

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

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Item 2 of the provisional agenda

Explosives and related matters

Additional criteria for 1.4 classification

Transmitted by the expert from Canada

Background

1. At the thirty-fourth session of the Sub-Committee of Experts on the Transport of Dangerous Goods, the test 6(d) was formally adopted for determining suitability for a 1.4S classification. This addressed in part the assessment for the presence of hazardous effects outside the package asked in box 33 of figure 10.8. The classification of explosives that may be assigned to 1.4 other than S is based on test 6 (c) that addresses a fire situation. The present information paper highlights situations where a Division 1.4 other than S classification may not meet the intent for such a classification based on the definition.

Comments

2. The Division 1.4 classification is intended for substances and articles which present only a small hazard in the event of ignition or initiation during transport. This assumes that should there be an accidental ignition or initiation, the effects are largely confined to the package. Articles with a significant content of energetic substances may be packaged in such a way that a mass explosion of the whole content will not occur, nor would they react violently in a fire situation, but would generate significant effects if accidentally initiated. Various competent authorities have adopted their own threshold values for some articles (see the shaped charge example below). However other articles are classified strictly based on their behaviours in test 6 (c).

Examples

3. Shaped charges with UN 0440 (Hazard Division 1.4D) are limited to an NEQ of 25 grams per unit by some competent authorities, otherwise are classified with UN 0059 (Hazard Division 1.1D);

4. Explosives welding articles that contain a significant NEQ (e.g. 500 grams) may be packaged in such a way that a mass explosion of the whole package does not occur and end up being classified with a UN 0444 (1.4D); however the accidental initiation of a single charge may result in a significant blast which is not consistent with the definition for a 1.4 article; the appropriate classification may be UN 0442 (1.1D) to better reflect potential hazards;

5. articles containing smokeless powder used for blasting applications may be classified as UN 0323 (Cartridges Power Device, 1.4S) or UN 0276 (Cartridges Power device, 1.4C) based on series 6 testing including 6(d); note that this classification may be achieved with a product design feature that would prevent a potential deflagration if the article is unconfined rather than special packaging to contain hazardous effects; should such an article with a similar quantity of powder be assembled without an igniter this would be packaged propellant and classified as UN 0161 (1.3C);

Proposal

6. The Working Group may wish to consider further refinement of test 6 (d) in order to add criteria for the purpose of addressing the 1.4 other than S classification process. This proposal may include the criteria used in test 6 (c). Therefore Canada proposes that these matters be discussed with a view to developing some options for resolving the above inconsistencies and clarify the classification process.
