



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

Sixty-third session

Geneva, 27 November-6 December 2023

Item 3 of the provisional agenda

Listing, classification and packing

Refrigerating machines and heat pumps

Transmitted by the expert from Germany*

I. Introduction

1. Refrigerating machines transported under UN Nos. 2857 or 3358 may be fully exempted from the dangerous goods regulations if they comply with the requirements of special provisions 119 or 291. Heat pumps work on exactly the same principle as refrigerating machines, except that in this case it is not the aim to produce cold but, as the name suggests, heat. Therefore, it would be logically to apply the same transport conditions to these articles since the hazards in transport are comparable.

II. Discussion

2. Documents addressing this issue have already been submitted to the RID/ADR/ADN Joint Meeting on its autumn 2021 session by the International Association of Dangerous Goods Safety Advisors (IASA) (see document ECE/TRANS/WP.15/AC.1/2021/25 and INF.45 of the March 2021 session). The discussion at this session of the RID/ADR/ADN Joint Meeting led to the adoption of amendments to special provisions 119 and 291 in RID, ADR and ADN for entry into force on 1 January 2023 (see report ECE/TRANS/WP.15/AC.1/162).

3. At the sixty-first session of the Sub-Committee, informal document INF.34 was submitted proposing similar amendments to special provisions 191 and 291 in chapter 3.3 of the Model Regulations. While the proposal received general support, a preference for the introduction of a new UN number with a proper shipping name as well as corresponding special provisions was expressed to address this issue in the *Model Regulations*.

4. Based on this feedback, this document proposes the necessary amendments to the *Model Regulations*. In addition, this proposal supports Sustainable Development Goal 13: Climate Action. Heat pumps can provide an energy-efficient and eco-friendly form of heating by reducing carbon dioxide emissions.

* A/77/6 (Sect. 20), table 20.6



III. Proposal

5. Amend the Dangerous Goods List in chapter 3.2 as follows (new text is underlined):

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
XXXX	HEAT PUMPS containing non-flammable, non-toxic, gases or ammonia solutions (UN 2672)	<u>2.2</u>			<u>xxx</u>	<u>0</u>	<u>E0</u>	<u>P003</u>	<u>PP32</u>		
XXXY	HEAT PUMPS containing flammable, non-toxic, liquified gas	<u>2.1</u>			<u>xyy</u>	<u>0</u>	<u>E0</u>	<u>P003</u>	<u>PP32</u>		

6. Insert in chapter 3.3 the following special provision xxx and xxy:

“xxx Heat pumps include pumps or other appliances which have been designed for the specific purpose to extract energy from an object or medium to generate heat. Heat pumps and heat pump components are not subject to these Regulations if they contain less than 12 kg of gas in Division 2.2 or less than 12 litres ammonia solution (UN 2672).”

“xxy Flammable liquified gases shall be contained within heat pump components. These components shall be designed and tested to at least three times the working pressure of the pump. The heat pumps shall be designed and constructed to contain the liquified gas and preclude the risk of bursting or cracking of the pressure retaining components during normal conditions of transport. Heat pumps and heat pump components are considered not subject to these Regulations if they contain less than 12 kg of gas.”

7. Amend in 4.1.4 special packing provisions PP32 in packing instruction P003 as follows (new text is underlined, deleted text in ~~strike through~~):

“**PP 32** UN Nos. 2857, ~~and~~ 3358, XXXX and XXXY and robust articles consigned under UN 3164 may be transported unpackaged, in crates or in appropriate overpacks.”

8. Add the following new entries to the alphabetical index of substances and articles:

HEAT PUMPS containing non-flammable, non-toxic, gases or ammonia solutions (UN 2672)	2.2	XXXX
HEAT PUMPS containing, flammable, non-toxic, liquified gas	2.1	XXXY