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 AND RELATED MATTERS

Criteria for excluding articles from Class 1

Comments on ST/SG/AC.10/C.3/2009/22 (USA)

Transmitted by the expert from the United Kingdom

Introduction

1. The expert from the United States of America has proposed criteria for classifying an article as non-explosive under the general guidance provided in Section 2.1.1.1(b) of the Model Regulations (ST/SG/AC.10/C.3/2009/22). This section allows explosive devices "*containing explosives substances in such quantity or of such a character that their inadvertent or accidental ignition or initiation during transport shall not cause any effect external to the device either by propagation, fire, smoke, heat or loud noise*".

Discussion

2. The expert from the United Kingdom welcomes this paper from the expert from the USA and makes the following comments as a further contribution to the discussions on the criteria for excluding devices outside Class 1.

3. The expert from the USA includes text for a new 2.1.3.6.4 to the Model Regulations but the UK has not been able identify reference to the UN Test Series results. The UK believes that it is necessary that any proposal for a new 2.1.3.6.4 includes a requirement that any article is "provisionally accepted into Class 1 and excluded from Class 1 by performing Test Series 6.".

4. The USA's paper does not address inadvertent or accidental ignition or initiation of an article during transport. The UK believes that it is necessary that any proposal for a new 2.1.3.6.4 consider the inclusion of Test 6(d) before these articles are subject to the individual function test. This would address the "flame" aspect of 2.1.1.1.

5. The proposed 2.1.3.6.4 (a) reads "None of the external surfaces nearest the explosive substance(s), in any test shall exceed 200°C" There are currently two widely used articles that generate heat that currently fall outside Class 1 using the provisions of 2.1.1.1(b) – Oxygen generators (UN 3356) and thermal batteries. The UK suggests that articles that produce excessive heat are a special case and that such articles should be considered under an appropriate special provision.

6. The proposed 2.1.3.6.4(b) contains a requirement that “none of the test articles… shall produce movement of any article more than one metre in any direction”. The UK suggests that any such criterion should take account of the energy associated with any such movement and its potential to damage other packages of dangerous goods or the means of transport. The UK therefore recommends that the energy or a mass-time relationship for such movements are described in the criteria.

7. The expert from the USA proposes in the new 2.1.3.6.4(c) a requirement relating to the generation of a loud noise. The UK has not had the opportunity to consider the levels described as they are measured in a form not recognised in Europe. However, a US web site (http://www.gcaudio.com/resources/howtos/loudness.html) has a table of measurements of common sound levels and this is reproduced below;

Environmental Noise	
Weakest sound heard	0dB
Whisper Quiet Library	30dB
Normal conversation (3-5')	60-70dB
Telephone dial tone	80dB
City Traffic (inside car)	85dB
Train whistle at 500', Truck Traffic	90dB
Subway train at 200'	95dB
Level at which sustained exposure may result in hearing loss	*90 - 95dB*
Power mower at 3'	107dB
Snowmobile, Motorcycle	100dB
Power saw at 3'	110dB
Sandblasting, Loud Rock Concert	115dB
Pain begins	*125dB*
Pneumatic riveter at 4'	125dB
Even short term exposure can cause permanent damage - Loudest recommended exposure WITH hearing protection	*140dB*
Jet engine at 100', Gun Blast	140dB
Death of hearing tissue	180dB
Loudest sound possible	194dB

8. The expert from the USA proposes a new 2.1.3.6.4(d), a requirement relating to the generation of smoke. The proposal also mentions large and small devices for the criteria without setting limits on the size. The expert from the UK has had experience of dealing with agricultural pesticide smokes and drain testers that have pyrotechnic composition to heat the smoke composition (and will bring further information with respect to these items to the meeting). The UK has concerns that the flammability and the potential toxicity of the smoke produced are not addressed by the proposal. The UK also believes that the effect that the smoke produced would have on the capabilities and behaviours of the persons present on the transport vehicle should be considered.

9. The UK notes that the 4 of the 5 items listed in the Annex to the paper - Test Results- comprise safety restraint systems which could be subject to special provision 280. The UK believes that the proposal for a new 2.1.3.6.4 could have consequential implications for those articles covered by UN 3268.

10. The Sub-Committee will recall that the UK submitted an informal paper, INF 43, for the July 2008 session (http://unece.org/trans/doc/2008/ac10c3/UN-SCETDG-33-INF43e.doc) with alternative criteria based on UK's MOD requirements for excluding devices outside Class 1.We believe this should also be considered when discussing this topic.

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