**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

Thirty-fifth session
Geneva, 22 - 26 June 2009
Item 10 of the provisional agenda

ISSUES RELATING TO THE GLOBALLY HARMONISED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS)

Comments on ST/SG/AC.10/C.3/2009/15 and UN/SCETD/35/INF 3. Suggested text for implementation of GHS criteria in Class 8 of the UN Model Regulations on the Transport of Dangerous Goods (Netherlands)

Transmitted by the expert from the United Kingdom

## Introduction

1. The expert from the United Kingdom has strong concerns about the Netherlands proposals to implement the GHS corrosivity criteria in Class 8 of the UN Model Regulations.

2. The proposals to fully align transport with the GHS will complicate the regulations for the transport of corrosive substances for all those in the transport chain and inappropriately bring into scope more products, which is likely to lead to much more testing. The following paragraphs explain the reasons for the United Kingdom's reservations on implementing the corrosivity criteria.

## Reasons

3. In the GHS, pH can be used to indicate corrosivity. It should be noted that pH is not the only or major criterion for corrosivity. However as measurement of pH is a quick, simple and inexpensive way to get an answer, it is often used to assess a product. A substance/mixture is considered corrosive if it has a pH value of less than or equal to 2 (acidic end of the scale) or greater than or equal to 11·5 (basic/alkaline end of the scale).

4. However pH is not necessarily a good indicator of corrosivity and the threshold values set will mean a potential increase in the range of products caught such as propriety cleaners. For example, a 0·1N (Normal) solution of sodium carbonate with a pH of 11·6 would be caught (sodium carbonate is a very common substance and is used as a food additive, in cleaning products, soaps and detergents).

5. Some other examples where extreme pH values would lead to an inappropriate transport classification are: -

(a) Product A contains 0·96% sulphuric acid and would be regarded as non-dangerous for transport. However by extreme pH (1·75) this equates to Category 1A which is aligned with packing group I.

(b) Product B contains 2·5% benzalkonium chloride and 8% lactic acid and would be regarded as non-dangerous for transport. However again by extreme pH (1.3-2.3) it would equate to Category 1A which is aligned with packing group I.

(c) Product C contains 8% phosphoric acid. Extreme pH (0.8-1.5) would put this in Category 1A which equates to packing group I. However tests carried out previously showed that phosphoric acid wasn't packing group III until 10%.

(d) Product D contains 9% sulphamic acid and some surfactant. Extreme pH (0.6) would put this in Category 1A which equates to packing group I. Tests carried out have shown that sulphamic acid is not corrosive for transport until above 10%.

(e) Product E contains 2% ethanolamine and at this concentration would not be regarded as corrosive for transport. However extreme pH (11·9 – 12·4) pushes it into Category 1A which would equate to packing group I.

6. Assessment of acid or alkali reserve, if possible, is preferable to pH. However even if this parameter suggests a substance or mixture may not be corrosive despite the low or high pH value, further testing needs to be carried out to confirm this – leading to considerably more assessment and testing of a wide range of products hitherto not being regarded as corrosive for transport.

7. In the annex to ST/SG/AC.10/C.3/2009/15, the proposed new second sentence in 2.8.2.2 refers off to 2.8.3.4 which corresponds to the GHS criteria for the classification for skin corrosion.(see section 3.2.1 in GHS) This would mean inappropriate wholesale testing for new substances particularly mixtures as more products come onto the market. It could also lead to allocation of a packing group not in line with:

(a) Those of existing entries, in the case of new products assigned to new entries that are added to the Dangerous Goods List of Chapter 3.2;

(b) Those of existing products, in the case of new products assigned to the same existing generic or n.o.s. entries.

8. This would lead to an unbalanced classification system not only for corrosives, but would also affect other classes. For substances with a corrosive hazard and (an) other hazard(s), an inappropriate classification could result from the precedence of hazard characteristics. Allocation to a lower packing group (indicating a higher danger) is a likely outcome and for products with more than one hazard possibly inappropriate primary classification. This would

result in unjustified harsher and more costly conditions of carriage throughout the transport chain.

9. For classification of mixtures as corrosive under GHS, generic trigger levels are given for the individual and the sum of all the ingredients of a mixture. These levels are typically concentrations of 1% or more and 5% or more of the mixture. However for transport, in the UN Model Regulations, varying trigger levels are given for various substances as follows: -

Sulphuric acid > 3%
Formic acid ≥ 5%
Alkyl and aryl sulphonic acids > 5%
Ammonia solution > 10%
Acetic acid > 10%
Propionic acid > 10%
Formaldehyde solution > 25%.

10. These values are given in the lower case text of the name and description of various UN entries in the Dangerous Goods List in Chapter 3.2. In RID/ADR/ADN Special Provisions in the series SP500 – 654 usually confirm that lower concentrations of these substances are not subject to the regulations.

11. For mixtures containing several potential corrosive ingredients, the situation is more complex, but mixtures containing, say, one of the above substances in excess of the trigger levels under GHS but below the concentrations given in the UN Model Regulations would be regarded as corrosive if GHS is followed.

12. The sub-categorization of corrosivity in relation to exposure times and observation periods for animal testing in GHS are the same as those referred to in the UN Model Regulations for assignment of packing group. However GHS makes reference to “responses” being noted following the particular exposure time within the relevant observation period. The types of corrosive reaction are listed and it would seem that this would lead to more substances, including mixtures, being caught by the criteria. To avoid this and problems of interpretation, reference to “full thickness destruction of skin” as in the current UN text would be preferable.

13. As reflected in paragraph 110 of the report of the 34$^{th}$ session of the UNSCOE (ST/SG/AC.10/C.3/68), the Netherlands explained that there was no intent to bring any change to the current scope of the UN Model Regulations in relation to the classification criteria for corrosivity. However as illustrated above we believe that by direct implementation of the GHS criteria as they currently stand, considerable changes will result which would be inappropriate to the transport sector.

**Conclusion**

14. The UNSCEGHS will be carrying out an editorial review of GHS Chapters 3.2 (skin corrosion/irritation) and 3.3 (serious eye damage/eye irritation) in this biennium. Because of the serious problems we believe would be created by fully embracing the current criteria, it is recommended that alignment of the UN Model Regulations with the GHS corrosivity criteria is

deferred at least until this review has been carried out. This would enable further work to be done to establish systematically the differences between the existing transport and supply criteria and the scale of the problems that would arise in practice if transport adopted GHS.

15. Then a review of the criteria for corrosivity should enable them to be adapted to meet the needs of both supply and transport while still maintaining the building block approach of the GHS.

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