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**COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS**
Sub-Committee of Experts on the
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agenda item 6 (c))**

**GLOBAL HARMONIZATION OF SYSTEMS OF CLASSIFICATION
AND LABELLING OF CHEMICALS**

Physical hazards
Flammability criteria for aerosols (transport)

Transmitted by the European Aerosol Federation (FEA)

Addendum 2

BACKGROUND

1. The United Nations Conference on Environment and Development in 1992, commonly called the Rio Conference, addressed many issues and principles. These include sustainable development, conservation, protection and restoration of the health and integrity of the earth's eco-system and global co-operation and consensus.
2. Embedded in this is the so-called Agenda 21, which addresses the global harmonisation of chemical classification and labelling of chemicals systems. The Advisory Group on Harmonisation of Classification and Labelling (AG-HCL) was formally established in 1994 by the OECD Joint Meeting of the Chemicals Group and Management Committee to develop proposals for a harmonised classification system for the hazards of chemicals to human health and the environment, while a joint UN/ILO working group was established for physical hazards.
3. The UN/ILO working group invited that the aerosol industry to derive criteria for the classification of aerosol flammability. In doing so, they accepted industry's view that there is a distinction between transport and consumer safety.

CURRENT SYSTEMS

4. Currently a variety of criteria for classification and labelling of aerosols is used, dependent on the geographical location.
5. There are a number of test methods to determine aerosol flammability. The current FEA test methods are included in document ST/SG/AC.10/C.3/1999/68/Add.1.
6. The UN Recommendations on the Transport of Dangerous Goods, Model Regulations specific to aerosol dispensers, are also currently used. Special provision 63 of Chapter 3.3. of the Model Regulations says that aerosols containing not more than 45% by mass or 250 g flammable components are “non-flammable”.

PROPOSAL for transport classification of aerosols

7. The hazards associated with aerosol dispensers arise from the fact that a) they are pressurised containers and b) they can contain flammable components. This paper proposes the criteria for a classification of aerosol flammability for transport.
8. Under normal conditions the product is not released from the can and is hermetically sealed in small containers (limited quantities).
9. The primary hazard associated with aerosols in transport is that they are pressurised containers which could burst if subjected to adverse conditions, such as in a fire. This is accounted for by including aerosols in Class 2 of the UN Recommendations. The secondary hazard is the contents, which can include flammable materials. This proposed classification system addresses divisions 2.1 (flammable) and 2.2 (non flammable) of the UN Model Regulations.
10. FEA proposes a system based on a combination of flammable contents and product testing. It is believed that this will provide a robust method of classification and give a clear indication of the potential risks from the contents during transportation.
 - (a) The most appropriate test for spray products is based on the Enclosed Space Test (FEA 610) determining the explosive density. This is the amount of product per unit volume required to produce an explosive mixture;
 - (b) As the Enclosed Space Test is not appropriate for Foam Products, it is proposed to use the Foam Test (FEA 608) for this type of product. This test is designed to assess the flammability of a foam and paste.

11. Proposal for Amendment to Special provision 63.

The special provision 63 should be amended as follows:

.1 Aerosols having flammable contents, which mean substances with a flashpoint less than or equal to 100 °C, have a possible ignition hazard.

- (a) Aerosols having flammable contents below 7% by mass are regarded as having no ignition hazard and are classified as division 2.2.
- (b) Aerosols having flammable contents more than 25% by mass or more than 150 g are regarded having an ignition hazard and are classified as division 2.1.
- (c) Aerosols having flammable contents greater than or equal to 7 % by mass and less than or equal to 25 % by mass and not exceeding 150 g, shall be tested to determine if the classification is either division 2.1 or division 2.2.

.2 Test methods and results

- (a) Aerosols whose contents are ejected as solid or liquids particles in suspension in a gas, as a powder or in a liquid state or in a gaseous state:

These Aerosols are tested using the enclosed space test FEA 610.

If the ignition density is greater than or equal to 500 g per cubic meter, the aerosols are classified as division 2.2 , otherwise the aerosols are classified as division 2.1.

- (b) Aerosols whose contents are ejected as a foam or paste:

These aerosols are tested using the Foam test FEA 608.

If the flame height exceeds 7 cm or the burning time exceeds 2 seconds, the aerosols are classified as division 2.1, otherwise the aerosols are classified as division 2.2.

Classification scheme-Transport

Aerosol dispenser whose contents emerge in the form of a **Foam or Paste**

