

Memo CP-D/342

27 August 2002

From: O. Schwerer

Subject: **Proposed units CM3/MOL-S and other complex units**

Reference: Memos CP-C/307 (11 July 2002) and 4C-4/115 (1 February 2001)

Units CM3/MOL-S, meaning Centimeters**3 per (mol * seconds), dimension B*V, are proposed in memo CP-C/307, with the remark that similar units CM3/S/MOL already exist but it was not clear whether or not they mean the same.

The code CM3/S/MOL was introduced early last year as proposed in memo 4C-4/115 which refers to reaction rates. So I believe the two units mean the same thing.

In a related e-mail by NNDC to NDS of 12 July, the point was raised that many of our units, such as MB/SR/MEV, are ambiguous, and at least the text (dictionary expansion) should be changed for them.

I propose the following solution:

- Since the code **CM3/S/MOL** was agreed earlier and introduced, I propose to keep it. In this case there is no need for the new code **CM3/MOL-S**.
- On the general "**spelling**" of units: I am in favor of being consistent in using "*" (asterisk) as multiplication symbol rather than "-". (In the proposed code MOL-S is used for "mol-seconds" = mol * seconds.) I know that "-" is used in the literature, but I do not like using "*" in some units and "-" (looking more like a minus sign) in others for the same thing. Furthermore, the "-" sign is used for composite units such as MICRO-EV and RT-EV, another reason for not using it as multiplication symbol.
- **Ambiguity** of complex units such as MB/SR/MEV: Strict unambiguity could be achieved only by using parentheses for which we don't have enough space. I believe in most cases, such as MB/SR/MEV it is very clear from the physical context what it is. Also, I checked all such cases in dictionary 25 and found a "hidden rule" which seems logical anyway: all units coded as A/B/C actually mean A/(B*C). (This is in line with general mathematical practice.) The other case, A/(B/C) is coded A*C/B which is unambiguous (e.g. MB*MEV/SR). I am however in favor of Vicki's proposal to introduce the parentheses in the dictionary 25 expansion.

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