Sub-Committee of Experts on the Transport of Dangerous Goods
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EXPLOSIVES, SELF-REACTIVE SUBSTANCES AND ORGANIC PEROXIDES

Classification of fireworks

Transmitted by the Expert from Germany

Document ST/SG/AC.10/C.3/2001/13 contains the statement that many countries require the classification of professional fireworks by the competent authority of the country of import as part of an authorisation system.

The Expert from the Netherlands furthermore says that he feels this matter was not only relevant to other fields like storage but also to transport and should, therefore, be regulated in the UN Recommendations.

The Expert of Germany feels that this approach is very well worth being considered with a view to the elimination of the deficiencies that have been identified in the past.

Germany furthermore supports the development of a system for the classification of fireworks that is easily enforceable, practically applicable, and based on the other principles mentioned by the Expert from the Netherlands.

In Germany several tests with display firework have been performed over a period of more than 6 years. Test series 6 and additionally test 4 (b) (ii) (Twelve meter drop test) was performed in the way laid down in the UN Test Manual and it resulted correct classifications for display firework and also for other class 1 goods.

The results of tests in connection with requests for classification and also specially performed test series lead to a system that is used by the competent authority in Germany for classification of display firework.

This system consists of two parts.

1. The first part is a categorisation of different types of firework regarding different properties as the calibre, structure (eg propelling charge, effects, bursting charge), the explosive net mass, the outer packaging and the inner packaging. It is done with a code including these properties.
   As example: B / 150 / T 2 / 2 / 2 - 4 G / B
   Type: shell / calibre 150 mm / propelling charge, effects with banger / = 500 g /
   = 20 kg with cushioning material box fibreboard (4G) / inner packaging box fibreboard with cushioning material.
   The code differs slightly for different types of fireworks.

2. The second part is a table coming out from the tests containing the types of fireworks, the explosive net mass per article, the codes of tested articles and the classification (see Annex).

By the results of the tests it was found that the result of the test and from that the classification depends on the explosive net mass, mostly but not always being proportional to the calibre.
The pyrotechnic industry is creating new types of fireworks and also new effects. So the table is not a static one.
The table is supplemented when receiving new edited test results.

This system enables competent authorities to identify nearly identical fireworks by having the same code. If the code is different the competent authority can decide whether to classify by analogy or not by comparing the properties.

Germany will present the system to the working group and will participate in the work of the group.

Annex

Classification of tested display firework

Type	Explosive net mass per article respectively set								Class
	≤50g	≤100g	≤150g	≤200g	≤250g	≤350g	≤500g	≤750g	
Rockets (R)	see ≤500g	see ≤500g	see ≤500g	see ≤500g	see ≤500g	see ≤500g	1Z/4G2/A		1.3
Shells (B)	see ≤350g	see ≤350g	see ≤350g	see ≤350g	see ≤350g	45/1Z/4G1/A 60/1Z/4G1/A 60/T2Z/4G2/ 80/1Z/4G1/A 100/T2Z/4G1/A	100/T2Z/4G2 100/T2Z/4D2 125/T1Z/4G1/A 150/T2Z/4G2	210/T1Z/4G1/A(X)	1.3/ (X)1.1
Roman candles (RL)	see ≤350g	see ≤350g	see ≤350g	2/2/4G2	see ≤350g	2/2/4G2			1.3/ > 50 mm 1.2
Mines (FT)	see ≤350g	see ≤350g	60/T2/1/4G2	see ≤350g	see ≤350g	80/T2/4G2			1.3
Fountains, gerbs (F)	see ≤500g	see ≤500g	see ≤500g	see ≤500g	see ≤500g	see ≤500g	1/3/4G2/		1.3
Lanceworks, set pieces (LB)	see ≤350g	see ≤350g	see ≤350g	see ≤350g	see ≤350g	1/4G/	see ≤350g	see ≤350g	1.4
Pyrotechnic units (BG)	Classification by results of performed tests or by analogy with identical articles 1.1 – 1.4								
Batteries, combinations, cakeboxes (FB)	Classification by results of performed tests or by analogy with identical articles 1.2 / 1.3								

All articles containing report compositions are Class 1.1.