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**COMMITTEE OF EXPERTS ON THE  
TRANSPORT OF DANGEROUS GOODS**  
**Sub-Committee of Experts on the**  
**Transport of Dangerous Goods**  
**(Seventeenth session,**  
**Geneva, 6-17 December 1999,**  
**agenda item 6 (c))**

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

**Physical hazards**  
**Flammability criteria for aerosols (consumer use)**

**Transmitted by the European Aerosol Federation (FEA)**

**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 systems of classification and labelling of chemicals. 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 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.

4. This paper proposes a classification system for consumer use of aerosols. If after due consideration within the United Nations, this FEA proposal is accepted, the FEA proposes to label according to the EU approach of the Aerosol Directive.

### **CURRENT SYSTEMS**

5. Currently a wide variety of criteria for classifying and labelling aerosols are used, depending on the geographical location.

6. There are a number of test methods to determine aerosol flammability. The current FEA tests methods are The Foam Test (FEA 608), The Ignition Distance Test (FEA 609) and The Enclosed Space Test (FEA 610) (see addendum 1).

### **PROPOSAL FOR CLASSIFICATION OF AEROSOLS FOR CONSUMER USE**

7. The hazards associated with aerosol dispensers arise from the fact that a) they are pressurised containers and b) they can contain flammable components.

8. It can be considered that there are two different situations associated with aerosols in use:

- (a) Storage of the aerosol between uses; and
- (b) Use

9. During storage it is possible that the cans may burst if subjected to extreme heat; expelled contents could catch fire. This is most effectively addressed by appropriate labelling.

10. During use it is possible, for certain product types, that a risk of ignition or explosion could occur.

11. In order to devise a classification system, which addresses these situations, notwithstanding future technological developments, FEA proposes a system based on product testing. It is believed that this will provide a robust and long-term method of classification, whilst maintaining the overall level of protection. The tests should represent realistic and foreseeable conditions of use and be reproducible. The following tests are proposed to determine the flammability and explosion risks, leading to appropriate classification for use:

(a) The Ignition Distance Test (FEA 609). This test provides an indication of the likelihood of a spray product igniting when discharged near a flame or ignition source;

(b) The Enclosed Space Test (FEA 610) gives an indication of the time required to produce an explosive mixture in an enclosed space containing an ignition source;

(c) The Foam Test (FEA 608) is designed to assess the flammability of a foam in-use.

**12. Flammability classification of aerosols for consumer use**

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

- (a) Aerosols having flammable contents more than 25% by mass or more than 150g are regarded as having an ignition hazard and are classified as flammable aerosols;
- (b) Aerosols having flammable contents less than or equal to 25% by mass and less than or equal to 150g are tested to determine the classification using the methods defined in point 13. Without testing, the aerosol is classified as a flammable aerosol.

.2 Aerosols having no flammable contents are regarded as having no ignition hazard and are not classified as flammable.

**13. Test methods and results****.1 *Aerosols whose contents are ejected in the form of a spray or jet:***

These aerosols are tested using the flame ignition distance test (FEA 609) and the enclosed space test (FEA 610).

If there is no ignition at 30 cm and the equivalent time is greater than 150 s/m<sup>3</sup>, the aerosols are not classified as flammable.

If the ignition distance is equal to or greater than 30 cm or the equivalent time is less than or equal to 150 s/m<sup>3</sup>, the aerosol is classified as flammable.

**.2 *Aerosols whose contents are ejected as a foam or paste:***

These aerosols are tested using the foam test (FEA 608).

If the flame height is less than or equal to 7 cm and the flame duration is less than or equal to 2 seconds, the aerosol is not classified as flammable.

If the flame height is greater than 7 cm or the flame duration is greater than 2 seconds, the aerosol is classified as flammable.

*Note: Aerosols whose contents are ejected in the form of a spray which becomes foam on contact with a surface shall be tested in accordance with tests 608, 609, 610.*

Classification of Aerosols for Consumer Use - Foams

