

## 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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### EXPLOSIVES, SELF-REACTIVE SUBSTANCES AND ORGANIC PEROXIDES

#### Classification criteria for fireworks

Transmitted by the expert from Germany

#### **1. Introduction**

During the 24th session of the Sub-Committee of Experts on the Transport of Dangerous Goods in the Working Group on explosives there was an ongoing discussion on the correct classification of fireworks articles at the 1.3/1.4 boundary.

Since the last meeting in December 2004 Germany has carried out UN Series 6 trials involving a variety of consumer fireworks and proposes changes to the draft of the default classification table as follows.

#### **2. Shell in mortar, Roman candles, shot tubes**

The issue of finding a suitable calibre for a 1.4 classification of fireworks with a projectile shot from a tube remains very difficult as long as properties of the projectile are not known.

The expert from Germany is reluctant to judge a limited number of star effects expelled more than 15 m during a UN 6(c) test in the same way like a fiery projection of propellant would be judged, such as a flame extending more than 15 m, and which would lead to a 1.3 classification.

It is therefore a matter of technical considerations to assign a threshold calibre, where the argument shall involve the possible penetrating power or kinetic energy of a projectile. As a criterion it should be considered whether the expelled effects are contained in a solid casing, or form an object with less penetrating power.

From these considerations the expert from Germany suggests the following changes to the default table:

- ? a shell in mortar up to a diameter of 30 mm and with not more than 2% of flash composition may be considered 1.4, as it is currently;
- ? a Roman candle up to a inner diameter of 30 mm with a maximum of 25 g pyrotechnic composition per tube, not more than 2% of flash composition, and where effects are not contained inside a solid casing may be assigned 1.4;
- ? shot tubes should be dealt with exactly like Roman candles, i. e. going down from 1.1 classification to 1.4 with the same wording.

The expert from Germany would like to stress that threshold values in all three types, shell in mortar, Roman candles, single shot be kept the same in order to avoid inconsistent classification of batteries being assemblies of such single items. It is only for reasons of clear terminology that the three types cannot be subsumed under a single entry within the default list.

### **3. Combination/batteries**

In order to reflect a consistent terminology, the expert from Germany suggests to change the type name in "Batteries/combination". This corresponds in a more logic way to the definition given in the third column, where assemblies with the same type (batteries) are named before assemblies with different types (combinations), also reflecting the fact that batteries are more frequent than combinations.

### **4. Rockets**

Recently performed tests with rockets with up to 20 g pyrotechnic of pyrotechnic composition, and tests performed with rockets in the past, do show burning particles transported beyond the 15 m threshold value, the later given in the UN handbook with tests and criteria. Understanding the testing criteria as giving a relevant judgement of the reacting articles in their packaging with regard to fire fighting, rockets with not more than 20 g of pyrotechnics should still be regarded 1.4.

Our testing does not contradict the drafted threshold values and the expert from Germany suggests to keep the classification as in the last draft.

### **5. Low hazard fireworks and novelties**

Throw downs and snaps may contain up to 2.5 mg of silver fulminate according to European standards. This figure should be reflected in the default list instead of the currently given 1.6 mg.

### **6. Sparklers**

Small sparklers with less than 15 g of pyrotechnic composition have been tested in a UN 6(c)-test in packs of 40 per inner packaging. The test revealed no relevant production of heat radiation. The expert from Germany suggests to change the maximum number of sparklers per inner packaging to 50 pieces for the 1.4 classification.

### **7. Bangers**

In Germany the only permitted type of bangers contain black powder, while report compositions are not permitted. Two types of bangers with up to 6 g of black powder were tested according to the UN test manual. The observations during the tests allow without problems a classification as 1.4G.

Regarding the still missing threshold value for bangers in the default table the expert from Germany proposes to allow for up to 6 g for a default classification of bangers in hazard division 1.4.

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