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**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

Thirty-fifth session
Geneva, 22–26 June 2009
Item 2 of the provisional agenda

EXPLOSIVES AND RELATED MATTERS

Criteria for excluding articles from Class 1

Transmitted by the expert from the United States of America¹

Introduction

1. At its thirty-first session, the Sub-Committee considered informal document INF.36 which discussed prospective criteria for classifying an article as non-explosive under the general guidance provided in section 2.1.1.1(b) of the Model Regulations. As this informal paper was favourably received by a number of experts, a formal proposal to amend the Model Regulations was submitted for further consideration by the Sub-Committee at its 33rd session (see ST/SG/AC.10/C.3/2008/54). Based on discussion and additional suggestions made during the July 2008 session of the Working Group on Explosives, the expert from the United States has amended this proposal with additional technical references and experimental results for further consideration by the Sub-Committee.

¹ In accordance with the programme of work of the Sub-Committee for 2007-2008 approved by the Committee at its third session (refer to ST/SG/AC.10/C.3/68 para. 118(a) and ST/SG/AC.10/C.3/36, para. 14).

Definitions and general provisions for Class 1

2. In Chapter 2.1 of the Model Regulations, paragraph 2.1.1.1 states that Class 1 comprises: (b) “Explosive articles, except devices containing explosive substances in such quantity or of such character that their inadvertent or accidental ignition or initiation during transport shall not cause any effect external to the device either by projection, fire, smoke, heat or loud noise;”

Harmonized criteria for exclusion from Class 1

3. Paragraph 2.1.3.6.1 of the Model Regulations currently states that “The Competent Authority may exclude an article or substance from Class 1 by virtue of test results and the Class 1 definition.” Specific test criteria for exclusion of substances from Class 1 is addressed in 2.1.3.6.2 and 2.1.3.6.3 but no test criteria are given for exclusion of articles consistent with the definitions and general provisions in 2.1.1.1 (b). The proposals in this paper are offered to address this deficiency. The annex I provides some examples of articles which would qualify for exclusion from Class 1 based on the proposed criteria. Regarding the criteria in the proposed 2.1.3.6.4(c), dialogue with affected industry has indicated variations in measuring decibel levels are likely depending upon the methods and equipment used. Therefore the expert from the United States of America has proposed specific references to applicable standards. However the Sub-Committee is invited to consider whether other standards may also be appropriate.

Proposal

4. Add a new 2.1.3.6.4 to the Model Regulations to read as follows:

2.1.3.6.4 An article shall be excluded from Class 1 when not less than three unpackaged articles, each individually functioned by its own means of initiation or ignition or external means to function in the designed mode, meet the following test criteria:

- (a) None of the external surfaces nearest the explosive substance(s), in any of the test articles shall exceed 200 °C;***
- (b) None of the test articles shall produce any rupture or fragmentation of the external casing or shall produce movement of any article more than one metre in any direction;***
- (c) None of the test articles shall produce an audible report exceeding 150 decibels when measured with an ANSI Type 1 Sound Level meter or 140 decibels when measured with an ANSI Type 2 Sound Level Meter placed not more than 1 meter (39.3 inches) away; and***
- (d) None of the test articles in a closed chamber (with appropriately sized blow-out panels in the event of any pressure build-up) having an approximate volume of one cubic meter for smaller devices or of eight (8) cubic meters for larger devices, shall produce sufficient smoke, fumes or dust to reduce visibility in that***

chamber more than fifty (50) percent as measured by a calibrated light (lux) meter or radiometer located one meter from a constant light source within the chamber. The general guidance on Optical Density Testing in ISO Standard 5659-1 and the general guidance on the Photometric System described in Section 7.5 in ISO Standard 5659-2 may be used or similar optical density measurement methods designed to accomplish the same purpose may also be employed.

Annex**Test Results**

A number of articles have been tested in the Unites States of America according to these four quantitative criteria with the following results:

Device	Rupture or Fragmentation/ Movement, Meters	Outer Surface Temperature, °C.	ANSI type I Sound Level, Decibels	Smoke Obscuration, Percent
Br1.5 Seat Belt Pretensioner	No rupture or fragmentation/ 0.64m.,0.39m, 0.25m. (all horizontal)	44, 41, 39	119.8, 120.3, 120.6	None.
MLL Retractor Seat Belt Pretensioner	No rupture or fragmentation/ 0.53m., 0.27m, 0.15m.(all horizontal)	37,37,38	17.1, 118.2, 118.6	None.
RP2IS Retractor Seat Belt Pretensioner	No rupture or fragmentation/ 0.48m, 0.43m., 0.41m. (all vertical)	35,36,36	121.1, 123.,3, 123.8	None.
RP+ Retractor Seat Belt Pretensioner	No rupture or fragmentation/ 0.61m. (vertical), 0.30m.(vertical), 0.51m. (horizontal)	39, 39, 40	116.7, 118, 123.1	None.
AFS-1, (Four Pack) Fire Suppression Apparatus	No rupture, fragmentation or movement (the unit was quite large and heavy)	184, 191, 196 (measured beneath the heat shielding)	124.7, 125.5, 131.7	15,18,20