

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
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EXPLOSIVES, SELF REACTIVE SUBSTANCES AND ORGANIC PEROXIDES

Classification criteria for fireworks

Transmitted by the expert from the United Kingdom

Introduction

1. At the last meeting of the working group the Chairman asked for Experts to carry out a review of their firework test data in order to progress the classification list. The United Kingdom Expert told the Working Group that a number of trials were planned on Roman candles, rockets and mines and these results would be available for the July 2004 meeting of the working group.
2. The United Kingdom has presented data and classification criteria for flash rockets, with and without sticks (UN/SCETDG/23/INF.25), and will be carrying out tests on large rockets with perchlorate/ metal flash as the report effect. In addition, the United Kingdom will have results on rockets containing stars, with and without sticks, and Roman candles with small flash units.

Mines

3. The United Kingdom Expert has reviewed the test data on Mines originally presented to the Working Group (UN/SCETDG/21/INF.21). The United Kingdom carried out Test Series 6 trials on a small ground mine and in Test 6(a) the effect was so feeble that only charred transport boxes and firework tubes were recovered from the confining material. Test 6(c) on this ground mine demonstrated that the hazard from this firework was 1.4G. In reviewing the test work we have discovered an error in the NEC reported for this firework. The Ruby ground mine has 154g of pyrotechnic composition with 10g of flash composition. At the July 2003 meeting of the Working Group the criteria for classifying ground mines was changed from 90g of pyrotechnic composition to 80g. This was contrary to the agreement made at the first working group meeting that all classifications would be based on the test series 6 of the UN Test Manual (para. 10 of ST/SG/AC.10/C.3/2002/1). The United Kingdom Expert proposes to amend the 1.4G Mine classification to the tested limits and the classification criteria for 1.1G and 1.3G ground mines in the table below.
4. The United Kingdom carried out Test 6(a) and (b) on a number of bag mines containing flash and has demonstrated that mines with more than 40% flash will mass detonate. A review of the compositions of mines and shells has shown similarities and the United Kingdom Expert suggests that the limits for 1.3G and 1.4G mines should be based on those applying to shells. The United Kingdom Expert proposes the following criteria for classifying bag mines in the table below.

mine	pot-a-feu, ground mine	tube containing propellant charge and pyrotechnic units and designed to be placed on the ground or to be fixed in the ground. The principal effect is ejection of all the pyrotechnic units in a single burst producing a widely dispersed visual and/or aural effect in the air	> 25% perchlorate/ metal composition, as loose powder and/ or report effects	1.1G
			$\geq 200\text{mm}$ and $\leq 25\%$ perchlorate/ metal composition, as loose powder and/ or report effects	1.1G
			$< 200\text{mm}$ and $\leq 25\%$ perchlorate/ metal composition, as loose powder and/ or report effects	1.3G
			$\leq 150\text{g}$ pyrotechnic composition, containing $\leq 5\%$ perchlorate/ metal composition as report effects. Each report effect $< 2\text{g}$.	1.4G
	bag mine, cylinder mine	cloth or paper bag or cloth or paper cylinder containing propellant charge and pyrotechnic units, designed to be placed in a mortar and to function as a mine	> 25% perchlorate/ metal composition, as loose powder and/ or report effects	1.1G
			$\geq 200\text{mm}$ and $\leq 25\%$ perchlorate/ metal composition, as loose powder and/ or report effects	1.1G
			$< 200\text{mm}$ and $\leq 25\%$ perchlorate/ metal composition, as loose powder and/ or report effects	1.3G