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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 Globally  
Harmonized System of Classification  
and Labelling of Chemicals

Sixteenth session  
Geneva, 10-12 (a.m) December 2008  
Item 2 (c) of the provisional agenda

UPDATING OF THE SECOND REVISED EDITION OF THE GLOBALLY HARMONIZED  
SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS)

Environmental hazards

Proposal for revising Chapter 4.1 and Annex 10:  
Guidance on transformation/dissolution of metals and metal compounds in aqueous media

Transmitted by the Organisation for Economic Co-operation and Development (OECD)<sup>1</sup>

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<sup>1</sup> In accordance with the programme of work of the Sub-Committee for 2007-2008 approved by the Committee at its third session (refer to ST/SG/AC.10/C.4/24, Annex 2 and ST/SG/AC.10/34, para. 14).

1. In July 2008, the OECD submitted the two reports related to the validation of the Transformation/Dissolution Protocol to the Sub-Committee of Experts on the GHS (GHS Sub-Committee) and a proposal for a consequential amendment to Chapter 4.1. The two reports are:

- (a) Report of the ring test and statistical analysis of performance of the guidance on transformation/dissolution of metals and metal compounds in aquatic media; and
- (b) Considerations regarding applicability of the guidance on transformation/dissolution of metals and metal compounds in aqueous media (Transformation/Dissolution Protocol).

2. The GHS Sub-Committee adopted in principle the proposed amendments to paragraph 4.1.2.11.2 (see UN/SCEGHS/15/INF.22) and to Annex 10 of the GHS (see UN/SCEGHS/15/INF.21, Annex 1 *Lessons learnt from the ring test for improvements and clarification to the Transformation/Dissolution Protocol*) and the Secretariat was invited to issue the proposed amendments to the GHS text as an official document to be considered for final adoption at the December session of the Sub-Committee.

### **3. Proposal for amendment of Chapter 4.1**

Considering the submission to the GHS Sub-Committee of the *Report of the ring test and statistical analysis of performance of the guidance on transformation/dissolution of metals and metal compounds in aqueous media* and of the document *Considerations regarding applicability of the Transformation/Dissolution Protocol*, the following amendment is proposed:

4.1.2.11.2 Replace the last sentence with:

“All evidence must be weighed in a classification decision. This would be especially true for metals showing borderline results in the Transformation/Dissolution Protocol.”

### **4. Proposal for amendment of Annex 10**

A10.5.1.1 (e) Add at the end of the text “acrodisc filter should be flushed at least 3 times with fresh medium to avoid elevated trace metals in sample at time 0;”

A10.5.1.1 (f) In the text, replace “+ 2°C within the temperature range 20°C to 25°C” with “± 1.5°C in the range 20-23°C”

A10.5.1.1 (k) Replace the text with the following:

“Analytical equipment for metal analysis (e.g. atomic adsorption spectrometry, inductively coupled axial plasma spectrometry) of acceptable accuracy, preferably with a limit of quantification (LOQ) five times lower than the lowest chronic ecotoxicity reference value”;

A10.5.1.3 In the last sentence, insert “or higher” between “lower” and “pH”.

Table A10.1 Replace the table and single note with the following new table and two notes:

**“Table A10.1: Recommended chemical composition of testing medium**

Chemical composition of medium	NaHCO <sub>3</sub>	6.5 mg/l	12.6 mg/l	64.75 mg/l	194.25 mg/l
	KCl	0.58 mg/l	2.32 mg/l	5.75 mg/l	5.74 mg/l
	CaCl <sub>2</sub> .2H <sub>2</sub> O	29.4 mg/l	117.6 mg/l	294 mg/l	29.4 mg/l
	MgSO <sub>4</sub> .7H <sub>2</sub> O	12.3 mg/l	49.2 mg/l	123.25 mg/l	123.25 mg/l
CO <sub>2</sub> concentration (balance is air) in test vessel		0.50%	0.10%	0.038% (air)	0.038% (air)
Calculated pH		6.09	7.07	7.98	8.5

**NOTE 1:** *The pH values were calculated using the FACT (Facility for the analysis of chemical thermodynamics) system (<http://www.crct.polymtl.ca/fact/fact.htm>).*

**NOTE 2:** *While the protocol was only validated for the pH range 6.0-8.0, this table does not prevent attaining pH 5.5. Composition for pH 8.5 has not been verified experimentally in presence of metal.”*

A10.5.2.3.3 In the third sentence, replace “± 2°C in the range 20-25°C” with “± 1.5°C in the range 20-23°C”

A10.5.2.3.5 Insert a new paragraph A10.5.2.3.5 with the following text:

“To ensure reproducibility of transformation data, it is recommended that:

- (i) new laboratories use a training set;
- (ii) one metal powder with specified surface conditions be used as standard control; and
- (iii) one or two laboratories be responsible for reference chemicals.

It may be necessary to check specific surface areas of the powders.”

A10.5.4.1 Replace “± 2°C in the range 20-25°C” with “± 1.5°C in the range 20-23°C”.

A10.5.4.3 In the first sentence, replace “maintain the dissolved oxygen concentration above 70% of its saturation in air, which is about 8.5 mg/l” with “maintain the dissolved oxygen concentration above about 6.0 mg/l, which is 70% of the saturation level of 8.5 mg/l”.

A10.5.1.7 In the third sentence, replace “For pH adjustment and buffering down to pH 7 and 6” with “For pH adjustment and buffering down to pH 7 and 6 and up to pH 8 and 8.5”.

A10.5.1.8 After the first sentence, add “pH should not be adjusted during the test using an acid or alkali.”

A10.5.2.3.3 In the last sentence, replace “the solution is acidified with 1% HNO<sub>3</sub> and analyzed” with “the solution is acidified with 1-2 drops of trace metal grade HNO<sub>3</sub> with the target pH 1 and analyzed”.

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