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COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

Sub-Committee of Experts on the Transport of Dangerous Goods
(Twenty-second session, 2-6 December 2002, agenda item 3)

TEXTS ADOPTED BY THE SUB-COMMITTEE AT ITS NINETEENTH, TWENTIETH AND TWENTY-FIRST SESSIONS AND RELATED PROPOSALS

Organometallic Substances :
Definition and transition period for certain organometallic entries

Transmitted by the expert from the United States of America

Background

1. At its previous session, the Sub-Committee adopted proposals by ICCA for a systematic classification scheme for organometallic substances, including ten new "n.o.s." entries for organometallic substances in Division 4.2 and/or Division 4.3. During the 21st session, the expert from the United States expressed concern that the deletion of some of the substance specific names (e.g. Lithium Alkyls) would result in unnecessary costs for some companies relative to training, marking and labelling of packagings, cylinders and tanks, amendments to data sheets and shipping papers including electronic databases. Many of these proper shipping names are well recognized by the transport and chemical industries and have been used for more than 40 years. While ICCA has indicated that it has coordinated the proposed amendments, we are concerned that companies that ship small quantities of these chemicals and small companies that are not members of ICCA are not aware of these amendments. The expert from the United States maintains its reservations regarding the deletion of many substance specific names that have a long history of use in transport without providing a reasonably sufficient transition period.

2. The expert from the United States requests that the following entries be maintained in the Model Regulations for an additional two years to provide a reasonable transition period (e.g. until January 1, 2007 in the modal regulations) to allow those affected to make the necessary adjustments to accommodate the amendments:

1366 Diethylzinc
1370 Dimethylzinc
2005 Magnesium diphenyl
2445 Lithium alkyls
3051 Aluminium alkyls
3052 Aluminium alkyl halides (liquid + solid)
3053 Magnesium alkyls
3076 Aluminium alkyl hydrides

4. In order for the new systematic approach to classification and description of organometallic substances to be effective, it is necessary that consignors apply consistent principles in selection of appropriate organometallic substance proper shipping names. A literature survey indicated that there are various commonly accepted meanings attached to the term "organometallic substances". Therefore, to ensure a consistent approach to the classification and selection of a proper shipping name under the new

systematic scheme, the expert from the United States believes it is appropriate to clarify the precise meaning of the term "organometallic substance" in the context of the UN Model Regulations.

5. For example, one reference source provides the following definition for an "organometallic compound":

> "A compound that contains a metal-carbon bond. A metal is seen as any element less electronegative than carbon (this includes B, Si, and As - and excludes P and halogen)."

Another defines the same term as follows:

> "A class of compounds of the type R-M, where a C atom is joined directly to any other element except H, C, N, O, F, Cl, Br, I, or At."

Yet another source states: "Chemists sometimes refer to particular molecules as organometallic even though they lack the required metal-carbon bond. While this is formally incorrect, it is a convenient shorthand when the molecule has reaction chemistry that derives or will lead to an organometallic molecule.".

6. Thus, depending on the "definition" applied, the term "organometallic substances" may include different compounds. Consequently, in order for the new systematic scheme for classification and description of organometallic substances to be applied consistently by all users of the Model Regulation, the expert from the United States believes it is appropriate to include a definition for this term in the Model Regulations. An appropriate definition would be the one that is applied in the American Chemical Society Journal "Organometallics" (see proposal below), which could be included in the new introductory "Note 3" to Chapter 2.4, which was adopted by the Sub-Committee at the last session in conjunction with the new systematic classification scheme.

7. It is proposed that two additional sentences be added to introductory Note 3 to Chapter 2.4 (as adopted by the Sub-Committee at its 21st session) so that Note 3 would read:

> "***Note 3:*** *Since Organometallic substances can be classified in divisions 4.2 or 4.3 with additional subsidiary risks, depending on their properties, a specific classification flow chart for these substances is given in 2.4.5.* ***For purposes of application of this classification scheme, and selection of the appropriate proper shipping name, an "organometallic substance" shall be considered to be a substance in which there is a bonding interaction (ionic or covalent, localized or delocalized) between one or more carbon atoms of an organic group or molecule with a main group, transition, lanthanide, or actinide metal atom or atoms****."*