

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

Default classification of fireworks
Information on test results for a rocket

Transmitted by the expert from Denmark

Introduction

A UN Test Series 6 has been carried out on a rocket which was according to the UN default classification list to be classified as UN 0335 (1.3G). The test results clearly show that the proper classification is UN 0333 (1.1G). The rocket contains 11% flash composition (16% if the rocket motor is not taken into account).

These tests took place in Germany on 18 – 19 April, 2005, in co-operation with *Bundesanstalt für Materialforschung und -prüfung* (BAM).

Later, a UN 4(b) test was also performed, and no fire or explosion was observed.

Test results

UN Test Series 6:

6 (a) test: 1.1G
6(b) test: Not performed
6(c) test: 1.1G

UN Test Series 4(b):

No fire or explosion observed.

Result of the chemical analysis (approx.):

Bursting charge: 25 g (51% KClO₄, 9% S, presence of Mg/Al)
Effect charge: 120 g (12% KClO₄, 18% KNO₃, 18% BaNO₃, 10% S, 37% insoluble material, presence of Mg/Al/Ca).
Ignition charges: 5 g (51% KClO₄, 12% S).

Composition according to the manufacturer:

Total powder weight(g) <input type="checkbox"/> 218		Size(mm) <input type="checkbox"/>					<input type="checkbox"/> % <input type="checkbox"/>			
Composition		red	green	gold	silver	blue	black powder	whistle powder	Bursting	crackling
Chinese	English									
	Potassium bezole – KC7H5O2									
	Lac – C16H24O5									
	Sodium oxalate – Na2C2O4									
	Potassium perchlorate – KCLO4	42							50	
	AL + MG alloy	17	17		20					
	sulfur – S		8		20		4		20	
	pheny – hexachloride – C6CL6									
	antimonic sulfide – Sb2S3								10	
	potassium chlorate – KCLO3									
	aluminum – AL								20	
	carbon – C						24			
	resinox – C48H42O7	10	9							
	strontium carbonate – SrCO3	22								
	Iron – Fe									
	barium nitrate – Ba(MO3)2		57		53					
	potassium nitrate – KNO3				7		72			
	Copper oxide – CuO									
	polyvinyl chloride – (C2H3CL)n	9	9							
	titanium – Ti									
	flitter – AL									
	cryolite – NaALF6									
	Na3 ALF6									
	Polyvinyl resin									
	powder weight for each effect(g)	30	40		50		73		25	

Conclusion

The expert from Denmark would like to ask the Sub-Committee to reconsider the default classification criteria for rockets, at least as regards the border line between 1.3G and 1.1G (i.e. 25% flash composition).