

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
(Seventh session, 14-16 July 2004,
agenda item 2,b,iii)

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

Classification criteria for Water Activated Toxicity

Transmitted by the expert from France

Report from the working group in Paris – 7 may 2004

Taking advantage of the OECD meeting in Paris France invited the Correspondence Group on WAT to meet at the department of transport in Paris. Unfortunately due to time constraint not all the members of the Correspondence Group on WAT were able to attend but experts from Canada, France, Italy, the United States of America, CEFIC, and the OECD secretariat were present.

The base document for this group meeting was a French thought starter paper on WAT including four “classification” diagrams sent for comments to the correspondence working group at the end of April. These are annexed to the present document.

The Correspondence Group discussed following points:

1.) The principles

It was recognized that the evolution rate of the emitted gas has an influence on the danger coming from the substance given a certain LC50.

Thus, there would be some logic in including the evolution rate as a classification criteria. In this case the different categories of danger would correspond to zones of a diagram showing the relation between LC50 and evolution rate.

The working group looked at the different graphics presented as examples and noted that for higher evolution rates this criteria would increase the level of protection but for lower evolution rates the level of protection would be lower.

Some experts expressed concern about that and it was agreed that the approach of diagram 4 would be preferable because no substance could fall out of the “toxic” range (category 3) because of the evolution rate.

It was also suggested that for substances showing a high evolution rate the substance could fall into category 3 even if the gas only belongs to category 4 or 5. That would increase the level of protection.

2.) The test method

The working group then discussed the way to measure the evolution rate.

The only method currently available is the N5 test paragraph 33.4.1.4.3..5.as described in the *Manual of Test and Criteria*.

This test is used for the classification of substances that in contact with water emit flammable gases. But the method for measuring the evolution rate is not automatically related to the criteria for these substances and could be used for other purposes.

Nevertheless, it was also noted that because the lowest relevant evolution rates to be considered for toxicity may be smaller than the one to be considered for flammability, a new , more precise, method may be needed.

Subsidiary to that discussion it was noted that there is currently no suitable criteria to decide when a substance doesn't not emit gases. Depending on the precision of the method used the answer may change for substances having a low evolution rate.

It was deemed necessary to solve this problem.

3.) Future work

Because the issue is rather complex it was proposed to have another meeting of the WAT group in July before the SCEGHS session.

Draft agenda for the meeting of the WAT group

(This was not discussed by the working groups in Paris and is a proposal from the expert from France only)

1.) Validation of the principles

Because some experts could not attend the meeting in Paris we need to validate the principles.

2.) Method for measuring the evolution rate

Developing such a method might need more time than remaining before the December Sub-committee session. The help of the TDG Sub-committee might be useful because it has experience in developing such methods in the frame of the *Manual of Test and Criteria*.

3.) Classification of mixtures of WAT substances

No method has been looked at for the moment by the WAT Correspondence Group. For this part there is a link with the work on toxic gas mixtures because the two methods need to be consistent.

4.) Inclusion of other routes (corrosion/dermal irritation) as proposed by the expert from Sweden in INF 11

5.) Future work

It might be necessary to extend the work to the next biennium, considering points 2 and 4 above.

ANNEXES: 1 thought starter paper and 4 diagrams (excel graphics)

Annexes

**W.A.T. CORRESPONDENCE GROUP MEETING
(Paris, 7 may 2004)**

Classification criteria for substances which in contact with water release toxic gases

THOUGHT STARTER PAPER BY THE EXPERT FROM FRANCE

- 1 Two properties in relation to the problem of the production of toxic gases have to be considered.
 - the evolution rate of the gas (one method for measuring this is given in the manual of test and criteria – test method N5).
 - The acute toxicity of the gas resulting from the reaction. (LC50)
2. The actual danger is coming from the acuteness of the toxicity (LC50) and the concentration of toxic gas in the atmosphere, and so depending on the quantity of gas evolved in a given time frame for a given volume. Or, in other words, the ability to reach the LC50 in a more or less short time.
3. Assuming that the effects are proportional to the concentration the curve of “equal danger” is a straight line.
4. For a given volume, the different danger categories can be determined by the time necessary to reach the LC50.
5. The criteria for classification can be easily summarized in a graphic showing the relation between LC50 and evolution rate. The different options annexed to this paper in Excel graphics are examples based on the hypothesis of a release in a closed space of 27 m³.
 - The lower line corresponds to a substance were LC50 is reached in 5 minutes
 - The middle one 30 minutes
 - The highest 4 hours.
6. These might be chosen for threshold between categories 1, 2, and 3.
7. The different options correspond to direct application of the principles and different degrees of cautiousness. These are of course not to be considered as final but only as a discussion basis



