



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-fifth session

Geneva, 25 November-3 December 2024

Item 11 of the provisional agenda

Unified interpretations of the Model Regulations

UN 3164 Installed in equipment or apparatus

Transmitted by the Council on the Safe Transportation of Hazardous Articles (COSTHA)*

I. Introduction

1. COSTHA members have identified an exception from the regulation for UN 3164 that is not consistently present throughout the various international and regional regulations. Each regulation provides varying burst pressure, temperatures for shipment, and capacities, while certain regulations additionally exempt the articles when installed in a vehicle, construction equipment or assembled machinery.

2. Questions have arisen as to the applicability of the regulations to articles or accumulators installed in construction equipment or assembled in machinery. The United Nations *Model Regulations* do not specify if articles classified under UN 3164 are exempted if installed in a vehicle. The ADR 2023 regulations provide a paragraph (1.1.3.2) stating limitations for the exemption of articles installed in a vehicle. The ICAO Technical Instructions (doc. 9284), 2023-2024 edition, packing instruction P208 addresses articles classified as UN 3164 when installed in construction equipment and assembled machinery. The IMDG Code Amd. 41-22 special provision (SP) 283 does not mention articles installed in vehicles, construction equipment or assembled machinery. SP283 mentions articles intended to function as shock absorbers, including impact-energy-absorbing devices or pneumatic springs only.

II. Discussion

3. Excerpts from regulations are provided for reference and comparison:

United Nations *Model Regulations*:

SP283 reads:

* A/78/6 (Sect. 20), table 20.5.



“Articles, containing gas, intended to function as shock absorbers, including impact energy-absorbing devices, or pneumatic springs are not subject to these regulations provided:

(a) *Each article has a gas space capacity not exceeding 1.6 litres and a charge pressure not exceeding 280 bar where the product of the capacity (litres) and charge pressure (bars) does not exceed 80 (i.e. 0.5 litre gas space and 160 bar charge pressure, 1 litre gas space and 80 bar charge pressure, 1.6 litre gas space and 50 bar charge pressure, 0.28 litre gas space and 280 bar charge pressure);*

(b) *Each article has a **minimum burst pressure of 4 times the charge pressure at 20 °C for products not exceeding 0.5 litre gas space capacity and 5 times charge pressure for products greater than 0.5 litre gas space capacity;***

(c) *Each article is manufactured from material which will not fragment upon rupture;*

(d) *Each article is manufactured in accordance with a quality assurance standard acceptable to the competent authority; and*

(e) *The design type has been subjected to a fire test demonstrating that pressure in the article is relieved by means of a fire degradable seal or other pressure relief device, such that the article will not fragment and that the article does not rocket.”*

4. SP283 in the ADR 2023 mirrors the *Model Regulations* but adds a comment at the end:

“Articles, containing gas, intended to function as shock absorbers, including impact energy absorbing devices, or pneumatic springs are not subject to the requirements of ADR provided: ...

See also 1.1.3.2 (d) for equipment used for the operation of the vehicle.”

5. The IMDG Code Amd. 41-22 SP283 states:

“Articles, containing gas, intended to function as shock absorbers, including impact-energy-absorbing devices or pneumatic springs, are not subject to the provisions of this Code provided:

1) *each article has a gas space capacity not exceeding 1.6 L and a charge pressure not exceeding 280 bar where the product of the capacity (litres) and charge pressure (bar) does not exceed 80 (i.e. 0.5 L gas space and 160 bar charge pressure, 1 L gas space and 80 bar charge pressure, 1.6 L gas space and 50 bar charge pressure, 0.28 L gas space and 280 bar charge pressure);*

2) *each article has a minimum burst pressure of 4 times the charge pressure at 20°C for products not exceeding 0.5 L gas space capacity and 5 times charge pressure for products greater than 0.5 L gas space capacity.”*

6. The ICAO Technical Instructions (doc. 9284), 2023-2024 edition, packing instruction 208 states:

“Articles, pressurized pneumatic or hydraulic, containing a non-flammable, non-liquefied and non-toxic gas and constructed from materials which will not fragment under pressure may be carried under the following conditions:

(a) ***when installed in construction equipment and assembled machinery, articles must be designed and constructed with a burst pressure of not less than five times their charged pressure at 21 °C when shipped.”***

7. The language included in the ICAO Technical Instructions is also found in regional regulations, such as the United States of America (US) Hazardous Materials Regulations but with added conditions:

The 49 CFR (US) §173.306(f)(1) states:

“Accumulators installed in motor vehicles, construction equipment, and assembled machinery and designed and fabricated with a burst pressure of not less than five times their

charged pressure at 70 °F, when shipped, are not subject to the requirements of this subchapter.”

III. Proposal

8. COSTHA requests the Sub-Committee consider the following questions:

(a) Do the full conditions of SP283 apply when accumulators are installed in equipment or machinery?

(b) If accumulators installed in construction equipment or assembled machinery comply with the provisions noted in the ICAO Technical Instructions and US Hazardous Materials Regulations, should the articles be provided an exception from regulation by particular modes of transport?

(c) Should SP283 be modified to include when such articles are installed in vehicles, construction equipment and assembled machinery?
