UN/SCETDG/20/INF.37

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
(Twentieth session, 3-12 December 2001, agenda item 8 (a))

Comments on the Report of the UN working group on the classification of fireworks, 16-18 October 2001 (The Hague, Netherlands)

Transmitted by the expert from the United States of America

The expert from the United States of America has reviewed the report of the UN working group on the classification of fireworks, and offers the following comments for considerations by the Sub-Committee:

General Comments:

1. The default system for the classification of fireworks should cover Divisions 1.1G, 1.3G, and 1.4G. We do not believe that a Div. 1.2G category is necessary because of the nature of design and construction of fireworks (fireworks intended for consumers and display purposes). We further believe that certain small items (or novelties) can be assigned to Div. 1.4S with clear definitions or descriptions. We do not support the view that a Div. 1.4S is assigned based on packaging and cannot be included in a default system. For some fireworks, particularly when the article itself meets the Division 1.4S designation we believe that the default system can designate it as such. A Div. 1.4S classification should not only be assigned based on tests in accordance with the relevant classification procedures for Class 1 items.

2. We do not support the view that criteria for differentiation between 1.1G, 1.3G and 1.4G are solely based on the dimensions of firework items. We wish to again emphasize our position that it is the weight of chemical composition, and the type of composition that primarily determines the output to be expected when test series 6 is performed on fireworks devices as packaged for transportation.

3. We recommend that a section be added to the default system to emphasize that only pyrotechnic compositions (chemical mixtures of oxidizers and fuels) are permitted in fireworks. No explosive substances, as defined and listed in the UN table (or other specifically identified explosive substances), are to be used in fireworks with the exception of black powder.

Specific Comments on fireworks categories:

1. Shell, spherical or cylindrical

We have not had the opportunity to see or review the test data that support a classification of 1.1G for all color shells $\geq$ 200 mm. We also have not seen data to support a 1.1G classification for report shells that contain 70 grams or less of explosive composition; tests conducted in the U.S. in the past have indicated that these products behave in a manner warranting 1.3G classification. We also strongly recommend that a 1.4G default classification be added to this category for aerial shells containing 60 grams or less of pyrotechnic composition, when the shells are preloaded into mortar tubes, or when they are packed in a retail sales kit (with a mortar tube included) that contains a maximum of 12 shells, with total pyrotechnic composition not exceeding 400 grams, and with any report component limited to 0.13 grams of composition per report. Tests have been conducted on these products in the U.S., and they do not produce a mass explosion or mass fireball.

2. Roman candles

We recommend that pyrotechnic composition limits be used for this category in lieu of tube diameter limitations. We recommend 20 grams as the dividing line between 1.4G and 1.3G. For report components, we recommend a limit of 0.13 grams for 1.4G classification. Test data should be obtained to determine the proper dividing line between 1.3G and 1.1G for roman candles with flash composition exceeding 0.13 grams.

3. Rockets

We recommend that 20 grams be used as the dividing point between 1.4G and 1.3G, and that 0.13 grams of report be the dividing line between 1.4G and 1.3G for rockets with a report effect. Test data should be obtained to determine where the dividing line between 1.3G and 1.1G should be drawn.

4. Mines

Pot-a-feu. We recommend that a total weight of pyrotechnic composition of 60 grams be the maximum for a 1.4G device; if any report effect is present, the 1.4G versus 1.3G classification should be based on a maximum weight of report composition, per report, of 0.13 grams.

Bag Mine. This category of device should not be included in the 1.4G category unless it is packaged with a mortar tube. For 1.4G classification, we recommend that these devices be limited to retail sales kits containing a maximum of 12 articles (each article is limited to a maximum of 60 grams of pyrotechnic composition and a total weight of pyrotechnic composition of 400 grams per kit), with a mortar tube included in the package. Any report component should be limited to 0.13 grams for 1.4G classification.

5. Fountain

We recommend that the default 1.4G limit be established at 75 grams of pyrotechnic composition for a cylindrical fountain or torch, and 50 grams for a cone fountain.

6. Sparkler

We feel that the proposed limit of 10 grams is way too low for the dividing line between 1.4G and 1.3G behavior, particularly for sparklers that do not contain a chlorate or perchlorate oxidizer. We recommend that a 1.4G default limit of 100 grams be established for sparklers that do not contain either of these oxidizers.

7. Low Hazard Fireworks/Novelties

Limits should be established for these devices, by category or type of device. Many of these devices use explosives like silver fulminate or potassium chlorate/red phosphorus mixture, and low limits are needed for 1.4G classification. We recommend a limit of 0.001 gram for silver fulminate, and 0.016 grams for potassium chlorate/red phosphorus mixtures. The use of any other explosive listed in the UN table should be prohibited in these items.

8. Spinners

We support the proposed 20 grams division between 1.4G and 1.3G. We recommend that a limit on report composition be established for these devices as well, and we suggest that the limit be set at 0.050 grams for any report effect produced at a height of less that 5 meters, and 0.13 grams for report effects produced at a height greater than 5 meters in the air.

9. Wheels and Aerial Wheels

We support the proposed limits. We also recommend that a limit of 0.050 grams should be established for any report effect in a wheel for 1.4G classification, with this limit raised to 0.13 grams for report effects produced at a height of 5 meters or greater.
