



## 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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Item 3 of the provisional agenda

#### Listing, classification and packing

### Differentiation between UN 1950 aerosols and UN 2037 receptacles, small, containing gas (gas cartridges) and proposed marking requirements for UN 2037 receptacles, small, containing gas (gas cartridges)

Transmitted by the expert from Germany\*

#### Introduction

1. It was realized that apparently there is no clear distinction between UN 1950 aerosols and UN 2037 gas cartridges. The same product (see Figure 1 and Figure 2 below) can be found on the market classified as UN 1950 or UN 2037.



Figure 1: Receptacle for 30 % propane and 70 % butane, classified as aerosol



Figure 2: Receptacle for 30 % propane and 70 % butane, classified as gas cartridge

\* A/75/6 (Sect.20), para. 20.51

## Background

2. There is no definition of a gas cartridge. Gas cartridges are referred to as:
  - "small receptacles containing gas (gas cartridge)" (e.g. in chapter 6.2),
  - "receptacles, small" (e.g. in 6.2.4.2.3),
  - "receptacles, small, containing gas" (e.g. in 3.3.1, special provision 191),
  - "UN 2037 receptacles, small, containing gas (gas cartridges)" (e.g. in 2.2.2.1, Note),
  - "UN 2037 receptacles, small, containing gas (gas cartridges) without a release device, non-refillable" (e.g. in 3.2).

Only the entry for UN 2037 and special provision 191 recognize that gas cartridges are non-refillable receptacles, not equipped with a release device.

3. Different to UN 2037, 1.2.1 gives a definition for aerosols, classifying them as non-refillable receptacles, fitted with a release device and meeting the requirements of 6.2.4.

4. Therefore, it seems that the only difference between aerosols and gas cartridges is the presence of a "release device", a term which unfortunately is also not defined. A distinction by volume cannot be made because there is no limitation in size for aerosols and receptacles, small.

5. It is assumed that the two different UN numbers were introduced to clearly distinguish between UN 1950 aerosols and UN 2037 gas cartridges. Typical aerosols and gas cartridges are given in Figure 3 and Figure 4. At least in countries of the European Union different regulations (Aerosol Dispenser Directive 75/324/EEC for UN 1950 and Transportable Pressure Equipment Directive 2010/35/EU for UN 2037) and therefore different conformity assessment procedures apply. Different requirements are also assumed to apply in other countries/regions.



Figure 3: Typical aerosol with self-closing valve (closure) and additional spray cap (release device)



Figure 4: Typical gas cartridges without (left, for LPG and middle, for high pressure gases) and with (right, for LPG) self-closing valve (closure) but all without release device

6. There are no marking requirements for gas cartridges (UN 2037).
7. The following proposals aim to introduce new definitions to better distinguish between UN 1950 and UN 2037, to harmonize the terminology for UN 2037 and to introduce marking requirements as well as transitional measures for UN 2037 (new text is underlined, deleted text in ~~strikethrough~~).

### **Proposal 1: Introduction of definitions for “receptacles, small, containing gas (gas cartridges)” and “release device”**

8. Introduce the following new definition in 1.2.1:
- “Receptacles, small, containing gas (gas cartridges) means a non-refillable receptacle, containing, under pressure, a gas or a mixture of gases, equipped with or without a valve and not fitted with a release device.”
- [Justification: The definition is based on the definition in RID/ADR with the addition of “and not fitted with a release device” to unify with the existing definition of an aerosol.]*

9. If this definition is agreed, it is proposed to unify the existing definition of an aerosol as follows:

*“Aerosol or aerosol dispenser means an article consisting of a non-refillable receptacle ~~meeting the requirements of 6.2.4~~, made of metal, glass or plastics and containing a gas, compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state;”*

10. In addition, it is proposed to introduce the following new definition in 1.2.1:

“Release device means a device that is part of a non-refillable receptacle design and fitted to its valve to open the valve and release the contents.”

Note: For UN 1950 aerosols, the release device is typically an actuator or a spray cap.”

*[Justification: This definition is necessary to distinguish between UN 1950 and UN 2037 because the presence of this device is supposed to be the main difference. The proposed definition also fits to UN 3150 where the same term is used.*

*With this definition, the receptacle given in Figure 1 above will have to be classified as a UN 2037 receptacle, small, containing gas (gas cartridge) and not as UN 1950 aerosol.]*

### **Proposal 2: Harmonization of terminology**

11. It is proposed to harmonize the terminology for UN 2037 by using one of following terms: “UN 2037”, “receptacles, small, containing gas (gas cartridges)” or “gas cartridges” throughout the complete Model Regulations.

*[Justification: This proposal will eliminate current use of different terms for this type of receptacle by using the one given in 3.2.2 Dangerous Goods List of the Model Regulations.]*

12. To harmonize the terminology for UN 2037 the following amendments are proposed:

13. In 3.3.1 amend the text of special provision 191 as follows:  
 “191 ~~Receptacles, small, containing gas~~ Gas cartridges are not fitted with a release device. Receptacles—Gas cartridges with a capacity not exceeding 50 ml containing only non-toxic constituents are not subject to the Regulations.”
14. In 3.3.1 amend the text of special provision 277 as follows:  
 “277 ~~For aerosols or receptacles~~ gas cartridges containing toxic substances the limited quantity value is 120 ml. For all other aerosols or receptacles gas cartridges the limited quantity value is 1 000 ml.”
15. In 3.3.1 amend the text of special provision 303 as follows:  
 “303 ~~Receptacles—Gas cartridges~~ shall be assigned to the division and, if any, subsidiary hazard of the gas or mixture of gases contained therein determined in accordance with the provisions of Chapter 2.2.”
16. In 3.4.2 amend the text of the fourth sentence as follows:  
 “~~The use of inner packagings is not necessary for the transport of articles such as aerosols or “receptacles, small, containing gas”~~ gas cartridges.”
17. In 6.2.4.2.3 amend the text of the first sentence as follows:  
 “6.2.4.2.3 ~~With the approval of the competent authority, aerosols and receptacles, small, gas cartridges~~ are not subject to 6.2.4.2.1 and 6.2.4.2.2, if they are required to be sterile but may be adversely affected by water bath testing, provided.”

### **Proposal 3: Introduction of marking requirements for receptacles, small, containing gas (gas cartridges)**

18. Introduce the following text at the end of 6.2.4:
- “6.2.4.3 Marking of gas cartridges
- 6.2.4.3.1 Gas cartridges shall be marked clearly and legibly with certification and gas or gas cartridge specific marks. These marks shall be permanently affixed on the gas cartridge, e.g. by a label. Other marking methods are also acceptable in case it is guaranteed that they do not cause harmful stress to the gas cartridges.
- 6.2.4.3.2 The following marks shall be applied in letters of at least 1.5 mm in height:
- (a) The technical standard or code or specification used for design, manufacture and testing, if applicable;
- (b) The manufacturer's mark and the character(s) identifying the country of manufacture as indicated by the distinguishing sign used on vehicles in international road traffic, or the manufacturer's code registered by the competent authority, if it provides information on the country of manufacture;
- (c) Information on manufacturing year and month, e.g. by batch code or serial number assigned by the manufacturer;
- (d) The nominal gas weight.
- 6.2.4.3.3 In addition, the gas identification by name and/or chemical formula in letters of at least 3.0 mm in height are required.
- 6.2.4.3.4 Other marks are allowed if they don't conflict with the required marks.”

*[Justification: 6.2.2.8 was used as a source of information on potential hazards which are comparable to that resulting from non-refillable cylinders. Because of the*

*pressure-volume limitation not all marks required for non-refillable cylinders are deemed to be necessary. There are no limits for UN 2037 on the contained gases which might be very dangerous. Gas specific information should therefore be provided for the user to increase safety.]*

#### **Proposal 4: Introduction of transitional measures for receptacles, small, containing gas (gas cartridges)**

19. Introduce the following text at the end of 6.2.4:

“6.2.4.4 Transitional measures

Gas cartridges manufactured before 1 January [2025] that are classified as UN 1950 aerosols, may continue to be used as UN 1950 aerosols if they comply with all requirements for UN 1950 aerosols.”

*[Justification: There are no associated safety risks for gas cartridges already placed on the market as UN 1950 aerosols which would require taking them from the market.]*

“The definition for receptacles, small, containing gas (gas cartridge) shall be applied no later than 1 January [2031]. Until then, gas cartridges may still be classified as UN 1950 aerosols if they comply with all requirements for UN 1950 aerosols.”

*[Justification: Manufacturers of such gas cartridges will need a transitional period for the conformity assessment as UN 2037 receptacles, small, containing gas (gas cartridges) which might include design changes to meet all requirements for UN 2037 receptacles, small, containing gas (gas cartridges). In addition, automated filling facilities might need modification due to different dimensions resulting from the design changes mentioned above.*

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