

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 Transport of Dangerous Goods

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Item 3 of the provisional agenda

Listing, classification and packing

Fire suppression devices that contain a pyrotechnic material

Transmitted by the Council on Safe Transportation of Hazardous Articles (COSTHA)

Introduction

1. This informal document aims to support the document ST/SG/AC.10/C.3/2022/25 (WP25). There are continuous conversations occurring between COSTHA and experts of the UN Sub-Committee of experts on the Transport of Dangerous Goods. This informal document is intended to address comments and suggestions we have received.

2. ST/SG/AC.10/C.3/2022/25 proposes to introduce a new entry to the dangerous goods list. The new entry would include the proper shipping name: Fire Suppression Dispersing Devices. As discussed in ST/SG/AC.10/C.3/2022/25, many competent authorities have granted approvals classifying these devices as UN 3268, Safety Devices, Class 9. There have been concerns that this proper shipping name does not provide an appropriate description of the intended function of the device. Additionally, when these devices are classified as an explosive, based upon containing a pyrotechnic substance, they typically are classified as: UN 0432 Articles Pyrotechnic for technical purposes. This proper shipping name also does not adequately describe the intended function associated with these devices. For this reason, COSTHA is requesting that a new entry be included in the Dangerous Goods List to more appropriately address these articles.

3. It is further recommended that the new entry “Fire Suppression Dispersal Device” include two possible classifications, Class 9 and Division 1.4S. To obtain the Class 9 designation, the device would have to meet the conditions prescribed within the proposed special provision (XYZ).

4. The logic behind excluding these devices is supported by their intended function and relative risk in transport. When considering the five exclusion criteria in section 2.1.3.6.4, these devices should have to pass each of the criteria, except for:

(a) No external surface shall have a temperature of more than 65° C. A momentary spike in temperature up to 200° is acceptable;

Rationale – These devices, when actuated initiate an exothermic reaction that produces fire suppression dispersant. When actuated within an enclosed space, as typical for transport, the dispersant will prohibit any combustion from occurring in the vicinity. Additionally, although not typically considered for classification, the probability of actuation in transport is negligible. The proposed special provision would include safety measures to reduce the probability of actuation even further.

(e) No production of smoke, fumes or dust in such quantities that visibility in a one cubic metre chamber equipped with appropriately sized blow out panels is reduced

more than 50% as measured by a calibrated light (lux) meter or radiometer located one metre from a constant light source located at the midpoint on opposite walls.

Rationale – These devices are intended to produce an aerosolized dispersant with the intention to extinguish any combustion. This dispersant is a fine particulate but is neither smoke nor dust, it is in fact the fire suppression particulate being emitted as intended by design and manufacture.

5. It is important to reiterate the effectiveness of these devices in extinguishing lithium battery fires. Following the proliferation of Energy Storage Systems and Electric Vehicles to support green energy initiatives and protection of the environment, there will be an increased demand for green and effective fire suppression systems. These devices, when manufactured in accordance with the well-known industry standards will provide this effective and environmentally friendly solution.

6. We are aware of at least 11 companies around the world producing these types of devices. Currently, their national authorities have authorized transport of these devices as: Div. 1.4S, Div. 4.1, Div. 5.1, Class 9 and un-regulated. There are no known transport incidents involving these devices, regardless of their classification, which further support the inherent safety built into their design and intended function.

Amended proposal

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
								Packing instruction	Special packing provisions	Instructions	Special provisions
35XX	Fire Suppression Dispersing Devices	9			XYZ	0	EO	P003			
35XX	Fire Suppression Dispersing Devices	1.4S				0	E0	P135			

In 3.3.1 add a new special provision XYZ to read as follows:

“XYZ This entry applies to Fire Suppression Dispersing Devices. These are articles which contain a pyrotechnic substance that do not function as an explosive and are intended to disperse a fire extinguishing agent when actuated. The devices shall be either electrically activated, manually actuated, or thermally activated and shall be designed to prevent inadvertent activation either by shipping the actuation component separately (e.g., thermally activated head, and the main unit are shipped separately) or by ensuring that the electrically initiated devices are not electrically connected and there is a secondary means of protection to prevent activation. These articles, as presented for transport shall be successfully tested in accordance with test series 6(c) of Part 1 of the Manual of Tests and Criteria, with no explosion of the device, no fragmentation of the device casing and no projection hazard which would significantly hinder firefighting or emergency response efforts in the immediate vicinity. The dispersant shall be deemed safe for occupied areas and not harmful to humans in compliance with international or regional standards (e.g., UN/ISO 15779, UL 2775).

Additionally, these devices shall meet the exclusion criteria in 2.1.3.6.4 2.1.3.6.4 (b), (c) and (d). Any article not meeting the provisions of this special provision shall be classified as UN 35XX, Fire Suppression Dispersing Device, 1.4S.

This entry does not apply to “SAFETY DEVICES, electrically initiated” described in special provision 280 (UN 3268).”

7. The entry name in the index should be amended as follows:

Name and description	Class	UN Number
Fire Suppression Dispersing devices	9	35XX
Fire Suppression Dispersing devices	1.4S	35XX

8. In 3.3.1 amend special provision 280 by adding the following language at the end:
“This entry does not apply to life saving appliances described in special provision 296 (UN Nos. 2990 and 3072) and *Fire Suppression Dispersing devices (UN No. 35XX)*.”
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