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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

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Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals

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Programme of work for the biennium 2011–2012

Comments on ST/SG/AC.10/C.4/2010/17– ST/SG/AC.10/C.3/2010/85 and on the proposal in ST/SG/AC.10/C.3/2010/10 (Netherlands)

Transmitted by the expert from China

Introduction

1. The experts from P. R. China have concerns about the revised Netherlands proposal to amend Chapter 2.8 to implement GHS alternative methods for skin corrosion in a new 2.8.3 (refer to ST/SG/AC.10/C.3/2010/10). Also the comments submitted on the draft proposal by experts of the TDG Sub-Committee still need to be taken into account (refer to INF.7, 37th session). And it was agreed that a correspondence group between the GHS Sub-Committee and the TDG Sub-Committee be established (refer to ST/SG/AC.10/C.4/38, paragraphs 71 and 72) to address the issues identified in the draft terms of reference for the work on corrosivity criteria proposed by the experts from China, France, United Kingdom and Switzerland (refer to INF.39, 19th session). In addition, it was further agreed that the proposed draft terms of reference be submitted as an official document to the next sessions of both sub-committees for their consideration document (refer to ST/SG/AC.10/C.3/2010/85−ST/SG/AC.10/C.4/2010/17).

Discussion

2. The definition in section 2.8.1 of the UN Model Regulations is “Class 8 substances (corrosive substances) are substances which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or even destroy, other goods or means of transport.”. The definition in section 3.2.1 of the GHS is “Skin corrosion is the production of irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis, following the application of a test substance for up to 4 hours.” The definition in OECD Test Guideline 404 (Acute Dermal Irritation/Corrosion) is “Dermal corrosion is the production of irreversible damage of the skin; namely, visible necrosis through the epidermis and into the dermis, following the application of a test substance for up to four hours.”. As shown above, the GHS definition of “Skin corrosion” in 3.2.1 is aligned with the definition of “Dermal corrosion” in the Annex to OECD Test Guideline 404. The experts from P. R. China agree to include the

GHS definition of "skin corrosion" in 2.8.1 of UN Model Regulation as proposed in ST/SG/AC.10/C.3/2010/10. However, the definition of "substance" is not considered since it is outside the scope of the draft terms.

3. The experts from P. R. China also agree to include the GHS definition of "corrosive to metals" in 2.8.1 of UN Model Regulation as proposed in ST/SG/AC.10/C.3/2010/10 since "Class 8 substances" include those which cause the corrosion to metals. Besides, the definitions of corrosive to other packagings made of other material such as plastic or polymer might need to be considered.

4. GHS sub-categories 1A, 1B and 1C based on test can be used to allocate packing group I, II, III since the criteria based on the test results of GHS is aligned with that of UN Model Regulations. But GHS sub-categories based on the theoretical approaches (bridging principles, mixtures calculations, pH…) can not directly lead to a packing group determination for transport classification purposes. These theoretical approaches are usually used to preliminarily screen the corrosivity, but finally an *in vitro* or *in vivo* test following OECD Test Guidelines 404 or 435 needs to be performed to assign a packing group. Unless the classification by these theoretical approaches can be strictly approved to be aligned with those based on test, the experts from P. R. China do not support adding theoretical approaches of GHS for transport classification purposes into Chapter 2.8, but agree to use these theoretical approaches for preliminarily screening the corrosivity. It is proposed to delete section 2.8.3.2, amend the title of 2.8.3, revise the text of section 2.8.3.1 and move it under section 2.8.3.

5. As a consequence, table "The relationship between packing groups and GHS skin corrosion categories" in 2.8.3.1 without any explanation in ST/SG/AC.10/C.3/2010/10 needs to be amended because GHS sub-categories are not always directly relevant to transport criteria and may lead to incorrect packing group. The experts from P. R. China propose to amend the title of the table to include "Corrosive to metals category 1".

6. The experts from P. R. China understand that some experts are concerned about the *in vivo* test. But since both *in vivo* OECD test Guideline 404 and *in vitro* OECD test Guideline 435 can be used to determine the packing group, each authority can choose based on their own practice.

7. The experts from P. R. China also list in the table in the annex to this document some goods with extreme pH but without corrosion properties, or without extreme pH but with corrosion properties based on test, for consideration of both sub-committees, in order to give an example of identifying "the discrepancies between assignment to sub-categories 1A, 1B and 1C, based on test and the one based on theoretical approaches (bridging principles, mixtures calculations, pH…)".

8. The annex to INF.33 (37th session) transmitted by the European Chemical Industry Council showed that there are many discrepancies on the classification of substances in Annex VI of EU Regulation 1272/2008/EC, which are assigned (beside perhaps other hazards) to the hazard "skin corrosion 1B" compared with the entries for these substances in the Dangerous Goods List of the UN Model Regulations (Chapter 3.2).

9. It mentions in section 5 of OECD 435 some limitations for the testing method itself, such as "many non-corrosive chemicals and chemical mixtures and some corrosive chemicals and chemical mixtures may not qualify for testing", "aqueous substances with a pH in the range of 4.5 to 8.5 often do not qualify for testing", and "test chemicals and chemical mixtures not causing a detectable change in the compatibility test (*i.e.*, colour change in the Chemical Detection System (CDS) of the validated reference test method) cannot be tested with the membrane barrier test method and should be tested using other test methods". Therefore the way OECD guidelines are referenced to and their relevance still needs to be further checked.

Proposals

10. Add the definitions of "skin corrosion" and "corrosive to metals" in 2.8.1 of UN Model Regulation, also complemented with GHS and OECD as follows:

"2.8.1 Definitions

Class 8 substances (corrosive substances) are substances which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or even destroy, other goods or means of transport.

Skin corrosion is the production of irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis, following the application of a test substance for up to 4 hours.

A *substance* or a *mixture* which is *corrosive to metals* is a substance or a mixture which by chemical action will materially damage, or even destroy, metals."

11. Amend 2.8.3 as follows:

"2.8.3 GHS sub-categories based on test to allocate a packing group

~~2.8.3.1~~ The criteria based on test for skin corrosion listed in 2.8.2.5 are included in Chapter 3.2 of the GHS. In addition, the GHS describes methods to determine if a substance meets the criteria for skin corrosion based on alternative information. These additional GHS classification methods can be used for preliminarily screening the corrosivity, but *in vivo* or *in vitro* test shall be used to assign the packing group.

The relationship between packing groups and GHS skin corrosion categories based on test is as follows:

Packing group I	Skin corrosion sub-category 1A
Packing group II	Skin corrosion sub-category 1B
Packing group III	Skin corrosion sub-category 1C / Corrosive to metals category 1

"

12. Delete section 2.8.3.2.

Annex

13. Goods which have extreme pH (pH ≤ 2 or pH ≥ 11.5) but without corrosivity, or without extreme pH but with corrosivity base on test are as follows (the information is from our testing database, not specially prepared for this proposal):

No.	Name	CAS No.	pH	Corrosive
1	DxH Retic (containing 0.15% sulphuric acid)	/	1-2	No
2	Acid degreasing (containing 90% sodium bisulfite)	7631-90-5	0.9	No
3	Powered sodium silicate	13517-24-3	12-13	No
4	Floor filler (containing 2.5-10% calcium hydroxide)	/	12-13	No
5	Cashmere additive (containing sodium silicate and sodium carbonate)	/	12.1	No
6	Benzalkonium chloride (50%)	8001-54-5	7	Yes
7	(r,s)-n,n-Dimethyl-3-hydroxy-3-(2-thienyl) propanamine	13636-02-7	8-9	Yes
8	4-(Ethylaminomethyl)pyridine	33403-97-3	9-10	Yes