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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****Fifty-fourth session**

Geneva, 26 November-4 December 2018

Item 2 (e) of the provisional agenda

**Recommendations made by the Sub-Committee on its fifty-first,  
fifty-second and fifty-third sessions and pending issues:  
transport of gases****Provision for the carriage of waste gas cartridges (UN 2037)****Transmitted by the observer from Ireland\*****Background**

1. At the one hundred and third session of the Working Party on the Transport of Dangerous Goods the delegate from Ireland presented informal document INF.18 to discuss the potential for including provisions in the ADR for waste gas cartridges (UN 2037), similar to those that are in place for waste aerosols (UN 1950). As the relevant discussions were multimodal in scope, the Working Party invited the representative of Ireland to forward the proposal to the Sub-Committee of Experts on the Transport of Dangerous Goods.

2. A document ST/SG/AC.10/C.3/2018/36 was presented at the fifty-third session of the Sub-Committee of Experts on the Transport of Dangerous Goods, and some amendments to the proposal were requested by the by the Sub-Committee and by the European Cylinder Maker Association (ECMA) by means of informal document INF.42. The representative of Ireland agreed to present an amended proposal at the fifty-fourth session of the Sub-Committee.

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\* In accordance with the programme of work of the Sub-Committee for 2017–2018 approved by the Committee at its eighth session (see ST/SG/AC.10/C.3/100, paragraph 98 and ST/SG/AC.10/44, para. 14).

## Introduction

3. Currently the Model Regulations contain provisions for carriage of waste UN1950 AEROSOLS, but there are no equivalent provisions for waste UN2037 RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable.
4. Both aerosols and gas cartridges are assigned to Class 2. The division into which the aerosols and gas cartridges fall is determined, respectively, by the criteria in special provisions 63 and 303 in Chapter 3.3 (see note in 2.2.2.1). Both aerosols and gas cartridges, under special provision 344, are subject to the provisions of 6.2.4, requirements for aerosol dispensers, small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquid flammable gas.
5. The carriage of waste aerosols (UN 1950) is provided for in special provision 327 which allows aerosols to be carried under the entry for the purposes of reprocessing or disposal. Under this special provision waste aerosols which are not leaking or severely deformed can be packed in accordance with packing instruction P207 and special packing provision PP87, or packing instruction LP200 and special packing provision L2, and need not be protected against movement and inadvertent discharge provided that measures are taken to prevent dangerous build-up of pressure and dangerous atmospheres. Special packing provision PP87 stipulates that packagings carried under special provision 327 must have a means of retaining any free liquid that might escape during carriage and that the packagings must be adequately ventilated to prevent the creation of flammable atmosphere and the build-up of pressure.
6. There are no equivalent provisions for waste gas cartridges (UN 2037).

## Proposal

7. Amend special provision 327 as follows. New text is underlined.

“327 Waste aerosols and waste gas cartridges consigned in accordance with 5.4.1.4.3 (c) may be transported under this entry for the purposes of reprocessing or disposal. They need not be protected against movement and inadvertent discharge provided that measures to prevent dangerous build up of pressure and dangerous atmospheres are addressed. Waste aerosols, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P207 and special provision PP87, or packing instruction LP200 and special packing provision L2. Waste gas cartridges, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P003 and special provisions PP17 and PPXX, or packing instruction LP200 and special packing provision L2. Leaking or severely deformed aerosols and gas cartridges shall be transported in salvage pressure receptacles, or salvage packagings provided appropriate measures are taken to ensure there is no dangerous build up of pressure. Waste aerosols and waste gas cartridges shall not be transported in closed freight containers. Waste gas cartridges that were filled with gases of Division 2.2 and have been pierced are not subject to any other requirements of these regulations.”.
8. Amend P003 to add special packing provision PPXX as follows.

“PPXX For UN 2037 waste gas cartridges carried in accordance with special provision 327, the packagings shall be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure.”.

9. Amend special packing provision PP87 of P207 as follows. New text is underlined and deleted text is ~~struck out~~.

“~~PP87~~For UN 1950 waste aerosols carried in accordance with special provision 327, the packagings shall have a means of retaining any free liquid that might escape during carriage, e.g. absorbent material. The packagings shall be adequately ventilated to prevent the creation of ~~flammable~~ dangerous atmospheres and the build-up of pressure.”

10. Amend LP200 as follows. New text is underlined and deleted text is ~~struck out~~.

LP200	PACKING INSTRUCTION	LP200
This instruction applies to UN No. 1950 <u>and UN 2037</u> .		
The following large packagings are authorized for aerosols <u>and gas cartridges</u> , provided that the general provisions of <b>4.1.1</b> and <b>4.1.3</b> are met:		
Rigid large packagings conforming to the packing group II performance level, made of:		
<ul style="list-style-type: none"> <li>steel (50A);</li> <li>aluminium (50B);</li> <li>metal other than steel or aluminium (50N);</li> <li>rigid plastics (50H);</li> <li>natural wood (50C);</li> <li>plywood (50D);</li> <li>reconstituted wood (50F);</li> <li>rigid fibreboard (50G).</li> </ul>		
Special packing provision:		
<p><b>L2</b> The large packagings shall be designed and constructed to prevent dangerous movement <del>of the aerosols</del> and inadvertent discharge during normal conditions of carriage. For waste aerosols carried in accordance with special provision 327, the large packagings shall have a means of retaining any free liquid that might escape during carriage, e.g. absorbent material. <u>For waste aerosols and waste gas cartridges carried in accordance with special provision 327</u>, the large packagings shall be adequately ventilated to prevent the creation of a <del>flammable</del> <u>dangerous atmospheres</u> and the build-up of pressure.</p>		

11. Amend accordingly, columns 6, 8 and 9 of the Dangerous Goods List in Chapter 3.2 for UN 2037.

## Justification

12. Many gas cartridges have an appearance quite similar to aerosols and thus the general public may not be aware of the difference, so both aerosols (UN 1950) and gas cartridges (UN 2037) will very often end up together in collection bins at public amenity sites for the purposes of reprocessing or disposal.

13. After use and removal from the operating device the valves on all gas cartridges (UN 2037) may not re-seal perfectly. It was reported in Ireland that waste gas cartridges at an industrial site were collected in a plastic drum with a removable head. On removal of the top a distinct gas smell was experienced, suggesting that a flammable atmosphere was building up inside the drum. It would serve to improve safety if the requirement for ventilation as contained in PP87 were applied to waste gas cartridges.

14. P003, which currently applies to gas cartridges, does contain a general requirement that packagings shall be designed and constructed to prevent inadvertent discharge, but as gas cartridges do not contain a release mechanism, this will not alert to the possibility that used cartridges may leak. There are also the puncture type gas cartridges e.g. small camping gas cartridges, which may still contain gas residues at the time of disposal.

15. This proposal would serve to bring current practices of at many public amenity sites, i.e. that of placing waste aerosols (UN 1950) and waste gas cartridges (UN 2037) together in packagings for the purposes of transport for reprocessing or disposal, in line with the transport of dangerous goods regulation.

16. The justification for the proposed amendment to PP87 (with similar wording suggested for the proposed amendment to P003 new special packing provision PPXX, and amendment to LP200 special packing provision L2), is to take into account the fact that packagings for waste aerosols and waste gas cartridges need to be ventilated to prevent the creation of not just flammable atmospheres (gases of Division 2.1) but also other dangerous atmospheres, e.g. gases of Division 2.3.

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