



TECHNICAL INFORMATION SHEET 52

PRODUCT LIMIT FOR PRESSURE RECEPTACLES

It is intended to introduce a pressure volume (pV) product limit with a maximum value of 1.5 million bar litres for pressure receptacles.

Initially the pV limit will be introduced into the 2025 Edition of the *UN Recommendations on the Transport of Dangerous Goods - Model Regulations*. Subsequently, it is likely to be introduced into the Regulations for all other modes of transport.

The definitions for the terms “Pressure Volume Product” and “Usable Water Capacity” are:

- **Pressure volume product** (pV-product) means “*the value resulting from multiplying the (usable) water capacity of a containment with its relevant maximum pressure during filling and usage (for example, test pressure or charging pressure) as referenced for the relevant kind of containment. It is expressed in bar litres.*”
- **Usable water capacity** means “*the water capacity of salvage pressure receptacles remaining after the installation of equipment into a salvage pressure receptacle, which is necessary for e.g., opening or drilling a stored pressure receptacle inside a closed salvage pressure receptacle. The usable water capacity may be lower than the water capacity originally approved and marked. It is expressed in litres.*”

NOTE: These are the current draft terms. They may change in the approved edition of the *UN Recommendations on the Transport of Dangerous Goods - Model Regulations*.

The principal behind the introduction of a pV product limit is to limit the potential consequence of a failure of a pressure receptacle to a non-catastrophic level. The limit being based on a model which considered population density and the propagation of a pressure wave from an explosion, alongside the potential number of fatalities and / or injured persons.

It is understood that the value of 1.5 million bar litres does not limit today’s market, in the UK. For such cases in the future, i.e. where a pressure receptacle exceeds the accepted pV product limit, it will be necessary to apply to the Competent Authority for a derogation, additional requirements and safety measures may apply. Further, the Intersessional WG noted that containments with a water capacity of more than 3000 litres or a higher pV-product than 1.5 million bar litres should be approved and operated under consideration of additional requirements, for example, a risk assessment for the design under consideration of accidental loads, fatigue and service conditions.

The definitions for cylinders, tubes, bundles of cylinders and salvage pressure receptacles, have been amended to take account of the pV product limit.

Changes to definitions (new text is underlined)

The following changes to definitions have been accepted for inclusion in the next revision of the UN Model Regulations:

Cylinder means “*a pressure receptacle of a water capacity not exceeding 150 litres with a test pressure volume product not exceeding 1.5 million bar litres.*”



Tube means “a pressure receptacle of seamless or composite construction having a water capacity exceeding 150 litres but not more than 3 000 litres with a test pressure volume product not exceeding 1.5 million bar litres.”

Bundle (of cylinders) means “a pressure receptacle comprising an assembly of cylinders or cylinder shells that are fastened together and which are interconnected by a manifold and transported as a unit. The total water capacity shall not exceed 3000 litres except that bundles intended for the transport of gases of Division 2.3 shall be limited to 1000 litres water capacity; the product of test pressure and total water capacity shall not exceed 1.5 million bar litres.”

Salvage pressure receptacle means “a pressure receptacle with a water capacity not exceeding 3 000 litres into which are placed damaged, defective, leaking or non-conforming pressure receptacle(s) having a total test pressure volume product not exceeding 1.5 million bar litres for the purpose of transport e.g., for recovery or disposal.”

For more information:

British Compressed Gases Association (BCGA)

www.bcg.co.uk