 4C-Meeting we got the action (no. 14) to review the situation.

The result is the following:

NPR is almost not existing in the Cinda file. For the few existing entries it is sometimes even doubtful whether they are correct. Some entries, for example, refer to macroscopic data. We therefore suggest to delete the quantity NPR from Cinda and include it under NEM. If this is agreed, NDS will do the checking and conversion of these entries.

The number of N2N entries in Cinda is quite large, and this fact alone is sufficient justification for keeping it a separate quantity. Whether N3N and NEM should be combined in a single quantity, is a more delicate question. Certainly, many N3N data come from a NEM measurement. However, about 90% of the approximately 100 N3N entries refer to evaluations, and for the user of Cinda it may be more convenient to keep these N3N entries separated from NEM.

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With respect to N4N however, we suggest strongly to have a single Cinda category including N3N, N4N, etc. In experiment or evaluation, N3N and N4N data will result from the same analysis, and it seems silly to index this in duplicate. A Cinda user looking for N4N data, will most likely be interested also in the N3N data of the same energy-range. We suggest therefore to change the definition of N3N to include also N4N, N5N, etc. The information, whether N3N only or also N4N data are given, is to be entered in the Comment.

A cosmetic question is, whether the code N3N should then be changed to NXN in input, respectively (n,xn) in the book. However, we find it sufficient to keep the code N3N, and to add to the explanation of this quantity that it also includes N4N for those nuclides and above that energy where this is energetically possible.

We propose to make the corresponding changes in the Cinda Manual.

PS: It should be noted, that another proposed Cinda quantity code, namely for the (n,n') activation reaction which would have many more Cinda entries than the (n,4n) reaction, has been rejected at the 1975 4C-Meeting for similar reasons as presented above. Similarly, it was agreed not to have separate Cinda quantities for other important reactions such as (n,n'f), (n,2p), (n,2 $\alpha$ ), (n,nHe3), etc, which can be regarded as similar cases as (n,4n).