



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

Sixty-fourth session

Geneva, 24 June - 3 July 2024

Item 3 of the provisional agenda

Listing, classification and packing

Classification of UN 2372 1,2-DI-(DIMETHYLAMINO) ETHANE

Transmitted by the expert from Belgium*

I. Introduction

1. During the sixty-second session of the United Nations Sub-Committee of Experts on the Transport of Dangerous Goods, Belgium brought forward informal document INF.18. This document explained that there were scientific data indicating an additional corrosivity hazard for UN 2372 1,2-DI-(DIMETHYLAMINO) ETHANE, which is currently only assigned a flammability hazard.

2. After the discussion at the sixty-second session, it was noted in the report that there was support for the proposal to add the subsidiary hazard of corrosivity to UN 2372. In addition, Belgium had also indicated that a transitional period might be necessary, since adding the corrosivity hazard would lead to a change of the assigned portable tank code from T4 to T7 and some enterprises would not be able to continue the use of the portable tanks as currently foreseen. The Sub-Committee agreed that transitional measures would need to be added.

3. Several delegations have also sent comments by correspondence. Most notably, one delegate provided an overview table and comparison of the tests performed and mentioned in the ECHA¹ file². This table is included in an annex to this document. From comparison it is clear that the test performed in 2000 and referred to in informal document INF.18 of the sixty-second session complies with the test criteria in OECD³ Guideline 404, as required by 2.8.3.2 of the *Model Regulations*, providing yet another piece of evidence that according to the currently available scientific data, UN 2372 possesses corrosive properties.

* A/78/6 (Sect. 20), table 20.5.

¹ European Chemicals Agency.

² <https://echa.europa.eu/en/registration-dossier/-/registered-dossier/27608/7/4/2/?documentUUID=65c68a58-38bb-4524-9497-30d2925959a7>.

³ Organisation for Economic Co-operation and Development.

4. Another delegate commented that experimental data exist that indicate this substance also harbours toxic properties. More specifically, reference was made to the NCBI⁴ database⁵ where an oral LD₅₀ value of 268 mg/kg was mentioned and a LC50 value for inhalation toxicity of 1318 ppm/4h.
5. On oral toxicity, after further consultation with our classification experts, it seems that the referenced values are not generally accepted. For example, the ECHA database contains data from more recent experiments (2011) performed according to OECD Guideline 425 that result in an LD₅₀ value of 550 mg/kg, hence not classifying as orally toxic according to the criteria in 2.6.2.2.4.1 of the *Model Regulations*.
6. Concerning inhalation toxicity, the ECHA file also contains results from experiments performed at a concentration of 4649 ppm where none of the tested animals died during the observation period, indicating that UN 2372 is not toxic for inhalation according to the criteria of 2.6.2.2.4.3.
7. Additionally, to classify a substance for toxicity for inhalation of vapours according to 2.6.2.2.4.3, also the saturated vapor concentration (or volatility) needs to be taken into account. Nevertheless, none of the consulted databases contains any data on the volatility of UN 2372. As such, with the available data, it is not possible to determine whether UN 2372 classifies as a toxic substance based on the inhalation toxicity of its vapor.
8. Furthermore, assigning toxicity as an additional subsidiary hazard would not lead to an additional change in transport conditions besides the change from T4 to T7 for the portable tank instruction as proposed in informal document INF.18 of the sixty-second session.
9. As such, in this document, the same amendments are proposed as in informal document INF.18 of the sixty-second session:
- Assigning corrosivity as a secondary hazard in column 4 of the Dangerous Goods List;
 - Changing the assigned T-code for portable tanks from T4 to T7.
10. Taking into account that Belgium is not aware of any incidents that would necessitate a fast shift to more stringent transport conditions, it seems reasonable to foresee a transitional period.

II. Proposals

A. Proposal 1

11. Amend the entry for UN 2372 in the Dangerous Goods list as follows (deleted text is stricken through, new text is in **bold underlined**):

(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
2372	1,2-DI-(DIMETHYLAMINO) ETHANE	3	<u>g</u>	II		1L	E2	P001 IBC02		T4 <u>T7</u>	TP1

B. Proposal 2

12. Add in 4.2.6 of the *Model Regulations* the following transitional measure:
 “Until 31 December 2028 portable tanks with tank code T4 may be used for the transport of UN2372 1,2-DI-(DIMETHYLAMINO) ETHANE.”

⁴ National Center for Biotechnology, United States of America.

⁵ <https://pubchem.ncbi.nlm.nih.gov/compound/8037#section=Adverse-Effects>.

III. Sustainable development goals

13. This proposal contributes to Sustainable Development Goal 12 “Ensure sustainable consumption and production patterns” and more specifically its target 12.4.

Annex

	<i>Study report 2000</i>	<i>Study report 1989</i>	<i>Study report 1988</i>	<i>OECD Guideline 404, last update: 2015</i>
Test	DOT skin corrosion test	Skin corrosion screening method	DOT skin corrosion test	In vivo skin corrosion test
Time	3 minutes, 1 hour, 4 hours Exposure terminated after 1 hour (due to severity of the irritation)	3 minutes	1 hour	3 minutes, 1 hour, 4 hours If a corrosive effect is observed after any of the three sequential exposures, the test is immediately terminated
Species	New Zealand white rabbit, 6 cm ² free of hair	New Zealand white rabbit, 1×1 inch, free of hair	New Zealand white rabbit, 1×1 inch, free of hair	Albino rabbits, 6 cm ² free of hair
No. of animals	1 male, 2 females	3	3	2 to 3
Test material	Anhydrous TMEDA, clear colorless liquid, 0.5 ml	Anhydrous TMEDA, clear colorless pale yellow liquid, 0.5 ml	Clear colorless pale yellow liquid, 0.5 ml	Undiluted liquid, 0.5 ml
Controls	Untreated skin areas of the test animal serve as control	Untreated skin areas of the test animal serve as control	Untreated skin areas of the test animal serve as control	Untreated skin areas of the test animal serve as control
Observation period	1 hour, 24 hours	30 minutes, 24 and 48 hours	30 minutes, 24 and 48 hours	Observation 14 days, unless corrosion develops at an earlier time point. 24, 48, 72 hours
Corrosion def	Full thickness necrosis in at least one animal	Destruction (= ulceration or necrosis) or irreversible alteration of the tissue	Destruction (= ulceration or necrosis) or irreversible alteration of the tissue	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 chemical for up to four hours. Corrosive reactions are typified by ulcers, bleeding, bloody scabs, and, by the end of observation at 14 days, by discoloration due to blanching of the skin, complete areas of alopecia, and scars.

	<i>Study report 2000</i>	<i>Study report 1989</i>	<i>Study report 1988</i>	<i>OECD Guideline 404, last update: 2015</i>
Results	<p><u>3-min-exposure:</u> - reading after 1 hour > no indication of corrosivity - reading after 24 hour > positive indication of corrosivity</p> <p><u>1-hour-exposure:</u> - reading after 1 hour > no indication of corrosivity - reading after 24 hour > positive indication of corrosivity, not fully reversible, erythema score 4/4, edema score 2/4</p> <p>> Category 1</p>	<p><u>3-min-exposure:</u> 24/48 hours > erythema score 4/4, edema score 2/4</p> <p>> Category 1A</p>	<p><u>1-hour-exposure:</u> 30 min/24 h/48 h > erythema score 4/4 not reversible, edema score 1/4 fully reversible in 48 hours (in one rabbit 1/4 after 48 hour)</p> <p>> Category 1</p>	