



Department
for Transport



GUIDANCE NOTE 36

GUIDANCE FOR THE USE, INSPECTION AND TRANSPORT OF CYLINDERS WITH VARIOUS DESIGN CODES

2017

British Compressed Gases Association

GUIDANCE NOTE 36

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PREFACE

The British Compressed Gases Association (BCGA) was established in 1971, formed out of the British Acetylene Association, which existed since 1901. BCGA members include gas producers, suppliers of gas handling equipment and users operating in the compressed gas field.

The main objectives of the Association are to further technology, to enhance safe practice, and to prioritise environmental protection in the supply and use of industrial, food and medical gases, and we produce a host of publications to this end. BCGA also provides advice and makes representations on behalf of its Members to regulatory bodies, including the UK Government.

Policy is determined by a Council elected from Member Companies, with detailed technical studies being undertaken by a Technical Committee and its specialist Sub-Committees appointed for this purpose.

BCGA makes strenuous efforts to ensure the accuracy and current relevance of its publications, which are intended for use by technically competent persons. However this does not remove the need for technical and managerial judgement in practical situations. Nor do they confer any immunity or exemption from relevant legal requirements, including by-laws.

For the assistance of users, references are given, either in the text or Appendices, to publications such as British, European and International Standards and Codes of Practice, and current legislation that may be applicable but no representation or warranty can be given that these references are complete or current.

BCGA publications are reviewed, and revised if necessary, at five-yearly intervals, or sooner where the need is recognised. Readers are advised to check the Association's website to ensure that the copy in their possession is the current version.

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* Throughout this publication the numbers in brackets refer to references in Section 7. Documents referenced are the edition current at the time of publication, unless otherwise stated.

TERMINOLOGY AND DEFINITIONS

Cylinder	A transportable pressure receptacle of a water capacity not exceeding 150 litres.
Bundle	An assembly of cylinders that are fastened together and which are interconnected by a manifold and carried as a unit. The total water capacity shall not exceed 3000 litres except that bundles intended for the carriage of toxic gases of Class 2 (groups starting with letter T according to ADR (5) 2.2.2.1.3) shall be limited to 1000 litres water capacity.
May	Indicates an option available to the user of this Guidance Note.
Portable fire extinguisher	An extinguisher which is designed to be carried and operated by hand and which in working order has a mass of no more than 20 kg.
Pressure receptacle	A collective term that includes cylinders, tubes, pressure drums, closed cryogenic receptacles, metal hydride storage systems, bundles of cylinders and salvage pressure receptacles.
Shall	Indicates a mandatory requirement for compliance with this Guidance Note and may also indicate a mandatory requirement within UK law.
Should	Indicates a preferred requirement but is not mandatory for compliance with this Guidance Note.

GUIDANCE NOTE 36

GUIDANCE FOR THE USE, INSPECTION AND TRANSPORT OF CYLINDERS WITH VARIOUS DESIGN CODES

1. INTRODUCTION

Current regulations and standards relating to cylinder operations are extensive, complex and can be difficult to understand. Within the United Kingdom (UK), the design, manufacture, inspection and test, and transport of dangerous goods, including transportable pressure equipment, is governed by the *Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations* (1). These regulations implement the *European Transportable Pressure Equipment Directive* (TPED) (3) and the *European Agreement Concerning the International Carriage of Dangerous Goods by Road* (ADR) (5). ADR (5) provides a framework for dangerous goods to be carried internationally in road vehicles subject to compliance with standards for the packaging and labelling of the dangerous goods, and appropriate construction and operating standards for the vehicles and crew. Gases are principally classified as Class 2 dangerous goods.

The TPED (3) provides a legal structure whereby pressure equipment, used for transporting gases, can be manufactured, sold, used and periodically inspected and tested throughout the European Union without having to go through a local approval regime in every member state as well as being transported between member states. This is achieved by the use of the standards for the design, manufacture, inspection, testing and certification of all transportable pressure equipment. These standards and the appointment of Inspection Bodies are specified by ADR (5). The TPED (3) requires that inspection bodies are notified to the European Commission by the national competent authority and that the inspection bodies are recognised by all member states. This authority is also required to apply market surveillance and ensure the Notified Bodies comply with the requirements of the TPED (3). Pressure equipment that complies with TPED (3) is identified by a Pi mark.

NOTE: The rules and conditions for use and affixing the Pi mark are detailed in the TPED (3), Articles 14 and 15.

In most cases, manufacturers will have their equipment approved by a notified inspection body based in their home state. Manufacturers outside of the European Union wishing to place their transportable pressure equipment on the market must also employ the services of an inspection body notified under TPED (3). Responsibility for compliance of the equipment with the requirements of TPED (3) rests on the person responsible for placing the product on the market within Europe; for the periodic inspection and test, and filling of the equipment, this responsibility lies with the owner or operator.

However, for transportable pressure equipment manufactured before TPED (3) came into force there are standards and design codes which are purely national in origin. These are acceptable within their national boundaries but may not be acceptable internationally.

Within the UK, as well as more recent designs which are compliant with ADR (5), there are historic UK designs, foreign designs and cylinders for special applications.

In the UK the Department for Transport (DfT) is the UK ‘Competent Authority’ and they are responsible for regulating the use of standards and design codes for gas cylinders. The content of this publication is in line with advice from the DfT.

2. SCOPE

To provide guidance to end-users and industry professionals on the range of gas cylinders which they may encounter within the UK. The regulations are applied to ‘*pressure receptacles*’ and therefore this document also applies to the full range of pressure receptacles. The regulations also apply to tanks but these are excluded from the scope of this document.

Pressure vessels incorporated into vehicles / platforms (for example, accumulators, shock absorbers, floatation bottles, etc.) are excluded from this document and from ADR (5).

For details of special cases within ADR (5) which allow alternative requirements refer to Appendix 1.

3. CYLINDER TYPES

3.1 Pi marked cylinders (Π)

Such cylinders comply with current ADR (5) / TPED (3) regulations and European standards and will be identified with a stamped Pi mark which allows their use within the European Union region (EU, Norway, Switzerland, Iceland and Liechtenstein).

They may be:

- Filled for use within the ADR (5) region.
- Transported within the ADR (5) region.
- Tested by any Notified Body.
- Exported to a non-ADR (5) country with the agreement of the Competent Authority of the importing country.

3.2 Epsilon marked cylinders (ε)

These are cylinders compliant with the annexes of European gas cylinder Directives of 1984 and they are marked with an Epsilon. Many are in use and since these annexes are still listed in ADR (5) new ones are still being manufactured. They predate Pi-marked cylinders but are deemed to have equivalent status and are required to be stamped with a Pi-mark at their next periodic inspection and test. When the Pi mark is applied to an epsilon marked cylinder at the periodic inspection and test this shall be by or under the surveillance of an approved Notified Body

They may be:

- Filled for use within the ADR (5) region.
- Transported within the ADR (5) region.

- Tested by a Notified Body.
- Exported to a non-ADR (5) country with the agreement of the Competent Authority of the importing country.

3.3 Cylinders made to UK National standards

Within the UK, new gas cylinders have to comply with the standards referenced within ADR (5). However, there are many existing cylinders made according to historic standards and specifications produced by:

- British Standards Institute (BSI)
- UK Home Office
- UK Health and Safety Executive (HSE)

These standards are now obsolete and may no longer be used to manufacture transportable pressure equipment. However, transportable pressure equipment made to these standards may continue to be used if it is safe, suitable and has been examined at appropriate intervals by a competent person in accordance with current regulations.

These cylinders will be marked with a British Standard number or with the reference number of a specification approved by the UK Competent Authority.

They may be:

- Filled in the UK for use within the UK.
- Exported empty to an ADR (5) country for periodic inspection and/or filling with the agreement of the Competent Authority of the country of filling before re-import to the UK.
- Transported within the UK.
- Periodically inspected in accordance with P200 of ADR (5), in the UK by an accredited Inspection Body.
- Exported outside the UK with the agreement of the Competent Authority of the importing country.

NOTE: There are historic British Standard cylinders still in service and which may be used in all the same ways as current ADR (5) cylinders provided they comply with the ADR (5) requirements which were current until 31 December 1996, refer to ADR (5) 1.6.2.1. These will not need additional competent authority approval. Checks should be made to ensure compliance with ADR (5), for example, the maximum stress limits of 77 % of yield.

3.4 Cylinders not made to UK National standards

These cylinders are those which have:

- Not been made to UK standards.
- Not been made to standards which would qualify the cylinder for Pi or Epsilon marking.

This will include cylinders from France, Germany, Japan, etc.

Unless derogation exists, they may not be:

- Filled within the UK.
- Held as stock prior to wider distribution.
- Periodically inspected in accordance with P200 of ADR (5), in the UK.

They may be:

- Imported into the UK directly to the end-user (single transport chain e.g. under Sea or Air Dangerous Goods regulations).
- Used by the end-user.
- Exported back to the originating country.

Where cylinders are used exclusively on board a ship or aircraft, for example, for firefighting or part of the operating equipment, they may be refilled and / or inspected where they are to be re-installed on the ship or aircraft. ADR (5) Special Provision 662 applies.

Aircraft equipment has to be inspected in accordance with the relevant aviation regulations in the UK by the Civil Aviation Authority (CAA).

3.4.1 USA Department of Transportation cylinders

These cylinders are those which include United States of America (USA) Department of Transportation (DOT) specification and Special Permit cylinders.

Unless a derogation exists, they may not be:

- Filled within the UK.
- Held as stock prior to wider distribution (for exception, refer to information on MLA M299 (7) below).

They may be:

- Imported into the UK directly to the end-user (single transport chain)
- Used by the end-user
- Exported back to the originating country.

Multi-Lateral Agreement M299

Multi Lateral Agreement (MLA) M299 (7) concerns the carriage of different gases of Class 2 in USA DOT pressure receptacles in relation to ADR (5) 1.1.4.2. MLA M299 (7) expires on 1st June 2019. It was initiated by the UK DfT and currently there are twelve contracting states which have signed, including the UK and Ireland.

MLA M299 (7) allows USA DOT cylinders to be:

- Imported into the UK and held as stock before distribution to end-users.
- Exported back to the originating country.

They may be periodically inspected in accordance with P200 of ADR (5), in the UK provided the UK Inspection body is approved by USA DOT. They may not be refilled in the UK.

What will happen when MLA M299 expires?

Currently the European Industrial Gases Association (EIGA) and the USA Compressed Gas Association (CGA) are requesting a reciprocal arrangement whereby USA regulations will allow Pi-marked cylinders into the USA under the same constraints as MLA M299 (7) allows USA DOT cylinders into Europe. If this is successful, MLA M299 (7) will be incorporated into ADR as a permanent arrangement.

3.5. UN cylinders

United Nations (UN) cylinders are those which have been manufactured and tested in accordance with ADR (5) [Section 6.2.2], or the equivalent international air and sea regulations. The cylinders must be permanently stamped with the UN mark by an appropriately recognised Inspection Body. Although UN cylinders can be transported internationally by all transport modes, recognition by the national competent authority for transport and use on land is not automatic (for example, refer to NOTE 2 below).

They may be:

- Imported into the UK and held as stock before distribution to end-users in ADR (5) member countries.
- Filled within the UK if they are also Pi marked.
- Tested to the standards listed in ADR (5) [Section 6.2.2.4], if the testing body is recognised by the country of approval or if they are also Pi marked.
- Exported to another country which is an ADR (5) member or a country which recognises the UN mark.

NOTES:

1. All European UN marked cylinders shall also bear the Pi mark.
2. UN cylinders can only be exported to the USA if a USA DOT approved inspection body has marked the cylinder. Cylinders may be used and filled in the USA and Europe if they are dual marked with both the European Pi mark and the USA mark of approval ('USA' and the manufactures allocated number). Other states may operate similar systems of discrimination.

3.6. Special application cylinders

3.6.1 Cryogenic sample cylinders

Cylinders designed to sample cryogenic liquid and store it as high-pressure gas before transport to an analysis facility.

These are not subject to ADR (5) but shall comply with the *Pressure Equipment (Safety) Regulations (PER) (2)* and be labelled according to *Classification, Labelling and Packaging of substances and mixtures (CLP) Regulations (6)*.

NOTE: The PER (2) implements the *Pressure Equipment Directive (PED) (4)* in the UK.

3.6.2 Sample cylinders

Small cylinders (often double-ended and manufactured from stainless steel) designed to sample a gas before transport to an analysis facility.

These are not subject to ADR (5) but shall comply with the *Pressure Equipment (Safety) Regulations (PER) (2)* and be labelled according to *Classification, Labelling and Packaging of substances and mixtures (CLP) Regulations (6)*.

3.6.3 Non-refillable cylinders

ADR (5) is applicable. The cylinder manufacturer will Pi-mark the cylinder which includes a non-refillable valve.

3.6.4 Lecture bottles

These are refillable cylinders typically with a water capacity of less than 0.5 litres.

ADR (5) is applicable.

3.6.5 Cartridges and aerosols

Cartridges are assigned to UN 2037 and aerosols to UN 1950. Consult these entries in ADR (5) [Chapter 3.2, the Dangerous Goods List] to find the special provisions and hence the applicable construction and packing requirements.

3.6.6 Salvage pressure receptacles

Used for the recovery of damaged, leaking or non-conforming pressure receptacles, refer to ADR (5) [4.1.1.20 for use requirements and 6.2.3.11 for construction].

3.6.7 Cryogenic receptacles

Closed cryogenic receptacles (liquid cylinders) are used in accordance with ADR (5) [4.1.4.1 P203 and 4.1.6] and constructed in accordance with ADR (5) [Chapter 6.2 with extra requirements in 6.2.1 1.8 and 6.2.3.1.4].

Open cryogenic receptacles are covered in ADR (5) [4.1.4.1 P203].

3.6.8 Articles containing gas under pressure

For information on articles containing gas under pressure, refer to ADR (5) [Chapter 3.2, Dangerous Goods List], examples include:

UN No.	Name of Article
2857	REFRIGERATING MACHINES containing non-flammable, non-toxic gases or ammonia solutions (UN 2672)
3164	ARTICLES, PRESSURIZED, PNEUMATIC (containing non-flammable gas) or
	ARTICLES, PRESSURIZED, HYDRAULIC (containing non-flammable gas)
3150	DEVICES, SMALL, HYDROCARBON GAS POWERED or
	HYDROCARBON GAS REFILLS FOR SMALL DEVICES, with release device
3478	FUEL CELL CARTRIDGES, containing liquefied flammable gas or
	FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT, containing liquefied flammable gas or
	FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing liquefied flammable gas
3479	FUEL CELL CARTRIDGES, containing hydrogen in metal hydride or
	FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT, containing hydrogen in metal hydride or
	FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing hydrogen in metal hydride
3529	ENGINE, INTERNAL COMBUSTION, FLAMMABLE GAS POWERED or
	ENGINE, FUEL CELL, FLAMMABLE GAS POWERED or
	MACHINERY, INTERNAL COMBUSTION, FLAMMABLE GAS POWERED or
	MACHINERY, FUEL CELL, FLAMMABLE GAS POWERED or

3.6.9 Other ways of transporting gases

Details of the following methods may be gathered by starting with the packing instruction that identifies the relevant UN numbers and where to find the construction requirements.

Description	Packing Instruction [ADR 4.1.4.1]
Gas Samples, non-pressurized	P201
Hydrogen in a Metal Hydride Storage System	P205
Chemicals Under Pressure	P206
Adsorbed Gases	P208

4. BUNDLES OF CYLINDERS

4.1 Pi marked bundles of cylinders

Pi marked bundles have a data plate attached to the frame which carries the Pi mark showing that the whole assembly has been assessed for conformity by a Notified Body to the type approval drawings and documents. The data plate shall be marked in accordance with ADR (5) [6.2.3.9.7], including the standard of construction, e.g. EN 13769 (10), *Transportable gas cylinders. Cylinder bundles. Design, Manufacture, identification and testing*, or ISO 10961 (9), *Gas cylinders. Cylinder bundles. Design, manufacture, testing and inspection*. The cylinders and valve(s) will bear a Pi mark but the manifold and frame do not. The Pi mark on the data plate covers the complete assembly. The manifold should not be Pi marked separately from the bundle. Like-for-like parts can be replaced without the need for conformity assessment provided they comply with the type approval drawings. Where parts are replaced which are not like-for-like, and are therefore deemed to be a modification of the assembly, then the type approval drawings and documentation shall be revised in accordance with ADR (5) [1.8.7.2.5].

For periodic inspection follow the appropriate standards referenced in ADR (5) under the surveillance of a Notified Body. A transitional provision in ADR (5) [1.6.2.15] requires the marking of bundles to be aligned with the provisions of ADR (5) [6.2.3.9.7.3] at the next periodic inspection.

4.2 Bundles of cylinders manufactured before the TPED came into force

For old bundles of cylinders solely for UK service, the frame, cylinders and manifold should comply with the original design and any variation in design agreed and recorded by a competent person. Newly manufactured replacement parts that are not cylinders or closures (i.e. frames and manifolds) are not required to be Pi-marked.

For bundles of cylinders manufactured before the TPED came into force it is recommended that for periodic inspection they follow the relevant standards identified within ADR (5) [Clause 6.2.4.2] using an approved body.

Reassessment of non-Pi marked bundles in accordance with TPED (3) Annex III is possible, but to gain the Pi mark they will need to be brought into conformity with EN ISO 10961 (9), i.e. the bundle will need type testing and the cylinders and closures will require a Pi mark.

NOTE: For the effort involved it is probably less trouble to simply manufacture a new bundle!

New bundles cannot be made using cylinders made to national standards. Any new bundle is a new pressure receptacle on the market and shall be Pi-marked and equipped with Pi-marked cylinders. Existing bundles of old cylinders may be repaired or their design upgraded by fitting new frames and manifolds, subject to the appropriate design approval and inspection being carried out.

5. FIRE EXTINGUISHERS

5.1 General requirements

Portable fire extinguishers are not subject to ADR (5) but shall comply with PER (2) requirements.

Fire extinguishers are classified under UN 1044 as articles of Class 2 (even when the propellant is a small quantity of explosive classified as 1.4C or 1.4S). They are described in ADR (5) Special Provision 225 which specifies that they shall be manufactured, tested, approved and labelled in accordance with the national requirements applicable either in the country of manufacture or in the country of use. In countries which comply with European standards, the construction and conformity assessment requirements are given BS EN 3 (8), *Portable fire extinguishers*, Parts 7 to 10. Fire extinguishers are not subject to the technical requirements, conformity assessment or periodic inspection given in ADR (5) (but refer to Section 5.2 for the exception to this rule).

ADR (5) Special Provision 594 clarifies that for carriage none of the provisions of ADR (5) applies to fire extinguishers provided they are:

- protected against inadvertent discharge; and
- packaged in strong outer packaging; or
- packed in accordance with PP91 of P003 if they are large fire extinguishers.

Large fire extinguishers are described in ADR (5) Special Provision 225 indents (c) to (e) as follows:

- (c) fire extinguishers mounted on wheels for manual handling;
- (d) fire extinguishing equipment or machinery mounted on wheels or wheeled platforms or units carried similar to (small) trailers, and
- (e) fire extinguishers composed of a non-rollable pressure drum and equipment, and handled e.g. by fork lift or crane when loaded or unloaded.

5.2 Exception for fire extinguishers carried as a complete assembly

ADR (5) Special Provision 225 applies to fire extinguishers carried as a complete assembly. If the gas is contained in a pressure receptacle, which is transported separately from the assembled fire extinguisher, then the pressure receptacle shall be constructed, conformity assessed and periodically inspected in accordance with ADR (5), Chapter 6.2.

5.3 Fire extinguishers on vehicles carrying dangerous goods

ADR (5), Section 8.1.4, specifies the type and sizes of fire extinguishers that shall be present on vehicles carrying dangerous goods, but refers to BS EN 3, Part 7 (8) for the construction requirements and national standards for their routine inspection.

5.4 Fire extinguishers as part of a fixed installation for fire suppression

Such cylinders are not subject to ADR (5) but shall comply with the PER (2).

NOTE: Fire protection equipment should be installed and maintained by competent persons, guidance on third party certification schemes can be found on the British Approvals for Fire Equipment (BAFE) website. BAFE is an independent, third party certification registration body for the fire protection industry.

6.0 CYLINDERS GRANTED A 15-YEAR INTERVAL FOR PERIODIC INSPECTION

NOTE: This section applies only to seamless steel and seamless aluminium cylinders and only to certain gases. There are similar requirements covering fifteen year periods for welded steel cylinders used for LPG [refer to ADR (5) 4.1.4.1 P200 (12)]. Fifteen year intervals cannot be used for any other form of pressure receptacle.

6.1 Can cylinders moved to another country retain their P15Y status?

The short answer is that the owner would need to enter into a new agreement with the competent authority of the new country to grant the extension to 15 years.

The right to extend the periodic inspection interval to 15 years is granted to the owners / operators by the competent authority. Competent authorities are not obliged to offer this extension and have no obligation to recognise the validity of the P15Y mark granted by another competent authority. Therefore, the 15 year status can only continue if the competent authority of the new country is willing to allow 15 year testing and agrees that all the filling and operating conditions are fulfilled.

The regulations foresee only one example of co-operation between competent authorities and that is where the cylinder is filled in another country. The owner then has to demonstrate to the satisfaction of his own competent authority that this filling centre is operated in accordance with the requirements which are monitored by the competent authority of the country of filling.

6.2 Can cylinders given a 15 year licence be used offshore and carry their P15Y status with them?

P15Y is recognised only by the land transport regulations. Therefore the licence remains valid only if the cylinders are coming back to the home country to be filled and tested. Carriage of the cylinders to offshore oil and gas platforms would require the agreement of the competent authority. The extension to 15 years in the arduous maritime environment is not recommended.

NOTE: Offshore in this context is defined as on board ships or oil and gas platforms.

6.3 Can cylinders which have achieved a P15Y status do so retrospectively?

Yes, the regulations define circumstances which allow the 15 year period to start from a date preceding the granting of the P15Y status. The licence to operate a 15 year period is granted to a specified population of cylinders. Usually, these will be cylinders already in use. If the owner can prove to the satisfaction of the competent authority that these cylinders have been operated in accordance with P15Y requirements since their last periodic inspection then the whole population **may** be granted the immediate extension to 15 years from the date of the cylinders last inspection and test. Otherwise, the 15 years starts from the date of the next periodic inspection and test and is not retrospective.

7. REFERENCES

- | | Document Number | Title |
|----|-------------------------------------|--|
| 1. | SI 2009 No. 1348. | The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended). |
| 2. | SI 2016 No. 1105 | Pressure Equipment (Safety) Regulations 2016. |
| 3. | European Directive 2010/35/EU | Directive 2010/35/EU of the European Parliament and of the Council of 16 June 2010 on transportable pressure equipment.

European Transportable Pressure Equipment Directive (TPED) |
| 4. | European Directive 2014/68/EU | Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment.

European Pressure Equipment Directive (PED) |
| 5. | ECE/TRANS/242 | European Agreement concerning the international carriage of dangerous goods by road (ADR) (as amended). |
| 6. | European Regulation EC No 1272/2008 | The Classification, Labelling and Packaging of Substances and Mixtures (CLP). |
| 7. | Multi-Lateral Agreement M299. | Under paragraph 1.5.1.1 of ADR concerning the carriage of different gases of Class 2 in US Department of Transportation pressure receptacles in relation to 1.1.4.2. |

	Document Number	Title
8.	BS EN 3: Part 7 Part 8 Part 9 Part 10	Portable fire extinguishers: 7. Characteristics, performance requirements and test methods 8. Additional requirements to EN 3-7 for the construction, resistance to pressure and mechanical tests for extinguishers with a maximum allowable pressure equal to or lower than 30 bar. 9. Additional requirements to EN 3-7 for pressure resistance of CO ₂ extinguishers 10. Provisions for evaluating the conformity of a portable fire extinguisher to EN 3-7
9.	BS ISO 10961	Gas cylinders. Cylinder bundles. Design, manufacture, testing and inspection.

Further information can be obtained from:

UK Legislation	www.legislation.gov.uk
Health and Safety Executive (HSE)	www.hse.gov.uk
British Standards Institute (BSI)	www.bsigroup.co.uk
European Industrial Gases Association (EIGA)	www.eiga.eu
International Organization for Standardization (ISO)	www.iso.org
British Compressed Gases Association (BCGA)	www.bcgaco.uk
The UK LPG trade association (UKLPG)	www.uklpg.org
USA Compressed Gas Association (CGA)	www.cganet.com
British Approvals for Fire Equipment (BAFE)	www.bafe.org.uk

PERMITTED EXCEPTIONS FOR PRESSURE RECEPTACLES WITHIN ADR

A.1 EXEMPTIONS

The information in the table summarises the nature of the exceptions. Only those affecting gases under pressure are listed. The original text of the exemption should be consulted.

ADR Reference	EXEMPTION
1.1.3.2 (a)	Gases in fuel tanks or receptacles for propelling vehicles or fuel for operating equipment needed during carriage (e.g. refrigerating equipment)
1.1.3.2 (c)	Gases of Groups A or O (i.e. Division 2.2) below 2 bar but not liquefied or refrigerated liquefied gases
1.1.3.2 (d)	Gases contained in equipment used for the operation of the vehicle
1.1.3.2 (e)	Gases contained in special equipment in vehicles
1.1.3.2 (f)	Gases contained in foodstuffs, but not UN 1950 aerosols
1.1.3.2 (g)	Gases contained in balls for sport

A.2 SPECIAL PROVISIONS

The information below summarises the special treatment permitted for some gases which depart from or add to the normal requirements of ADR (5). It does not include special provisions referred to elsewhere in this Guidance Note.

ADR Reference [Chapter 3.3]	SPECIAL PROVISIONS relevant to gas containment
These special provisions appear in the UN Model Regulations and therefore in all transport modes as well as ADR (5).	
119	Exempts Refrigeration Machines (UN 2857) carrying less than 12 kg of A and O gases
283	Exempts Shock Absorbers, Impact Energy Absorbing Devices or Pneumatic Springs (UN 3164) subject to several conditions
291	Exempts Refrigeration Machines (UN 3358) carrying less than 12 kg of flammable gases and subject to certain construction requirements
296	Exempts Life Saving Appliances, self-inflating (UN 2990) containing small amounts of A and O gases and subject to packing restrictions
338	Specifies the construction requirements for Fuel Cell Cartridges containing liquefied flammable gas (UN 3478) and limits the liquefied gas content

339	Specifies the construction requirements for Fuel Cell Cartridges containing hydrogen in a metal hydride (UN 3479) and limits the hydrogen content
342	Allows glass inner receptacles for Ethylene Oxide or Ethylene Oxide with Nitrogen used for Sterilisation subject to limitations
355	Allows Oxygen Cylinder for Emergency Use with actuators containing a limited amount of explosive
371	Specifies construction and test requirements for UN 3164 Articles of the Type that Contain Gas in a Pressure Receptacle with a Release Device, e.g. a confetti shooter
373	Specifies the construction and packing requirements for Neutron Radiation Detectors (UN and exempts those with less than 1 gram of boron trifluoride.
378	Specifies the construction and packing requirements for Radiation Detectors and exempts those with a gas receptacle capacity of less than 50 ml
379	Exempts up to 10 kg of Anhydrous Ammonia Absorbed or Adsorbed in a Solid subject to specified construction

The following Special Provisions are specific to ADR (5).

ADR Reference [Chapter 3.3]	SPECIAL PROVISIONS relevant to gas containment
584	Exempts CO ₂ and N ₂ O when carried in metal capsules and subject to other limitations
594	Specifies the packing requirements which exempt UN 1044 Fire Extinguishers and UN 3164 Articles, Pressurised Pneumatic or Hydraulic from other requirements of ADR.
652	Specifies the requirements for LPG cylinders used in hot air balloons
653	Exempts small cylinders up to 152 bar.litres from other requirements of ADR if they contain Ar, He, CO ₂ or N ₂ and meet other conditions
655	Cylinders for breathing apparatus constructed according the PED may be carried subject to some other conditions
660	Allows the transport of filled vehicle gas tanks for assembly into a vehicle for repair subject to the specified safety requirements
662	Cylinders used exclusively on ships or aircraft and not conforming to ADR may be carried for testing and/or filling



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