

**MINISTRY OF THE ECONOMY, DIGITALISATION, ENTREPRENEURSHIP AND
TOURISM**

**State Inspection for the Control of Boilers, Pressure
Vessels and Lifting Installations
- ISCIR -**

TECHNICAL PRESCRIPTION

**CYLINDERS FOR COMPRESSED, LIQUEFIED GAS
OR DISSOLVED UNDER PRESSURE
PT C 5-2025**

CHAPTER I

GENERAL INFORMATION

SECTION 1

Scope

Art. 1 (1) This technical regulation establishes the conditions and technical requirements for filling, in-service technical verification or periodic inspection, as applicable, and repair of cylinders/cylinder racks for compressed, liquefied, or dissolved gases under pressure, hereinafter referred to as "cylinders".

(2) The provisions of this technical prescription shall apply only to the extent that there are no other specific provisions (with the same objective) in harmonised Community legislation.

SECTION 2

Scope

Article 2 (1) The provisions of this technical prescription shall apply to the cylinders/cylinder frames (batteries) referred to in Annex 1.

(2) The types of gases and the specific characteristics of cylinders manufactured in accordance with the applicable technical specifications prior to the entry into force of European harmonization legislation are those specified in Annex 2.

(3) The types of gases and the specific characteristics of cylinders manufactured according to the harmonised European legislation are those stipulated by the applicable legislation in force and the harmonised standards laid down in the ADR.

(4) This Technical Prescription applies to:

- a) seamless steel cylinders;
- b) welded steel cylinders;
- c) cylinders made of aluminum and aluminum alloys, seamless;
- d) cylinders made of aluminum and aluminum alloys, welded;
- e) cylinders made of composite materials;
- f) cylinder frames (batteries).

Article 3. (1) The term “cylinder” refers to any transportable container in which the pressure of the fluid (compressed, liquefied, or dissolved gases under pressure) can reach or exceed 0.05 MPa (0.5 bar) at a temperature of 15°C.

(2) The cylinder is an assembly consisting of:

- a) the pressure vessel;
- b) the removable protective cover or non-removable protective guard;
- c) the pedestal, if applicable;
- d) the associated equipment and substances, which may include: shut-off valves (gate valves, ball valves), filling and draining devices, safety devices, porous media, etc.

(3) The components required to connect the cylinder to the appliance are accessories, which may include: pressure regulators, flexible hoses, clamps (screw-type or worm-type), and gaskets; these must comply with the provisions of applicable laws and regulations.

Art. 4 (1) The provisions of this technical regulation apply to cylinders and cylinder racks (batteries) for compressed, liquefied or dissolved gases under pressure, as follows:

a) new cylinders/cylinder racks that comply with the requirements for placing on the market, as laid down in Government Emergency Ordinance No 126/2011, and which are subject to filling and repair operations;

b) old gas cylinders or cylinder racks that have been in use and:

1) they originate from the European Union:

I) which comply with the requirements for placing on the market laid down in the specific European Directives, which are subject to filling and repair activities;

II) which were manufactured prior to the entry into force of the relevant European directives and which were placed on the Romanian market in compliance with the applicable technical requirements, and which are subject to refilling, in-service technical inspection and repair;

2) they originate from outside the European Union:

I) which comply with the requirements for placing on the market laid down in the relevant European directives, and which are subject to refilling and repair operations.

(2) The provisions of this technical specification apply to fire extinguisher cylinders and cylinders for self-contained breathing apparatus as follows:

a) new cylinders complying with the requirements for placing on the market, laid down by the regulations of Government Decision No 123/2015, which are subject to filling, technical inspection in use and repair activities;

b) old cylinders that have been used before, and:

1) they originate from the European Union:

I) which comply with the requirements for placing on the market laid down in the specific European Directives, which are subject to filling, in-service technical checking and repair activities;

II) which were manufactured prior to the entry into force of the relevant European directives and which were placed on the market in compliance with the national regulations of the Member State and the applicable technical requirements, and which are subject to refilling, in-service technical inspection, and repair;

2) they originate from outside the European Union:

I) that comply with the requirements for placing on the market specified in the relevant European directives, and that are subject to filling, in-service technical inspection, and repair.

NOTE:

The applicable European directives are:

DIRECTIVE 2010/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 June 2010 on transportable pressure equipment and amending Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC, and 1999/36/EC, and similar previous directives.

DIRECTIVE 2014/68/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 May 2014 on the harmonization of the laws of the Member States regarding the marketing of pressure equipment and similar directives.

Article 5 The provisions of this technical requirement shall not apply to:

- a) cylinders filled with compressed gases whose pressure does not exceed 0.05 MPa (0.5 bar) at a temperature of 15°C;
- b) cylinders with a capacity of up to 26 liters, for liquefied petroleum gas, which are subject to the applicable technical regulation;
- c) barrels, containers, and tanks that are subject to the applicable technical regulation;
- d) cylinders used as components of motor vehicle engines, such as injection and starting cylinders for internal combustion engines;
- e) cylinders for liquefied petroleum gases contained in installations for the fuelling of liquefied petroleum gases with engines for motor vehicles;
- f) cylinders for compressed natural gas used in compressed natural gas fueling systems for motor vehicles;
- g) hydrogen cylinders that are part of hydrogen refueling systems for vehicle engines;
- h) cylinders that function as oil separators, pneumatic or hydraulic accumulators;
- i) cylinders with a capacity of up to 0.5 liters, regardless of operating pressure;
- j) cylinders used as aerosol dispensers, as regulated by Government Decision No. 1094/2009 on the conditions for placing aerosol dispensers on the market;
- k) fire extinguisher cylinders that are not filled with gas.

*SECTION 3***Normative references**

Article 6 This technical prescription refers to the following normative acts:

- a) Law No. 64/2008 on the safe operation of pressure equipment, lifting equipment, and fuel-burning appliances, republished in the Official Gazette of Romania, Part I, No. 399 of June 8, 2015, as subsequently amended and supplemented;
- b) Law No. 307/2006 on Fire Safety, republished in the Official Gazette of Romania, Part I, No. 297 of April 17, 2019, as subsequently amended and supplemented;
- c) Law No. 319/2006 on occupational safety and health, published in the Official Gazette of Romania, Part I, No. 646 of July 26, 2006, as subsequently amended and supplemented;
- d) Government Decision No. 123/2015 establishing the conditions for the marketing of pressure equipment, published in the Official Gazette of Romania, Part I, No. 181 of March 17, 2015;
- e) Government Decision No. 1175/2007 approving the regulations governing the transport of dangerous goods by road in Romania, published in the Official Gazette of Romania, Part I, No. 696 of October 15, 2007, as subsequently amended and supplemented;
- f) Government Decision No. 1340/2001 on the organization and operation of the State Inspectorate for the Control of Boilers, Pressure Vessels, and Lifting Installations, published in the Official Gazette of Romania, Part I, No. 37 of January 21, 2002, as subsequently amended and supplemented;
- g) Government Decision No. 1326/2009 on the transport of dangerous goods in Romania, published in the Official Gazette of Romania, Part I, No. 815 of November 27, 2009, as subsequently amended and supplemented;
- h) Government Emergency Ordinance No. 126/2011 on transportable pressure equipment, published in the Official Gazette of Romania No. 941 of December 30, 2011;
- i) Order of the Minister of Economy and Trade No. 1610/2007 approving the Regulation on the storage of transportable cylinders for compressed, liquefied, and dissolved gases under pressure, excluding LPG, published in the Official Gazette of Romania, Part I, No. 266 bis, of March 28, 2007;
- j) Order No. 401/2005 of the Chief State Inspector of the State Inspectorate for the Control of Boilers, Pressure Vessels, and Lifting Installations regarding the application of seals to installations and equipment that are unauthorized or do not meet safety requirements for operation in accordance with technical regulations, ISCIR Collection, published in the Official Gazette of Romania, Part I, No. 726 of August 10, 2005;
- k) Order No. 74/N of 1999 of the Minister of Public Works and Spatial Planning and Order No. 248 of 1999 of the Minister of Industry and Trade, as subsequently amended and supplemented—Regulations for the design and construction of liquefied petroleum gas (LPG) Reference No. I 31-99;

l) Order of the Minister of Regional Development and Public Administration No. 845 of 2015, as subsequently amended and supplemented—Regulations for the Design, Construction, and Operation of Central Heating Systems, Reference No. I 13-2015, published in the Official Gazette of Romania, Part I, No. 897 of December 2, 2015.

SECTION 4

Terms, definitions and abbreviations

Art. 7 For the purposes of this technical regulation, the terms, definitions, and abbreviations have the following meanings:

a) **accident** - an unforeseen event that disrupts the normal operation of a cylinder, cylinder rack, or filling station, causing damage and/or endangering human life or health or harming the environment;

b) **ADR** - European Agreement concerning the International Carriage of Dangerous Goods by Road;

c) **competent authority** - any body or authority in a Member State of the European Union or a signatory state to the Agreement on the European Economic Area that has a supervisory or regulatory role with respect to service activities, especially administrative authorities, as well as professional bodies and professional associations or other professional organizations which, in exercising their self-regulatory powers, establish the legal framework for access to or the exercise of service activities;

d) **authorization** - an assessment and certification process conducted by ISCIR to verify the competence and capability of a natural or legal person to carry out the activities specified in this technical regulation;

e) **authorization** - an administrative document certifying the right to carry out the authorized activity;

f) **malfunction** - any event occurring in a cylinder, cylinder rack, or filling system that jeopardizes safe operation;

g) **cylinder rack (battery)** - a portable assembly consisting of a frame and two or more cylinders connected to a dispenser, so that the cylinders can be filled, transported, and emptied without being disassembled;

h) **capacity** – the maximum volume of water that the cylinder can hold when completely filled, at atmospheric pressure and a temperature of 15°C;

i) **requirement** - any rule, obligation, prohibition, condition, or restriction imposed on authorized natural or legal persons or service recipients, which is set forth in the normative or administrative acts of the competent authorities, or which arises from case law, administrative practices, rules of professional associations, or collective rules of professional associations or other professional

organizations, adopted in the exercise of their self-regulatory powers; clauses in collective bargaining agreements negotiated by the social partners are not, in themselves, considered requirements;

j) **holder** - a natural or legal person who, for any reason, possesses a cylinder in service;

k) **technical documentation** - all documents and instructions prepared by the manufacturer in accordance with the technical specifications for the construction, installation, installation, commissioning, servicing, repairs, and/or maintenance of the installations/equipment, or, respectively, all documents prepared by natural or legal persons authorized to perform these activities in order to carry out their specific tasks; the technical documentation includes, as applicable, the general description of the installation/equipment, the construction drawings, the manufacturing process, the diagrams and circuits for the components of the installations/equipment, the descriptions and explanations necessary for understanding these drawings and diagrams, the results of design calculations, the test and inspection reports, and other similar;

l) **LPG** - liquefied petroleum gas;

m) **periodic inspection** - all examinations and tests performed by a notified body (designated body) on a cylinder or cylinder rack (battery), on a regular basis and whenever its configuration changes, in order to ensure safe operating conditions.

n) **filling facility** - a facility owned by a legal entity authorized by ISCIR to fill cylinders;

o) **instructions for use** – a written document provided to the user regarding the use (operation) of the cylinder, drawn up by a legal entity authorised by ISCIR to carry out cylinder filling activities;

p) **placing on the market** – making transportable pressure equipment available for the first time, whether in return for payment or free of charge, for distribution and/or use;

q) **ISCIR** – State Inspection for the Control of Boilers, Pressure Vessels and Lifting Installations;

r) **RSVTI operator** – natural or legal person, responsible for the technical supervision of the ISCIR installations / equipment;

s) **technical specification** - technical regulation - a technical standard developed by ISCIR and approved by order of the Minister of Economy, published in the Official Gazette of Romania, Part I, which contains, for clearly defined fields, technical conditions and requirements regarding installations/equipment, including their protection and safety distances, where applicable, and to activities specific to the field of activity, as provided for in Article 8(1) of Law No. 64/2008, which are carried out in connection therewith, with a view to the placing on the market, commissioning, and use of the respective installations/equipment under safe operating conditions;

t) **pressure** - pressure relative to atmospheric pressure of 1.013 mbar, i.e., the measured pressure;

u) **test pressure** - the pressure at which the cylinder is hydraulically tested to verify its strength and leak tightness, as specified by the manufacturer or in accordance with the provisions of this technical specification, as applicable;

v) **manufacturer** - a natural or legal person responsible for the design and/or manufacture of an installation/equipment in order to market it and/or commission it under their own name, as well as any natural or legal person who manufactures, assembles, installs, packages, or labels a installation/equipment in order market it and/or commission it under its own name;

w) **repair** - a series of works and operations carried out to eliminate non-conformities/defects found in a cylinder, in order to bring it back to its original specifications or to other specifications that ensure its safe operation, according to the provisions of the applicable technical prescriptions;

x) **RSL-IP** – specialised technical staff responsible for supervising works on pressure installations, certified according to the provisions of the applicable technical prescription;

y) **filling** – the repetitive activity of loading transportable containers with compressed, liquefied or dissolved gases under pressure, in accordance with the technical prescriptions;

z) **user** – natural or legal person operating a cylinder;

aa) **technical inspection** – the set of examinations and tests carried out during the installation, repair or servicing of cylinders, according to the requirements set out in the technical documentation and/or the provisions of the applicable technical regulations;

bb) **in-service technical inspection (ISTI)** - all examinations and tests performed on a cylinder, either periodically or every time its configuration changes, in order to ensure safe operating conditions.

CHAPTER II

FILLING

SECTION 1

General provisions

Art. 8 (1) Cylinder filling shall be performed by legal entities registered in the ISCIR Register of Authorized Legal Entities, as provided for in the applicable technical regulation.

(2) The legal entities referred to in paragraph (1) may carry out cylinder filling operations only at filling stations for which they hold all the necessary legal permits and which have the pressure equipment associated with the filling station authorized by ISCIR.

(3) The legal entities referred to in paragraph (1) must ensure the repair and in-service technical inspection or periodic inspection of cylinders or cylinder racks (batteries) when required.

Art. 9 (1) The cylinder filling process consists of sorting, filling, and post-filling inspection of cylinders to ensure that they meet the requirements for safe operation over a specified period and under normal operating conditions, in accordance with the provisions of this technical specification.

(2) The filling of cylinders shall be carried out in accordance with the internal procedures/work instructions of the legal entity referred to in Article 8, paragraph (1), and in compliance with the provisions of this technical regulation and the applicable standards in force.

(3) Supervision and inspection during and upon completion of the filling work shall be carried out by the RSL-IP designated in the authorization of the legal entity referred to in Article 8, paragraph (1).

(4) The activities referred to in paragraph (1) shall be carried out by the staff employed by the legal entity referred to in Article 8, paragraph (1), authorized by ISCIR as a “Group B pressurized fluid bottler” in accordance with the provisions of the applicable technical regulation.

SECTION 2

Sorting

Art. 10 Sorting is the process of identifying and visually inspecting the cylinder to determine whether it can be safely refilled.

Art. 11 The legal entities referred to in Art. 8, para. (1), are required to accept cylinders regardless of their degree of wear, corrosion, or deformation, even if they must be taken out of service and scrapped.

Art. 12 Before each filling, cylinders must undergo the following inspections:

a) identifying the cylinder for sorting by gas type;

b) external inspection, which consists of examining the exterior of the cylinders to assess the condition of the surfaces resulting from transport operations and environmental exposure, verifying the presence and content of markings, performing dimensional checks, inspecting welded joints where applicable, and inspecting the closure fittings.

Art. 13 (1) After the external inspection, the cylinders are considered acceptable if the following conditions are met:

a) the in-service technical inspection/periodic inspection is due;

b) the protective paint film is not damaged; the color of the paint film shall correspond to the type of gas contained, in accordance with the provisions of the applicable standards;

c) there is an inscription indicating the specific mass of the porous material on cylinders for dissolved gases (acetylene);

d) there is consistency between the data printed on the cylinder and the information corresponding to the type of gas (filling pressure or mass of the charge);

e) there is a consistency between the weight indicated on the cylinder and its actual weight;

f) the cap or protective guard of the valve, as well as the external thread of the cylinder neck ring, are in good condition;

g) cylinder cover:

1) screw it fully and easily onto the bottle's neck ring;

2) has no openings when handling toxic fluids;

3) is equipped with a gasket to ensure a tight seal against gas leaks caused by a potential leak in the valve, in the case of toxic fluids;

h) the base, if present, ensures that the cylinder remains stable in an upright position;

i) the shut-off valve is in good working order, ensuring a tight seal regardless of the cylinder's position; for carbon dioxide cylinders, a shut-off valve equipped with a rupture disc is used to protect the cylinder in the event of pressure rising above the design value;

j) the cylinder body must not show any dents, deformations, cuts, advanced corrosion, or any other damage that could compromise operational safety, in accordance with the requirements of paragraph (3);

k) the cylinder shows no traces of oil on its walls and/or on the valve in the case of cylinders used for oxygen or other oxidizing gases;

l) in addition, in the case of composite cylinders, they shall not bear the In addition, composite cylinders must not have the following:

1) signs of a chemical attack;

2) structural damage;

m) for the cylinders referred to in Article 4, paragraph (1), subparagraph (b), point (1), (II), the following permanent, visible, and legible markings must be present (on the top cap, the base, the neck ring, or the non-removable protective guard):

1) manufacturer's logo;

2) manufacturing number;

3) the year and month of manufacture;

4) minimum wall thickness, in mm (for cylinders which, at the time of manufacture, were required to bear the manufacturer's marking);

5) cylinder working fluid name (symbolised or unabbreviated);

6) bottle capacity, in litres;

7) hydraulic test pressure, in MPa (or bar);

8) maximum charge pressure, in MPa (or bar);

9) empty cylinder table with base and neck ring, without closing fitting and removable protective cap, in kg (for compressed gases);

10) the weight of the empty cylinder, including the base, neck ring and closure assembly, without a removable protective cap or with a non-removable protective cap, in kg (for liquefied gases);

11) total mass of the empty cylinder, including the base, neck ring, closure assembly, porous material, and solvent, without a removable protective cap or with a non-removable protective cap, in kg (for acetylene dissolved in acetone);

12) the maximum permissible load for cylinders containing liquefied or dissolved gases under pressure, when filling is performed by weighing, in kg; in this case, the filling pressure may be omitted;

13) the mass of the contents in the case of cylinders containing liquefied or dissolved gases under pressure, when the filling is performed by weighing;

14) the symbol (mark) for the porous mass in the case of cylinders for dissolved acetylene;

15) the year and month of the in-service technical inspection performed, or the year and month of the next periodic technical inspection for those bearing this date;

16) the stamp of the person who carried out the periodic technical inspection;

n) for the cylinders referred to in Article 4, (1) (a), (b), 1), (I) and (b), 2), (I) and (2), there are permanent, visible and legible inscriptions in accordance with the provisions of the applicable standards;

o) the cylinder batteries (frames) fitted with a stamp plate shall contain at least the following permanent, visible and legible inscriptions:

1) the name of the equipment manufacturer;

- 2) name of the working fluid;
- 3) series/manufacturing number;
- 4) manufacturing year;
- 5) minimum/maximum weight, in kg;
- 6) net weight, in kg;
- 7) the stamp applied during the periodic technical inspection;
- 8) the year and month of the next periodic technical inspection.

(2) Non-compliant cylinders are not accepted for filling; they are sent for periodic technical inspection, repair, or decommissioning, as appropriate.

(3) Defects that require the removal from service and scrapping of cylinders are those specified in the applicable standards, with the exception of the cylinders referred to in Article 4, paragraph (1), subparagraph (b), point (1), (II), for which the defects are specified in Annex 3.

Art. 14 (1) Filling the cylinder is not permitted if any of the following is found:

- a) corrections to stamped markings other than those provided for by applicable laws and standards in force;
- b) weld stresses on the cylinder body where the cylinder is seamless, or outside the weld beads on a welded cylinder.

(2) The cylinders referred to in paragraph (1) shall be taken out of service and decommissioned.–

SECTION 3

Filling

Art. 15 (1) The pressure-bearing components of the cylinder filling system must comply with the provisions of the applicable technical prescriptions.

(2) The accessories used in the cylinder filling system shall comply with applicable laws and standards.

(3) The components of the cylinder filling system, other than those specified in paragraph (1), must comply with the provisions of the applicable legislation.

Art. 16 (1) Two pressure gauges, each equipped with a shut-off valve made of a material suitable for the gas being filled, shall be installed at the inlet to the filling system circuit.

(2) The accuracy class of the pressure gauges must be no higher than 2.5.

(3) The use of the pressure gauges must be done in compliance with the legislation in the metrological field and must be chosen so that the value of the loading pressure is read on the middle third of the graduated scale.

Art. 17 The filling installation must be connected to a discharge system, in order to be able to evacuate the gas from the cylinders in case of overloads, so as to avoid possible accidents.

Article 18 The legal persons referred to in Article 8(1) shall equip the filling installation with specific equipment so that the bottled fluids reach the cylinders without water or other impurities that may affect the operational safety of the cylinders.

Article 19 The filling shall be carried out only if the results of the cylinder sorting were appropriate.

Art. 20 (1) Cylinders shall be filled with the fluid for which they were manufactured and tested and should have their name written on them.

(2) When filling cylinders for compressed, liquefied, or pressurized gases manufactured in accordance with European harmonization legislation, the provisions of the ADR must be followed.

(3) The cylinders referred to in Article 4(1)(b)(1)(II) may be filled only with the fluid specified in Annex 2, for which they were designed and tested, with the following exceptions:

a) propane cylinders may be filled with butane, but the maximum allowable filling weight for butane must not be exceeded; the names of the two gases, the test pressure specified for propane, and the maximum allowable filling weights for propane and butane must be stamped on the cylinder;

b) cylinders for the mixture A_0 may be filled with mixture A; the names of the two gases, the prescribed test pressure for mixture A_0 , and the maximum permissible filling masses for mixtures A and A_0 must be stamped on the cylinder;

c) cylinders for the mixture A_1 may be filled with mixtures A or A_0 ; the names of the three gases, the prescribed test pressure for mixture A_1 , and the maximum permissible filling masses for mixtures A, A_1 , and A_0 must be stamped on the cylinder;

d) cylinders for the mixture B may be filled with mixtures A, A_0 , or A_1 ; the names of the four gases, the prescribed test pressure for mixture B, and the maximum permissible filling masses for mixtures A, A_0 , A_1 , and B must be stamped on the cylinder;

e) cylinders for mixture C may be filled with mixtures A, A_0 , A_1 , or B; the names of the five gases, the prescribed test pressure for mixture C, and the maximum permissible filling masses for mixtures A, A_0 , A_1 , B, and C must be stamped on the cylinder;

f) cylinders for dichloromonofluoromethane may be filled with the F_1 mixture; the names of the gases must be stamped on the cylinder as follows: “dichloromonofluoromethane” (or an approved trade name) and “ F_1 mixture”;

g) cylinders for dichlorodifluoromethane may be filled with F_1 or F_2 mixtures; the names of the gases must be stamped on the cylinder as follows: “dichlorodifluoromethane” (or an accepted trade name) and “ F_1 or F_2 mixture,” as well as the maximum permissible charge mass for the F_1 mixture;

h) cylinders for monochlorodifluoromethane may be filled with mixtures of F_1 , F_2 , or F_3 ; the names of the gases must be stamped on the cylinder as follows: “monochlorodifluoromethane” (or an accepted trade name) and “ F_1 , F_2 , or F_3 mixture,” as well as the maximum permissible charge mass for the F_3 mixture;

i) the cylinders for mixture F_2 may be filled with mixture F_1 ; the maximum permissible filling mass must be equal to that prescribed for mixture F_2 ;

j) the cylinders for mixture F_3 may be filled with mixtures F_1 and F_2 ; the maximum permissible filling mass must be equal to that prescribed for mixture F_3 .

Art. 21 Cylinders for which the owner/user wishes to change the filling fluid may be used only in accordance with the provisions of applicable laws and standards in force.

Art. 22 (1) During filling, the cylinders shall be secured in an upright position using special devices.

(2) It is permitted to fill compressed gas cylinders that are secured in a horizontal position in specially designed racks. The filling pipe shall be connected to the cylinder by a system that ensures tightness.

Art. 23 (1) Cylinders that form a cylinder rack (frame) must contain only a single type of gas or a mixture of the same types of gases;

(2) The cylinders that make up a cylinder rack must have a date for the next periodic technical inspection within a maximum of 6 months.

Art. 24 It is prohibited to repair leaks while the cylinder is under pressure.

Art. 25 Compressed gas shall be filled to the filling pressure indicated on the cylinder, based on a temperature of 15°C.

Art. 26 Before filling cylinders with oxygen or other oxidizing gases, they must be degreased using methods established by the legal entities referred to in Art. 8, par. (1), in their own procedures or work instructions.

Art. 27 (1) In the case of compressed gas cylinders, it is forbidden to fill them with gases other than those in the group for which they were designed.

(2) For cylinder with mixtures gases, the provisions of the applicable specific regulations must be followed.

(3) Hydrogen cylinders may only be filled with hydrogen.

Art. 28 (1) Liquefied gas cylinders shall be filled using devices that verify the mass of the charge to ensure that the maximum value has not been exceeded, either by weighing in accordance with metrology legislation or by determining the remaining space for the gaseous phase.

(2) The filling of cylinders referred to in Article 4, paragraph (1), subparagraphs (a) and (b), points 1) and 2), shall be carried out in accordance with the provisions of the ADR, as specified in the packing instructions for the UN number assigned to the gas.

(3) The filling of the cylinders referred to in Article 4, paragraph (1), subparagraph (b), item (1), (II) shall be carried out in accordance with the provisions of Annex No. 2.

Art. 29 Liquefied gas cylinders shall be filled to the maximum permitted fill level indicated on the cylinder, based on a temperature of 15°C, and to the maximum permitted filling pressure applicable to each type of gas.

Art. 30 In the case of racks (batteries) of liquefied gas cylinders equipped with cylinder shut-off valves, to ensure that no cylinder in the rack (battery) or the battery as a whole is filled beyond its normal capacity, the following requirements must be met:

- a) all cylinders in a rack (battery) must be filled individually;
- b) each cylinder in the rack (battery) must be equipped with a fill control device to ensure that they are not filled beyond their normal capacity.

Art. 31 (1) For liquefied gas cylinders (except for LPG and acetylene), tare weight verification is not required if the cylinders are equipped with non-return valves that prevent contamination of the contents with liquids or other impurities.

(2) If the condition set forth in paragraph (1) is not met, the tare weight shall be verified prior to filling, in accordance with the provisions of the applicable standard.

Art. 32 Cylinders that have been used for sulfur dioxide may not be used for any other gas.

Art. 33 (1) In the case of cylinders for dissolved gases under pressure, the quantity of solvent must also be checked prior to filling.

(2) The cylinder is marked with the maximum permissible filling weight and the weight of the empty cylinder (including the base, neck ring, closure assembly, porous material, and solvent, without a protective cap or with a non-removable protective cap), in kilograms.

(3) If it is found that the weight of the cylinder, after subtracting the residual dissolved gas content, is less than the weight indicated on the cylinder, it must be refilled with solvent in accordance with the accompanying technical documentation and the company's own procedures and work instructions.

(4) Non-compliant cylinders may not be filled without first verifying the solvent mass or if the solvent exceeds the permitted limit.

Art. 34 Cylinders containing dissolved gases under pressure shall be filled using devices that verify the mass of the charge to ensure that the maximum allowable mass has not been exceeded, by means of weighing in accordance with metrology legislation.

Art. 35 (1) For dissolved acetylene, the filling pressure must not exceed the maximum allowable pressure specified by the cylinder manufacturer, after reaching the equilibrium at 15°C.

(2) For other temperatures, the gas pressure in the dissolved acetylene cylinder must not exceed the values listed in the table below.

Temperature in °C	-10	-5	0	5	10	15	20	25	30	35	40
Maximum pressure, in bar	7	8	9	10,5	12	14	16	18	20	22,5	25

Art. 36 Only cylinders containing the same type of porous material, with the same service life, and filled with the same type of solvent may be used in an acetylene cylinder rack, in accordance with the company's own procedures and work instructions.

SECTION 4

Verification after filling

Art. 37 (1) After filling, cylinders and cylinder racks (batteries) shall undergo leak testing in accordance with the procedures/work instructions of the legal entity referred to in Art. 8, para. (1), using methods that ensure this testing is carried out safely.

(2) The tightness test shall be carried out under the supervision of the RSL-IP mentioned in the authorisation of the legal person referred to in Article 8(1).

(3) If a gas leak is detected, the gas in the cylinder must be vented through the filling station's discharge system.

Art. 38 (1) After checking for leaks, the cylinder closure fitting shall be sealed.

(2) After filling the cylinder and checking for leaks and the presence of the protective nut on the valve connection (or protective cap), a label shall be affixed over the properly threaded protective cap and the cylinder body, indicating: the legal entity that performed the filling, the type of gas, the date of filling, and the notation "Verified," in accordance with the company's own procedures/work instructions.

(3) Before storing cylinders or cylinder frames (batteries), according to the provisions of their own procedures/work instructions, in the full cylinder warehouse, they are sealed and the existence and integrity of the warning labels provided for in the ADR is checked.

SECTION 5

Final provisions for the filling of cylinders

Art. 39 The legal entities referred to in Art. 8, para. (1) must have their own procedures/work instructions regarding the inspection of the filling, storage, and handling of cylinders.

Art. 40 (1) The legal entities referred to in Art. 8, para. (1) must prepare, by gas type, and keep up to date a record of refueling operations, in accordance with the template provided in Annex No. 4.

(2) The record-keeping register referred to in paragraph (1) may also be maintained in electronic form.

Art. 41 The legal entities referred to in Art. 8, para. (1) must complete the "Declaration of Conformity for Cylinder Filling" for filled cylinders, drawn up in accordance with the template provided in Annex No. 5, a copy of which shall be provided to the owner/user.

Art. 42 (1) The legal entities referred to in Art. 8, para. (1) must make available to users the safety data sheet for each type of gas, prepared in accordance with the provisions of the applicable legislation in force.

(2) For fire extinguisher cylinders, the operating instructions must be displayed on the cylinder body.

SECTION 6-

Storage

Art. 43 Storage facilities for cylinders (filled or empty) must be constructed and equipped in accordance with the applicable laws and regulations in force.

Art. 44 (1) The owner/user must post instructions regarding the storage and handling of cylinders within the storage facilities.

(2) The warehouses must be equipped with means to extinguish fires, according to the provisions of the applicable legislation in force.

CHAPTER III

TRANSPORT AND DISTRIBUTION

Art. 45 The transport of cylinders or frames (batteries) of cylinders for compressed, liquefied or dissolved gases under pressure shall be carried out in accordance with the legal regulations in force, respectively those regarding the transport of dangerous goods, in compliance with the provisions of ADR.

Art. 46 The distribution of cylinders shall be carried out in accordance with the provisions of the applicable legislation in force.

CHAPTER IV

USE

Art. 47 Owners/users of cylinders or cylinder racks are required to take all necessary measures to comply with the provisions of this technical specification, in order to ensure their safe use and compliance with the legislation and regulations in force.

Art. 48 It is not allowed to use cylinders or cylinder frames (batteries) having exceeded the validity term of the periodic technical inspection/inspection.

Art. 49 (1) At the place of use it is not allowed to store cylinders or cylinder frames (batteries), except for those strictly necessary in the technological process that is used in compliance with the requirements of the safety data sheet.

(2) The owner/user must ensure that specific technical instructions for the use of cylinders or cylinder racks are available at each workplace; these instructions must include the measures to be taken in the event of damage or interruptions/malfunctions in the technological processes in which they are used.

Art. 50 (1) Owners/users of cylinders or cylinder racks must use them in accordance with their own procedures and work instructions.

(2) Exceptions to the provisions of paragraph (1) shall be made for the use of fire extinguisher cylinders, which must be used in accordance with the instructions printed on their bodies.

Art. 51 Cylinder owners/users must use accessories that comply with the provisions of current legislation and applicable standards.

Art. 52 The user shall check the leak-tightness of the cylinder assembly or cylinder rack (battery), accessories, and appliance in accordance with the instructions in the user manual.

Art. 53 Conditions must be ensured at the point of use so that the fluid temperature does not exceed the parameters specified in the instructions for use; note that, in the case of carbon dioxide, the fluid temperature must not exceed 30°C.

Art. 54 Transferring gas from one cylinder to another cylinder or to other containers is prohibited.

Art. 55 (1) The cylinders referred to in Art. 4, para. (1), letter (b), item (1), (II) may be used only if periodic technical inspections confirm that they can operate safely.

(2) Composite cylinders are used until the end of their service life as specified by the manufacturer.

(3) For the cylinders referred to in Article 4, paragraph (2), the service life is that specified in the applicable legislation in force.

(4) At the end of their service life, cylinders are taken out of service and disposed of in accordance with the provisions of Chapter VIII.

CHAPTER V

PERIODIC TECHNICAL INSPECTION AND PERIODIC INSPECTION

SECTION 1

General provisions

Art. 56 Cylinders are subject to the following types of in-service technical inspections:

- a) due on:
 - 1) periodic inspection of the cylinders referred to in Article 4, paragraph (1), letters a) and b), letters 1) and 2), I), within the deadlines specified in the ADR;
 - 2) periodic technical inspection of the cylinders referred to in Article 4, paragraph (1), letter (b), point (1), (II), within the deadlines from Annex No. 2;
 - 3) periodic technical inspection of the cylinders referred to in Article 4, paragraph (2), at the intervals specified by the manufacturer or those specified in the applicable standards.
- b) after the repair works;
- c) when the specialized inspector from ISCIR (during scheduled and unscheduled inspections) or the RSL-IP of the legal entity referred to in Article 8, paragraph (1), where applicable, has reasonable grounds to believe that such a verification is necessary.

Art. 57 (1) Periodic inspections shall be carried out by designated (notified) bodies.

(2) Periodic technical inspections are performed by legal entities authorized to conduct in-service technical inspections, which are listed in the ISCIR registry of authorized legal entities as specified in the applicable technical regulation.

(3) The legal entities referred to in paragraph (2) must ensure that the conditions required by the applicable technical standards and specifications for conducting this verification are met.

Art. 58 (1) The RSL-IP designated in the authorizations of the legal entities referred to in Art. 57, letter (2), may set shorter intervals for performing periodic technical inspections based on the technical condition and age of the cylinder, but not less than one year.

(2) The grace period granted for the next in-service technical inspection may not exceed the grace period granted for the previous inspection.

(3) The owner/user is responsible for ensuring that the technical inspection is performed within the required deadlines.

Art. 59 (1) The RSL-IP designated in the authorization of the legal entity referred to in Art. 57, letter (2), shall perform at least the following activities:

- a) verification of identification and preparation for inspection, in accordance with the provisions of Article 60;
- b) external inspection, in accordance with the provisions of Articles 61 and 62;
- c) internal inspection, in accordance with the provisions of Article 63;
- d) verifying that the additional examinations have been conducted, in accordance with the provisions of Article 64;
- e) checking the neck of the cylinder and the neck piece, according to the provisions of art. 65;
- f) hydraulic pressure test, in accordance with the provisions of Articles 66–74;
- g) tightness test, in accordance with the provisions of Articles 75–77;
- h) inspection of the closure fittings, in accordance with the provisions of Articles 78–81;
- i) verification of the final operations, in accordance with the provisions of Articles 82–85;
- j) checking the weight and capacity (of liquefied gas cylinders), in accordance with the provisions of Articles 86–88;

(2) In the case of acetylene cylinders, the RSL-IP designated in paragraph (1) shall perform the in-service technical inspection in accordance with the provisions of Articles 89–93.

SECTION 2

Verification of identification and preparation for verification

Article 60 (1) The verification of the identification of the cylinder and its preparation for verification shall consist of:

- a) identification of the cylinder, the gas content and the owner/user;
- b) identification of the ‘H’ marking in the case of cylinders manufactured or approved as cylinders for hydrogen or other gases which may cause fragility of the cylinder material;
- c) checking for depressurization and emptying; special attention is paid to cylinders containing flammable, toxic, or oxidizing gases to eliminate risks during the internal inspection phase;
- d) checking that the fittings are working properly.

(2) Cylinders that are incorrectly labeled, contain an unknown gas, or cannot be safely emptied are set aside for further processing.

SECTION 3

External verification

Art. 61 In order to carry out the external check, each cylinder must be cleaned of traces of oxides, corrosion, tar, oil or other foreign bodies by an appropriate method, according to the applicable standards.

Art. 62 The external inspection consists of:

- a) verification of compliance with the conditions set out in Article 13, (1);
- b) verification of the integrity of all permanent attachments;
- c) verification of the existence of unauthorised modifications.

SECTION 4

Subsequent verification

Art. 63 (1) The interior surfaces of the cylinders shall be inspected for any defects, damage, or signs of corrosion.

(2) The interior inspection shall be performed using an endoscope and, where appropriate, supplemented by an ultrasonic measurement of the wall thickness in accordance with applicable standards, by legal entities authorized by ISCIR in this field, and the wall thickness of the cylindrical part and the deep-drawn bottom must not be less than that stamped on the cylinder body or that specified in the type approval; if, at least at one point, the measured thickness is less than the minimum permissible value, the cylinders shall be scrapped.

SECTION 5

Verification of the performance of additional inspections

Art. 64 In the case of hydrogen cylinders, a 100% UT (ultrasonic testing) inspection of the cylinder body shall also be performed to detect any microcracks, in accordance with applicable standards, by legal entities authorized by ISCIR in this field; if microcracks are found, the cylinders shall be scrapped.

SECTION 6-

Checking the cylinder neck and the neck fitting

Art. 65 As part of this inspection, each neck piece shall be inspected internally and externally to identify any defects, such as integrity issues, deformations, burns, cracks, or other types of imperfections, in accordance with the provisions of the applicable standards.

SECTION 7-

Hydraulic pressure test

Art. 66 The hydraulic pressure test shall be performed only if the results of the previous inspections were satisfactory.

Art. 67 (1) The hydraulic pressure test shall be performed using water or another neutral liquid at the pressure marked on the cylinder.

(2) The test shall be conducted in a room where the temperature is at least 15°C, with appropriate occupational safety measures in place; the maximum temperature of the test liquid shall not exceed 50°C, and the minimum temperature shall not be lower than the cylinder's minimum permissible temperature, but shall not be less than 7°C.

(3) The hydraulic pressure test shall be carried out in specially designated spaces.

Art. 68 (1) During the filling with the test liquid, measures must be taken to completely remove the air so that no air pockets are produced inside the cylinder.

(2) The liquid flow rate must be set so that the venting of air prevents the pressure in the cylinder from exceeding 0.5 bar during filling.

Art. 69 (1) During the hydraulic pressure test, the cylinder must be equipped with a second pressure gauge for monitoring, in addition to the test pressure gauge.

(2) The accuracy class of the test gauges must not exceed 2.5.

(3) Pressure gauges must be used in accordance with metrology regulations and must be selected so that the test pressure reading falls within the middle third of the scale.

Art. 70 (1) The hydraulic pressure test shall be carried out so that the pressure is raised and lowered continuously and without sudden changes.

(2) The rate of pressure increase shall not exceed 5 bar/min.

Art. 71 The holding time for cylinders at the test pressure is:

a) for cylinders referred to in Article 4, (1) letter (b) point 1) (II):

- 1) seamless cylinders: 2 minutes;
- 2) welded cylinders: 5 minutes.

b) for the cylinders referred to in Article 4, paragraph (2): the time specified in letter (a), unless the applicable standards specify a different value.

Art. 72 (1) It is forbidden to carry out any works in order to remove leaks, while the cylinder is under pressure.

(2) In order to obtain conclusive results, the external atmosphere of the cylinder should be as dry as possible in order to avoid condensation of water vapour.

Art. 73 After the holding time at the test pressure has elapsed, each cylinder shall be inspected, and the test shall be considered successful if none of the following are observed:

- a) visible plastic deformation, cracks or fissures in the cylinder components;
- b) leaks (droplets) or drips at non-detachable joints, where applicable, or at detachable joints.

Art. 74 Cylinders that do not pass the pressure test shall be taken out of service and scrapped in accordance with the provisions of Chapter VIII.

SECTION 8-

Leak test

Art. 75 A leak test shall be performed on cylinders containing toxic or flammable fluids.

Art. 76 (1) Cylinders shall be subjected to compressed air or inert gas at the cylinder's filling pressure and placed in a water bath for at least 3 minutes, with the valve in the closed position.

(2) If the leak test is performed using air, in the case of cylinders for flammable fluids, the cylinders must be purged with an inert gas after the test to remove the air from the interior, maintaining a residual pressure of up to 0.6 bar.

Art. 77 The leak test is considered successful if no air or gas leaks are detected, as applicable.

Art. 78 The inspection of the shut-off valve shall ensure its compatibility with the type of fluid used to fill the cylinder and compliance with applicable legislation regarding the conditions for placing the product on the market.

Art. 79 The shut-off valve shall be tested as follows: a locknut shall be installed on the valve, the valve shall be opened, and the test specified in art. 76 shall be repeated.

Art. 80 If it is necessary to clean the valve or replace the rubber gasket, only lubricants or gaskets made of materials that are compatible with and approved for the type of gas used to fill the cylinder may be used.

Art. 81 For the closure assembly of a cylinder filled with carbon dioxide, an inspection of the integrity of its rupture disc must also be performed.

SECTION 9-

Verification of the completion of final operations

Art. 82 These inspections verify that the cylinders have been dried, cleaned, and painted in a manner appropriate to the type of gas with which the cylinder is filled, in compliance with the provisions of the applicable standards.

Art. 83 The interior of the cylinders shall be dried using an appropriate method to ensure that all traces of the fluid used in the hydrostatic pressure test are removed, in accordance with the provisions of the applicable standards.

Art. 84 (1) If the cylinder needs to be repainted, this shall be done using paints with adequate durability and drying properties appropriate for the cylinder's construction material, in compliance with the provisions of the applicable standards.

(2) The repainting referred to in paragraph (1) shall be carried out by the legal entities referred to in Article 57, paragraph (2), or by the legal entities referred to in Article 98, paragraph (2).

(3) The legal entities referred to in paragraph (2) must have the necessary technical equipment to perform painting in accordance with the requirements of the applicable standards.

Art. 85 When installing the shut-off valve on the cylinder, the tightening torque must be checked, as well as the type of gasket used to ensure an optimal seal between the cylinder and the valve, and the compatibility of the gasket with the type of gas used to fill the cylinder.

SECTION 10-

Verification of mass and capacity

Art. 86 For the purpose of determining mass and capacity, cylinders must be cleaned both inside and out to completely remove any impurities.

Art. 87 (1) This verification shall be carried out by weighing using measuring instruments that comply with metrology legislation and are suitable for weighing the gross mass of the cylinders.

(2) The gross weight of the cylinder includes the weight of the cylinder, the valve assembly, and the permanent fittings.

(3) If the gross weight of the cylinder differs from the weight marked on the cylinder and this is not due to a weighing error, the original gross weight shall be voided and the correct weight shall be marked on the cylinder body.

Art. 88 For the cylinders referred to in art. 4, para. (1), letter b), point 1), II), the verification of the mass and capacity shall be carried out in compliance with the following requirements:

a) the mass of the cylinders must be determined by weighing with an accuracy of 0,1 kg, for cylinders up to and including 12 l and 0,2 kg, for those over 12 l;

b) if a difference of more than 1,5%, is found between the measured and the initial (inscribed) mass, if the volume is the same, punch the measured mass on the cylinder body;

c) the internal volume of the cylinder in litres is determined by the difference between the mass of the cylinder filled with water and the mass of the empty cylinder (the measurement being carried out at a temperature of 20°C) or by filling it with water using graduated vessels with divisions of 0,2 l. The capacity is determined with an accuracy of 0,1 l, for cylinders up to and including 12 l and 0,2 l for those over 12 l;

d) cylinders with a capacity of more than 12 l, where there is an increase in the capacity punched on the cylinder of more than 0,5%, without a corresponding decrease in mass, shall be decommissioned and discarded in accordance with the provisions of Chapter VIII.

*SECTION 11***Technical inspection of acetylene cylinders in service**

Article 89 The technical verification in service of acetylene cylinders shall consist of:

- a) verification of identification and preparation for inspection, in accordance with the provisions of Article 60;
- b) external inspection, in accordance with the provisions of Articles 61 and 62;
- c) verification of the mass of the cylinder, in accordance with the provisions of Article 91;
- d) verification of the quantity of the dissolver, in accordance with the provisions of Article 33;
- e) checking the condition of the porous mass according to the provisions of art. 92;
- f) internal verification (carried out on the occasion of the complete change of the porous mass), according to the provisions of art. 63;
- g) verifying the performance of the additional examinations (as a result of the verifications from letter e)), according to the provisions of art. 64;
- h) checking the neck of the cylinder and the neck piece, according to the provisions of art. 65;
- i) hydraulic pressure test (carried out when the porous mass completely changes), according to the provisions of art. 66 - 74;
- j) leak test (carried out when the porous mass completely changes), in accordance with the provisions of Article 93;
- k) checking the final operations according to the provisions of art. 82 - 85.

Article 90 The technical verification in use of acetylene cylinders shall be carried out within the following time limits:

- a) 5 years, for cylinders with non-monolithic mass;
- b) 10 years, for cylinders with monolithic mass.

Art. 91 The cylinder's weight shall be checked during the in-service technical inspection and before each filling; if it is found to be less than the marked weight, the cylinder must be topped off with the appropriate solvent.

Article 92 (1) During the inspections provided for in Article 90, an additional check of the porous mass shall also be carried out on cylinders into which less than 0.1 kg of acetylene can be filled per litre of the cylinder body's useful capacity, as well as on cylinders which, during filling, heat up to over 50°C.

(2) A check is also performed to ensure that the clearance between the top of the cylinder body and the porous material does not exceed the value specified in the type approval; if this value is unknown, the maximum distance must not exceed the value specified in the applicable standards.

(3) If the porous material is no longer satisfactory, provided that the cylinder meets the acceptance criteria, the porous material may be replaced in accordance with the manufacturer's instructions.

(4) The non-monolithic porous mass is filled in accordance with the manufacturer's instructions.

Art. 93 (1) After the porous mass has been filled, a leak test shall be performed in accordance with the manufacturer's instructions, in compliance with the provisions of Articles 75 and 76.

(2) After reducing the pressure to the maximum allowable pressure specified by the manufacturer, an external inspection of the cylinder shall be performed in accordance with the provisions of Article 89(b).

SECTION 12

In-service technical inspection of cylinder racks (batteries)

Art. 94 During technical inspections of cylinder racks (batteries) in service, the technical inspections specified in Art. 59 shall be performed for each cylinder contained in the rack (battery), as well as an inspection of the distributor and connecting pipes in accordance with the manufacturer's specifications in the accompanying technical documentation.

Art. 95 During the inspections provided for in Art. 94, the following shall also be verified:

- a) if the cylinders forming the frame (battery) comply with the provisions of Article 23;
- b) if the acetylene cylinders incorporated into the frame (battery) contain a porous material with the same service life.

SECTION 13

Conclusions of in-service technical inspections

Art. 96 (1) After the technical inspections have been carried out on the RSL-IP designated in the authorizations of the legal entities referred to in Art. 57, para. (2), a technical inspection report shall be drawn up in accordance with the template provided in Annex No. 6.

(2) If the results of the in-service technical inspection are satisfactory, the cylinder may continue to be used, and the date (year and month) of the next in-service technical inspection shall be set. This date is determined based on the type of fluid in accordance with the provisions of Annex 2, in the case of

cylinders referred to in Article 4, paragraph (1), subparagraphs (a) and (b), points 1) and II), respectively, and the provisions of the legislation in force or applicable standards for cylinders referred to in Article 4, paragraph (2), the environmental conditions and operating conditions, the cylinder's age in service, and its technical condition, and shall be marked by stamping (on the guard, on the top cap, or on the base, as applicable), in a visible and sustainable manner, as follows:

- a) the year (four digits)/month (two digits) of the next periodic technical inspection;
- b) the imprint of the RSL-IP punch.

(3) If the deadline set for the next periodic technical inspection is earlier than that specified in paragraph (2), the technical inspection report shall state the reasons for shortening this deadline.

(4) If the results of the in-service technical inspection are unsatisfactory, continued use is not permitted.

(5) It is prohibited to continue using the cylinder unless the requirements specified in the technical inspection report are subsequently met.

(6) The technical inspection report shall be kept by the legal entity at which the in-service technical inspection was performed.

(7) The legal entity referred to in paragraph (6) must provide the owner/user with a copy of the technical inspection report referred to in paragraph (1) at the time the cylinder is returned.

Art. 97 (1) The results of the inspections must be recorded in a log of in-service technical inspections prepared in accordance with the template provided in Annex 6.

(2) The table referred to in paragraph (1) must be maintained by the legal entity referred to in Article 57, paragraph (2).

(3) The table referred to in paragraph (1) may also be saved in electronic form.

(4) The technical inspection report and the table attached thereto must be retained by the legal entity at which the in-service technical inspection was performed for a period of 10 years.

CHAPTER VI

REPAIR

Art. 98 (1) The repair of the cylinders listed in Annex 1 shall be carried out in accordance with the provisions of this technical specification.

(2) Gas cylinders must be repaired by their manufacturer or by legal entities authorized by ISCIR and listed in the ISCIR registry of authorized legal entities, as specified in the applicable technical regulation.

(3) A license for cylinder repair is not required when the repair is performed by the cylinder manufacturer.

Art. 99 Repair of cylinders shall be carried out in the following cases:

- a) as a result of the findings from the filling;
- b) as a result of periodic technical inspections;
- c) as a result of the findings of the holder/user;
- d) whenever a defect is found which may endanger the functional safety of the cylinder.

Art. 100 (1) The repair work on cylinders carried out in accordance with the provisions of this technical prescription by the legal entity referred to in Article 98(2) is as follows:

- a) replacement of the closing fitting;
- b) replacement of breaking membranes in the following situations:
 - 1) if they are damaged;
 - 2) in the case of destruction;
 - 3) in the cases and at the intervals specified by their manufacturer.
- c) repairing the internal thread of the bottle neck;
- d) repairing the external thread of the bottle neck;
- e) replacement of the cylinder base; for seamless cylinders, the base may only be secured by brazing;
- f) filling the non-monolithic porous mass or replacing the porous mass and stamping it with the distinctive mark of the porous mass in the event of its replacement.

(2) Supervision and inspection during and upon completion of the repair work shall be carried out by the RSL-IP designated in the authorization of the legal entity referred to in Article 98, paragraph (2).

Art. 101 The replacement of breaking membranes, closing fittings or other accessories must be made with similar ones, accompanied by documents proving compliance with the requirements for placing on the market.

Art. 102 After carrying out the repair works provided for in art. 100, para. (1), the mass of the cylinder shall be measured and if it is different from that inscribed on the cylinder, depending on the provisions of the applicable technical prescription or the standard applicable at the date of manufacture of the cylinder, the new value shall be punched, cancelling the old one.

Art. 103 The repair, whether by hot or cold working, of permanent deformations of the cylinder is not permitted, nor is any work involving welding on the body of the cylinder's pressure vessel.

Art. 104 To perform the technical inspection following repairs, with a view to returning the vehicle to service, the RSL-IP designated in the authorization of the legal entity referred to in Art. 98, para. (2), shall carry out the activities provided for in Art. 59.

Art. 105 (1) The legal entities referred to in Art. 98, par. (2) must prepare and maintain a register of repair work in accordance with the template in Annex No. 7.

(2) The record-keeping register referred to in paragraph (1) may also be maintained in electronic form.

(3) The legal entities referred to in Article 98(2) must complete a "Declaration of Conformity" for repaired cylinders, drawn up in accordance with the template in Annex 8, a copy of which shall be provided to the owner/user.

CHAPTER VII

MALFUNCTIONS AND ACCIDENTS

Art. 106 (1) In the event of malfunctions that cause a filling station to cease operation or operate under unsafe conditions, as well as in cases of accidents involving the filling station, a cylinder, or a cylinder rack (battery), the natural or legal person using the filling station, the cylinder, or the cylinder rack, as applicable, is required to shut down the filling station, the cylinder, or the cylinder rack, as applicable, and to immediately notify ISCIR of the occurrence.

(2) In this case, at least the following information must be provided: the first and last name and position of the person making the report, how they can be contacted to obtain any additional information, the date, time, and location of the incident, the type of filling station, cylinder, or cylinder rack, as applicable, and the consequences of the incident/accident.

Art. 107 (1) A legal entity that uses a filling facility that has suffered a malfunction or where an accident has occurred has the following obligations:

a) take the necessary measures so that the situation caused by the damage or during the accident remains unchanged until the arrival of the ISCIR specialized inspectors, unless that situation would constitute a danger to the life and health of persons;

b) take all measures to ensure safety conditions, if the loading fluid is toxic, flammable, explosive and the like;

c) isolate, as much as possible, the work area of the filling station that is damaged or where the accident occurred;

d) prepare a report on the technical condition of the filling station immediately following the breakdown or accident, including photographs of the damaged filling station as well as the corrective actions taken prior to the arrival of ISCIR's specialized inspectors;

e) provide the specialized inspectors at ISCIR with the documents they request in connection with the activities carried out.

(2) The obligations referred to in paragraph (1) shall be fulfilled by the RSVTI operator of the licensed legal entity, as owner/user of installations/equipment in the ISCIR field, where applicable.

(3) If the authorized legal entity is not required to provide the RSVTI operator with the services referred to in paragraph (1), those obligations shall be fulfilled by RSL-IP.

Art. 108 Specialized inspectors from ISCIR must prepare a report documenting the damage or accident, in accordance with the template provided in Annex 9.

‘CHAPTER VIII DECOMMISSIONING AND DISPOSAL

Art. 109 (1) The decommissioning and disposal of cylinders shall be carried out by legal entities authorized by ISCIR to perform filling or repair activities.

(2) As an exception to the provisions of paragraph (1), fire extinguisher cylinders may also be decommissioned and disposed by the owner.

Art. 110 (1) Cylinders shall be taken out of service in the following cases:

a) if they have at least one of the defects specified in Article 13, paragraph (3), as well as the cylinders referred to in Articles 55, 74, and 88;

b) if, following inspections and tests conducted in accordance with the provisions of this technical regulation, during periodic technical inspections or after repairs, it is determined that the cylinders are no longer safe for use;

c) when cylinders have been damaged to the extent that they can no longer be used safely;

d) when compliance with the conditions for placing the product on the market cannot be demonstrated;

e) when the owner/user voluntarily returns the cylinders.

(2) Storing gas cylinders does not mean decommissioning them.

Art. 111 (1) Before destroying the cylinders, the fittings must be removed, the cylinders must be completely emptied, and they must be properly prepared for disposal.

(2) The destruction of cylinders shall be carried out in accordance with the specific procedures or work instructions of the legal entity or the holder referred to in Article 109, so as to ensure that they can no longer be used (it is recommended to crush them using a press, cut them, drill holes in them, or take similar measures).

(3) After disposal, a document shall be drawn up that must include the serial numbers, years of manufacture, cylinder type, type of fluid, and the manufacturer of the destroyed cylinders.

(4) The document referred to in paragraph (3) shall be prepared by the RSL-IP of the legal entity referred to in Article 109, paragraph (1), and signed by the holder's representative.

(5) In the case of fire extinguisher cylinders, the document referred to in paragraph (3) may be prepared by the owner.

Art. 112 The refilling and use of decommissioned and disposed cylinders is not allowed.

‘CHAPTER IX OBLIGATIONS AND RESPONSIBILITIES

SECTION 1 **General provisions**

Art. 113 Natural or legal persons authorized by ISCIR and owners/users of cylinders must comply with the provisions of Law No. 64/2008, as republished, with subsequent amendments and additions.

SECTION 2 **Obligations and responsibilities of owners/users**

Art. 114 In order to ensure safe operating conditions, owners/users have the following obligations and responsibilities:

- a) to use the cylinders in compliance with the provisions of this Technical Prescription;
- b) to inspect the cylinders to in-service technical inspections in accordance with the provisions of this technical specification;
- c) to comply with the provisions set forth in the inspection reports prepared by the specialized inspectors of ISCIR, or by the RSVTI operator where applicable, or those set forth in the technical

inspection reports prepared by RSL-IP in accordance with the provisions of this technical specification;

- d) to keep centralized records of the cylinders held;
- e) to keep records of the cylinders used;
- f) to use for the use of the cylinder personnel trained according to the provisions of the legislation in force.

SECTION 3

Obligations and responsibilities of natural or legal persons certified / authorised by ISCIR

Art. 115 In addition to the provisions of the applicable technical regulation, the obligations and responsibilities of legal entities registered in the ISCIR Register of Authorized Legal Entities, as provided for in the applicable technical regulation, that perform filling/repair activities are as follows:

- a) to carry out the activities for which they have been authorized according to their own procedures/work instructions and specific instructions developed by the manufacturer of the filling installation (where applicable), in compliance with the provisions of the applicable technical prescriptions, standards and regulations in force;
- b) to collect cylinders in any condition—regardless of wear, corrosion, or deformation—for sorting, even if they must be decommissioned or disposed;
- c) to prepare and distribute the safety data sheet for each type of gas, drawn up in accordance with the provisions of applicable law;
- d) to organize and operate its own call center to handle reports and complaints received from users, and to maintain a rapid response team equipped with appropriate communication tools to ensure a prompt response in such situations;
- e) to keep a register of reports and complaints received from users;
- f) to employ at filling facilities personnel authorized by ISCIR as "Group B pressurized fluid bottlers," in accordance with the provisions of the applicable technical regulation;
- g) to make available to its own staff its own procedures/work instructions regarding the performance of activities;
- h) to prepare and ensure the necessary conditions for carrying out the technical inspections;
- i) to issue upon completion of the filling or repair works the declaration of conformity set out in Annex no. 5, respectively in Annex no. 8;
- j) to dispose the decommissioned cylinders, according to the provisions of this technical prescription.

Art. 116 In addition to the provisions of the applicable technical regulation, the obligations and responsibilities of the RSL-IP are as follows:

- a) to monitor the execution by working phases of the filling and/or repair works, as the case may be, from the point of view of compliance with the provisions of this Technical Prescription;
- b) to supervise the activity of the service personnel authorized by ISCIR as "group B fluid pressure bottler";
- c) to draw up and keep up to date the filling register provided for in Annex no. 4 and the register of technical inspection works in use provided for in Annex no. 6 and the register of repair works provided for in Annex no. 7;
- d) to check that authorized activities are carried out in accordance with their own procedures/work instructions and the specific instructions provided by the manufacturer of the filling equipment (where applicable);
- e) to issue and endorse documents for the disposal of cylinders, in accordance with the provisions of this technical requirement.

Art. 117 For the purposes of this technical regulation, during the filling of cylinders, a Group B pressurized fluid bottler may not simultaneously act as an RSL-IP.

SECTION 4

Obligations and responsibilities of the RSVTI operator

Art. 118 In addition to the provisions of the applicable technical regulation, the duties and responsibilities of the RSVTI operator include overseeing the organization of and participating in professional training sessions for personnel authorized as "Group B pressurized fluid fillers".

SECTION 5

Obligations and responsibilities of the service staff

Art. 119 In addition to the provisions of the applicable technical regulation, the obligations and responsibilities of bottlers of Group B pressurized fluids are as follows:

- a) to be familiar with the filling system and how to operate it correctly;
- b) to understand and follow their own procedures and work instructions;
- c) to sort the cylinders in accordance with the provisions of this technical specification;

- d) to carry out cylinder filling operations in accordance with the provisions of this technical specification;
- e) not to intervene to repair leaks during filling, when the cylinder is under pressure;
- f) to perform degreasing in accordance with the provisions of this technical specification for cylinders containing oxygen or other oxidizing gases;
- g) to fill cylinders up to the maximum permitted fill level and maximum permitted working pressure for each type of gas;
- h) if the cylinders are mounted in a cylinder rack, fill them to the maximum permitted fill level and maximum permitted filling pressure;
- i) for dissolved gas cylinders, weigh the cylinder before filling and top it off with solvent, if necessary, in accordance with their own procedures/work instructions;
- j) to seal the cylinder closure fitting after filling the cylinder;
- k) to monitor the operation of safety devices, measurement and control systems, power supply devices, and similar equipment;
- l) to monitor the physical condition and integrity of machinery, equipment, fittings, pipes, and flexible hoses;
- m) to monitor the integrity of the earthing system;
- n) to monitor the physical condition of the extinguishing media.

CHAPTER X

ADMINISTRATIVE MEASURES

Art. 120 (1) In case of non-compliance with the obligations and responsibilities provided for in this Technical Prescription by the natural and legal persons authorized by ISCIR and by the specialized technical personnel certified by ISCIR, the following administrative measures shall apply to them, depending on their nature:

- a) warning for violation of the provisions of art. 118 and art. 119, letters a), b), l) - n);
- b) suspension for a period of up to 3 (three) months of the authorization of the natural/legal person or the certificate of the specialized technical staff, for violation of the provisions of art. 115, letters b) - e), g), h), j), art. 116, letters a) - e) and art. 119, letters c) - k);
- c) suspension for a period of 3 (three) months to 6 (six) months of the authorization of the natural/legal person or the certificate of the specialized technical personnel, for violation of the provisions of art. 115, letters a), f), i) and art. 117;
- d) withdrawal of the authorization of the authorized natural/legal persons or of the certificate of the specialized technical personnel;

e) the violation of the provisions of art. 114 leads to the application of the administrative measures provided in Law no. 64/2008.

(2) The application within 3 (three) months of two administrative measures provided in para. (1), letter a) leads to the application of the administrative measure provided in para. (1), letter b).

(3) The application within 1 (one) year of two administrative measures provided in para. (1), letter b) or letter c) leads to the application of the administrative measure provided in para. (1), letter d).

(4) The administrative measures provided for in paragraphs (1), (b) and (c) shall be applied in compliance with the legal provisions in force and the principle of proportionality.

(5) The administrative measures shall be ordered by ISCIR, by reasoned decision, based on the report concluded by the specialized inspector within ISCIR upon the verification carried out.

(6) Against the decision ordering the application of the administrative measure, the natural and legal persons authorized by ISCIR or the specialized technical staff certified by ISCIR may file an appeal with the competent court in compliance with the procedure provided for in the law on administrative-contentious.

CHAPTER XI

RATES

Art. 1 (1) The rates applied for activities performed by ISCIR in accordance with the provisions of this technical regulation are those established in the ISCIR rate list approved according to the applicable legislation in force.

(2) ISCIR carries out the activities specified in this technical regulation only for individuals and legal entities against whom no debt collection proceedings have been initiated under applicable law.

CHAPTER XII

TRANSITIONAL PROVISIONS

Art. 2 The provisions of this technical regulation shall apply in accordance with Section 5 of Annex 4 to Law No. 64/2008.

CHAPTER XIII

FINAL PROVISIONS

Art. 3 (1) Documents submitted to ISCIR must be drafted or translated into Romanian by a certified translator.

(2) Copies of documents submitted to ISCIR should be marked “True copy” and signed by the designated person.

Art. 4 Documents may also be submitted to ISCIR in electronic format once the single electronic contact point (PCU) provided for in Article 6 of Government Emergency Ordinance No. 49/2009 on the freedom of establishment of service providers and the freedom to provide services in Romania, as subsequently amended and supplemented, becomes operational.

Art. 5 The deadlines for processing applications submitted to ISCIR are those established in accordance with the applicable legal provisions.

Art. 6 Specialized inspectors from ISCIR are authorized to conduct unscheduled inspections of how holders/users, authorized individuals and legal entities, certified specialized technical personnel, and certified inspection personnel carry out their activities, taking, where necessary, the measures required to ensure compliance with legal provisions.

Art. 7 The activities specified in this technical specification shall be performed only on cylinders that comply with the requirements of the regulations in force at the time of their manufacture.

Art. 8 In the case of cylinders that, due to changes in their parameters, must comply with the requirements for placing on the market, the provisions of the applicable regulations must be followed.

Art. 9 In the case of filling facilities that do not meet operational safety standards, ISCIR inspectors are authorized to apply seals in accordance with legal provisions.

Art. 10 (1) To obtain an exemption from the provisions of this technical regulation, the applicant shall submit the following to ISCIR:

- a) application requesting an exemption from the provisions of the technical regulation;
- b) a explanatory note describing the situation;
- c) other documents supporting the request, as appropriate.

(2) Based on the submitted documentation, ISCIR approves or justifiably rejects the request in writing.

Art. 11 The illustrative list of standards used in this Technical Prescription can be found in Annex no. 11.

Art. 12 Annexes no. 1-11 are an integral part of this Technical Prescription.

Classification of cylinders

Designation	Parameters
Gas cylinders	
a) cylinders for compressed, liquefied or dissolved gases under pressure made of steel and aluminium alloys	$0.5 \text{ L} \leq V \leq 3000 \text{ L}$ $PS > 0.5 \text{ bar}$
b) cylinder frames (batteries)	$V \leq 3000 \text{ l}$ $PS > 0.5 \text{ bar}$
c) composite cylinders	$0.5 \text{ L} \leq V \leq 3000 \text{ L}$ $PS > 0.5 \text{ bar}$
d) cylinders for fire extinguishers and breathing apparatus	$0.5 \text{ l} \leq V \leq 150 \text{ l}$ $PS > 0.5 \text{ bar}$

Annex no. 2
to the Technical Prescription

Types of gases contained in cylinders constructed in accordance with the provisions of the applicable technical prescriptions and deadlines for periodic technical verification

No.	Name of the gas	Identification No. ADR	Chemical formula or structure	Properties				Maximum permissible filling pressure, p _{max} , bar	Maximum permissible loading pressure, p _{max} , bar	Hydraulic test pressure, pp, bar	Periodic inspection deadline, years
				Noncombustible	Toxic	Fuel	corrosive,				
A	Compressed gases										
1	Air	1002	-	X				-	250	1.5Pp P _{max}	10
2	Argon	1006	-	X				-	200	1.5 pp	10
3	Nitrogen	1066	N ₂	X				-	250	1.5 pp	10
4	Gas mixture	1956	5 % H ₂ ; 20 % N ₂			X		-	200	1.5 pp	10
5	Rare gas mixture	1079	Ar, He, Ne, Kr	X				-	200	1.5 pp	10
6	Carbogen		95%O ₂ ;5% CO ₂	X				-	200	1.5 pp	10
7	Deuterium	1957	d ₂			X		-	200	1.5 pp	10
8	Water gas	2600	CO + H ₂		X	X		-	250	1.5 pp	5(8)
9	Helium	1046	He	X				-	200	1.5 pp	10
10	Hydrogen	1049	H ₂			X		-	250	1.5 pp	10
11	Krypton	1056	KR	X				-	200	1.5 pp	10
12	Methane	1971	CH ₄			X		-	200	1.5 pp	10
13	Neon	1065	Ne	X				-	200	1.5 pp	10
14	Carbon dioxide	1016	CO		X	X		-	200	1.5 pp	5(8)
15	Oxygen	1072	O ₂	X				-	250	1.5 pp	10
B	Gaze lichefiate										
16	Fluorine (6)	1045	Ph _e 2	X	X		X	-	28	200	5
17	Calcium fluoride	1008	BF ₃	X	X			0.86		300	
18	Sample gas		-		X			0.37		40	5
19	Hydrobromic acid (6)	1048	HbR	X	X		X	1.54		60	3
20	Hydrofluoric acid	1050	HCl	X	X		X	0.74		200	3
21	Hydrocyanic acid	1026	HCN		X	X		0.70		100	5
22	Hydrofluoric acid		(HF) _n	X	X		X	0.84		10	5
23	Hydrogen Sulfides	1053	H ₂ S		X	X		0.67		55	5
24	Anhydrous ammonia	1005	NH ₃	X	X		X	0.53		33	5
25	Chlorine (6)	1017	Cl ₂	X	X		X	1.25		22	2
26	Sulfur dioxide	1079	SO ₂	X	X			1.23		14	3
27	Nitrogen monoxide (Nitrous tetroxide)	1067	N ₂ O ₄	X	X		X	1.3		10	3
28	Gas T		90% C ₂ H ₄ O 10 % CO ₂		X	X		0.73		28	5
29	Carbon dioxide	1013	CO ₂	X				0.75		250	10
30	Propane	1978	C ₃ H ₈			X		0.42		25	10
31	Cyclopropane	1027	C ₃ H ₈			X		0.53		20	10
32	Propylene	1077	C ₃ CH=CH ₂			X		0.43		30	10
33	Butane	1011	C ₄ H ₁₀			X		0.51		10	10
34	Isobutane	1069	C ₄ H ₁₀			X		0.49		10	10
35	Butadiene	1010	C ₄ H ₆			X		0.55		10	10
36	Butylene	1012	C ₄ H ₈			X		0.53		10	10
37	Isobutylene	1055	C ₄ H ₈			X		0.52		10	10
38	Mixture A (4)	1965	-			X		0.50		10	10
39	Mixture A0	1965	-			X		0.47		15	10
40	Mixture A1	1965	-			X		0.46		20	10
41	Mixture B	1965	-			X		0.43		25	10
42	Mixture C	1965	-			X		0.42		30	10

No. no.	Name of the gas	Identification No. ADR	Chemical formula or structure	Properties				Maximum permissible filling density $\rho_{f,20}$ / l	Maximum permissible loading pressure p_{max} , bar	Hydraulic test pressure p_p , bar	Periodic inspection deadline, years
				Noncombustible	Toxic	Fuel	corrosive,				
43	Ethane	1035	C ₂ H ₆			X		0.29		120	10
44	Ethylamine (7)	1036	C ₂ H ₅ NH ₂		X		X	0.61		10	10
45	ethylene	1962	C ₂ H ₄			X		0.34		225	10
46	Ethylene oxide	1040	H ₂ C CH ₂ O		X	X		0.78		15	5
47	Methyl Oxide	1033	CH ₃ OCH ₃		X	X		0.58		18	10
48	Methyl vinyl ether	1087	CH ₂ CHOCH ₃		X	X		0.67		10	10
49	Methyl chloride (6)	1063	CH ₃ Cl		X	X		0.81		17	10
50	Methyl bromide (6)	1062	CH ₃ Br		X	X		1.51		10	5
51	Ethyl chloride (6)	1037	C ₂ H ₅ Cl		X	X		0.80		10	10
52	Phosgen (Carbon Oxychloride)	1076	COCl ₂	X	X		X	1.23		20	3
53	Vinyl chloride (6)	1086	CH ₂ CHCl			X		0.8		12	10
54	Vinyl bromide (6)	1085	CH ₂ CHBr		X	X		1.37		10	10
55	Cartox	1041	90 % CO ₂ 10% C ₂ H ₄ O		X			0.66 0.75		190 250	10 10
56	Chlorcyan	1589	ClCN		X	X		1.03		20	3
57	Methylamine (7)	1061	CH ₃ NH ₂		X	X		0.58		13	10
58	Hexafluoroprene	2193	C ₃ F ₆	X				1.1		20	10
59	Dimethylamine (7)	1032	(CH ₃) ₂ NH		X	X		0.59		10	10
60	Dimethyl ether		(CH ₃) ₂ O			X		0.60		25	10
61	Difluoroethylene	1959	C ₂ H ₂ F ₂			X		0.77		250	10
62	Trimethylamine (7)	1083	(CH ₃) ₃ N		X		X	0.56		10	10
63	Methyl mercaptan	1064	CH ₃ SHCH		X	X		0.78		10	5(8)
64	Dichlorodifluoromethane R12	1028	CF ₂ Cl ₂	X				1.15		18	10
65	Dichloromonofluoromethane R21	1029	CHFCl ₂	X				1.23		10	10
66	R22 monochlorodifluoromethane	1018	CHF ₂ Cl ₂	X				1.03		29	10
67	Dichlorotetrafluoroethane R114	1958	CF ₂ Cl-CF ₂ Cl	X				1.3		10	10
68	Monochlorotrifluoroethane R133a	1983	CH ₂ O ₂			X		1.18		10	10
69	Monochlorodifluoroethane R142b	2517	CH ₂ CFCl			X		0.99		10	10
70	Octafluorocyclobutane R-C318	1976	C ₄ F ₈	X				1.34		11	10
71	Monochlorodifluoro-nobromomethane R12B1	1974	CF ₂ ClBr	X				1.61		10	10
72	Trifluoromonochloromethane R13	1022	CF ₃ Cl	X				1.04		190	10
73	Trifluoromethane R23	1984	CHF ₃					0.95		250	10
74	Trifluoromonoethylene R1113		F ₂ C = CClF			X		1.12		25	10
75	Trifluoromonobromomethane R13 B1	1009	CF ₃ Br	X				1.44		120	10
76	1,1 Difluoroethane R152a	1030	CH ₂ F-CH ₂ F			X					10
77	Mixture F1 (5)	1078	-	X				0.79		18	10
78	Mixture F2		-	X				1.23		12	10
79	Mixture F3		-	X				1.15		18	10
80	Sulphur content	1080	Science Fiction	X				1.03		29	10

No. no.	Name of the gas	Identification No. ADR	Chemical formula or structure	Properties				Maximum permissible filling pressure, bar	Maximum permissible loading, kg	Hydraulic test pressure pp, bar	Periodic inspection deadline, years
				Noncombustible	Toxic	Fuel	corrosive,				
81	nitrous oxide	1070	N_2O	X	X			1.04		70	10
82	Xenon	2036	Xe	X				0.68 1.24		180 130	10
C	Gaze dizolvate										
83	Emissions to water	2073	35-40 % NH_3 40-50 % NH_3				X	0.80 0.77		10 12	5 5
84	Acetylene	1001	C_2H_2			X			15	60	5; 10 in accordance with Article 93

Observations :

The maximum permissible filling level is equal to 0.95 times the density of the liquid phase at 50°C, and the vapor phase must not disappear below 65°C.

P_{max} = the maximum permissible pressure for filling portable compressed gas cylinders.

$P_p = 1.5 \times P_{\text{max}}$ – test pressure at 15 °C in the case of compressed gases; for liquefied gases, this is determined according to the vapour pressure at 70 °C (absolute pressure reduced by 1 bar, the minimum pressure being however 10 bar).

The gas mixtures referred to in points 38...42 shall be defined as:

- Mixture A has a vapor pressure not exceeding 11 bar at 70°C and a minimum density of 0.525 kg/l at 50°C;
- Mixture A0 = has a vapor pressure at 70°C that does not exceed 16 bar and a minimum density of 0.495 kg/l at 50°C;
- Mixture A1 = has a vapor pressure not exceeding 21 bar at 70°C and a minimum density of 0.485 kg/l at 50°C;
- Mixture B has a vapor pressure not exceeding 26 bar at 70°C and a minimum density of 0.450 kg/l at 50°C;
- Mixture C has a vapor pressure not exceeding 31 bar at 70°C and a minimum density of 0.440 kg/l at 50°C.

The gas mixtures referred to in points 77–79 shall be defined as:

- Mixture F_1 has a vapor pressure at 70°C that does not exceed 13 bar and a density at 50°C that is not less than that of dichloromonofluoromethane (1.30 kg/l);
- Mixture F_2 has a vapor pressure at 70°C that does not exceed 19 bar and a density at 50°C that is not less than that of dichlorodifluoromethane (1.21 kg/l);
- Mixture F_3 has a vapor pressure at 70°C that does not exceed 30 bar, and at 50°C it has a density that is not less than that of chlorofluoromethane (1.09 kg/l).

Aluminium cylinders or aluminium alloys shall not be used.

Copper valves are not allowed.

The service life may be extended to 10 years for aluminium cylinders.

to the Technical Prescription

Defects requiring the disposal of cylinders

Defects	Description
Defects of a physical nature	
If, at least at one point, the measured thickness is less than the minimum value specified in the design or S_{min}	
Local permanent deformations - bulges	Visible bulges on the cylinder body or exceeding 1% of the cylinder's nominal outside diameter
Local permanent deformations—indentations (dips)	Indentations in the cylinder body that are neither pitted nor bulged and that do not exceed 1% of the cylinder's nominal outside diameter, but whose depth exceeds 10% of their width (with a maximum depth of 10 mm on the body and 6 mm on the weld beads)
Notches or ridges	A defect involving displacement or bulging of the cylinder body material, where the depth of penetration exceeds 10% of the minimum theoretical wall thickness or 2% of the cylinder length, or where the remaining wall thickness after the notch or ridge is equal to S_{min1})
Notches or crossed ridges	The intersection of two or more notches or ridges
Local permanent deformations—indentations combined with notches or ridges	A defect in the cylinder body with notches or grooves, where the size of the cut is larger than the rejection limit for an individual defect
Uniform permanent deformations on the circular surface of the cylinder	A uniform increase in the cylinder diameter of more than 2% of the cylinder's nominal outside diameter
Cracks	A crack or fissure in the cylinder body
Material overlays	Exfoliation of the cylinder wall, which can be mistaken for a crack
Defects caused by corrosion	
Isolated pitting	Isolated pitting corrosion on the cylinder body with a concentration of more than one pit per 5 cm ² , where the penetration depth exceeds 30% of the original thickness, or the depth of the corrosion reduces the thickness to a value equal to S_{min} where the pit has a diameter greater than 5 mm
Corrosion pitting	A reduction in wall thickness over an area not exceeding 20% of the cylinder's surface area, where the depth of penetration exceeds 25% of the original thickness, or the measured thickness of any corroded area is equal to S_{min1})
Generalised corrosion	A reduction in wall thickness over an area exceeding 20% of the cylinder's surface area, if the depth of penetration exceeds 20% of the original thickness, or if the measured thickness is equal to S_{min1})
Chain pitting or linear corrosion	A series of pits or cavities arranged longitudinally or circumferentially, where the total measured length affected by corrosion exceeds the circumference of the cylinder and the measured thickness is equal to S_{min} , or the depth of penetration exceeds 25% of the original thickness.
Cracking corrosion	Associated or located corrosion in the immediate vicinity of welding seams when the penetration depth exceeds 0.4 mm

Defects	Description
Fire damage	
Local and/or generalized burns	Burn marks (material decarburization), localized heat-induced deformation, localized melting, and splatter from welding
Other local damage	Excessive local heating that caused: - burning the paint; - smoked paint if the remaining paint layer loses its adhesion; - contortions; - the melting of the metal components of the locking mechanisms.
Inscriptions	
The absence of at least one of the following inscriptions	- the logo of the construction company; - number and year of manufacture; - mass of the cylinder, in kg; - bottle capacity, in litres; - hydraulic test pressure, in MPa (bar).

¹⁾ $S_{\min}$ = minimum thickness of the cylinder wall.

Filling Record Book

No. no.	Serial number/year of manufacture; manufacturer	Cylinder capacity	Initial mass of the cylinder ¹⁾	Cylinder mass (measured) ¹⁾	Load pressure or load mass, as appropriate	Filling fluid	Due date of the next inspection	Declaration of conformity; (no. and date)	Notes
								First name, surname and signature RSL-IP ²⁾	
0	1	2	3	4	5	6	7	8	9

¹⁾ Applies to liquefied gas and acetylene cylinders.

²⁾ If the register is kept in electronic format, the signature shall be replaced by another form of identification.

HEADER OF THE LEGAL ENTITY

DECLARATION OF CONFORMITY

for cylinder filling

No.

Legal entity:

Address:

Trade register number/tax identification number:

Authorisation No. I hereby confirm, guarantee and declare on my own responsibility that the cylinders filled with on: in exchange for:, to which this declaration refers, do not endanger life, health, safety at work, do not cause a negative impact on the environment and are in accordance with the provisions of the technical prescription PT C 5-2025.

Legal representative/empowered representative,

.....

(first and last name, signature, and stamp)

Works Supervision Officer (RSL-IP)

.....

(first and last name, signature, and stamp)

Place and date of issue:

to the Technical Prescription

Technical Inspection Report

Name of the authorized legal entity	Technical Inspection Report¹⁾ No/DD/MM/YYYY	Address Municipality Str., no. County/sector Tel./Fax: Website:, email Authorisation No.:

Issued at the end of the periodic technical inspections conducted according to the Law No. 64/2008, as republished, and the technical prescription C 5-2025 for cylinders containing compressed, liquefied, or dissolved gases under pressure, with the inspection results recorded in the table in the appendix to this report, in accordance with the applicant's register of inspected cylinders.

The applicant from the locality str. county/ sector tax ID/J..... legal representative email The inspection was carried out at in str. no. county/sector tel./fax	
--	--

Periodic technical inspections were performed during the period by, acting as RSL-IP, certification no

Total number of cylinders inspected Total number of cylinders declared "PASSED" Total number of cylinders sent for repair Total number of cylinders sent for disposal
--

Legal representative of the legal entity subject to the audit (First and last name signature and stamp)	RSL-IP (First and last name signature and stamp)	Applicant's legal representative (First and last name signature and stamp)
---	--	--

¹⁾ A separate report is prepared for each type of gas

Annex to Technical Verification Report No/DD/MM/YYYY**Table of cylinders technically verified in use**

No.	Serial number/year of manufacture; manufacturer	Initial capacity inscribed on the cylinder	Cylinder capacity (measured)	Initial mass of the cylinder¹⁾	Cylinder mass (measured)¹⁾	Test pressure	Non-Destructive testing report No./Date	Type of porous mass²⁾	Final result of the inspections³⁾	Date of next in-service technical inspection⁴⁾	The reasons behind reducing the time limit⁵⁾	Notes
0	1	2	3	4	5	6	7	8	9	10	11	12

¹⁾ Applies to cylinders for liquefied gases and for gases dissolved under pressure.

²⁾ To be filled in for acetylene cylinders.

³⁾ Fill in as appropriate "PASSED" or "REJECTED"; for the declared "REJECTED" cylinders, mention: Repair/disposal, as appropriate.

⁴⁾ To be filled in the case of cylinders declared "PASSED".

⁵⁾ To be filled in in the case of cylinders for which a shorter maturity term is granted.

RSL-IP

(First and last name,
signature and stamp)

Annex no. 7
to the Technical Prescription

Register of repair works

No.	Serial number/year of manufacture; manufacturer	Initial capacity inscribed on the cylinder	Cylinder capacity (measured)	Initial mass of the cylinder ¹⁾	Cylinder mass (measured) ¹⁾	Test pressure	Non- Destructive testing report No./Date	Type of porous mass ²⁾	Date of next in- service technical inspection ³⁾	No of technical inspection report/date	First Name, Last Name RSL-IP	RSL-IP signature ⁴⁾	Notes
0	1	2	3	4	5	6	7	8	9			10	11

¹⁾ Applies to cylinders for liquefied gases and for gases dissolved under pressure.

²⁾ To be filled in for acetylene cylinders.

³⁾ To be filled in the case of cylinders declared "PASSED".

⁴⁾ If the register is kept in electronic format, the signature shall be replaced by another form of identification.

DECLARATION OF CONFORMITY

No.

We,,

(full name of the authorized legal entity)

.....,

(headquarters)

with registration certificate/authorization no. /,

We assure, guarantee, and declare on our own responsibility that the product/service

.....

(name, type or model, batch, batch or serial number, possibly sources and number of copies)

to which this declaration relates does not endanger life, health, safety at work, does not cause a
negative impact on the environment and is in accordance

with:.....

(title and/or number and date of publication of the normative document (s))

.....

(place and date of issue) (first and last name and stamp)

to the Technical Prescription

Report drawn up by the ISCIR specialist inspector

	Report inspection report no.	ISCIR⁵⁾ Address Telephone Fax
---	--	--

Issued today on the occasion of carried out in accordance with the provisions of ¹⁾ and the applicable technical specifications²⁾ for type with serial number and installation manual no., with the parameters of the last inspection

The owner from str. no. county/sector tax ID/J legal representative email

The user from str. no. county/sector tax ID legal representative

The inspection was carried out in from str. no. county/sector tel./fax I, the undersigned³⁾ noticed the following:

I have issued the following instructions:

Following this inspection, it was approved ⁴⁾

The due date of the next inspection shall be on

The fee for this inspection is lei, as specified in Annex Section, by in the town of str. no. county/sector in the account opened at the Bank/Treasury branch

I have read and understood the above

Representative Owner/ RSVTI Operator Designated Representative
ISCIR Authorized legal user

.....
.....

¹⁾ The normative act in force on the date the report was drawn up (Law No. 64/2008 on the safe operation of pressure equipment, lifting installations and fuel-burning appliances) is specified, as it served as the basis for the technical inspection.

²⁾ The applicable technical prescription on which the technical inspection was based shall be specified.

³⁾ Position, first name, and last name.

⁴⁾ The operating parameters of the installation/equipment are specified, depending on its type.

⁵⁾ Se precizează: ISCIR or the ISCIR Regional Inspectorate.

Appendix 10 to the Technical Prescription

Technical inspection report for the RSVTI operator

Name of the employer of the operator RSVTI or Name of the natural authorized person/legal entity authorized as an RSVTI operator and authorization number (if applicable)	Technical inspection report no.	RSVTI operator authorization no./expiration date ISCIR Power of Attorney No. (if applicable)
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Issued today on the occasion of, carried out in accordance with the provisions of ¹⁾ and the applicable technical regulations²⁾, for type with serial number and the installation manual with ISCIR registration/operational approval no., with the parameters of the last inspection

The owner from str. no. county/sector tax ID/J..... legal representative

The user from str. no. county/sector tax ID/J..... legal representative

The inspection was carried out at in str. no. county/sector tel./fax

I, the undersigned³⁾ noticed the following:

I have issued the following instructions:

Following this review, ⁴⁾ it was approved

The date of the next inspection is set for , according to the RSL IP report

I have read and understood the above

RSVTI Operator Owner User Delegate of Person

authorized legal entities

.....
.....

¹⁾ The normative act in force on the date the report was drawn up (Law No. 64/2008 on the safe operation of pressure equipment, lifting installations and fuel-burning appliances) is specified, as it served as the basis for the technical inspection.

- ²⁾ The applicable technical prescription, which served as the basis for the technical inspection, is specified.
- ³⁾ Position, first name, and last name.
- ⁴⁾ The operating parameters of the installation/equipment are specified, depending on its type.

Sample list of standards

SR EN 1442: LPG equipment and accessories. Portable, refillable, welded steel cylinders for liquefied petroleum gas (LPG). Design and manufacture.

SR EN ISO 3807: Gas cylinders. Acetylene cylinders. Basic requirements and type tests.

SR EN ISO 7866/AC: Gas cylinders. Refillable aluminium alloy seamless gas cylinders. Design, construction and testing.

SR EN ISO 7866/A1: Gas cylinders. Refillable seamless aluminium alloy gas cylinders. Design, construction and testing. Amendment 1.

SR EN ISO 11120: Gas cylinders. Refillable seamless steel tubes with water capacity from 150 l to 3000 l. Design, construction and testing.

SR EN 1964-3: Transportable gas cylinders. Specifications for the design and construction of transportable and refillable seamless steel gas cylinders with water capacity from 0,5 l up to and including 150 l. Part 3: Seamless stainless steel cylinders with an Rm value of less than 1100 Mpa.

SR EN 12862: Transportable gas cylinders. Specification for the design and construction of refillable transportable welded aluminium alloy gas cylinders.

SR EN 1251-2: Cryogenic containers. Portable, vacuum-insulated containers with a capacity of less than 1000 litres. Part 2: Design, execution, inspection and testing.

SR EN 12257: Transportable gas cylinders. Seamless, ring coated cylinders of composite material.

SR EN 12807: Equipment and accessories for liquefied petroleum gas (LPG). Portable, refillable steel cylinders for liquefied petroleum gas (LPG), with brass-brazed joints. Design and installation.

SR EN ISO 9809-1: Gas cylinders. Design, construction and testing of refillable steel gas cylinders and tubes, seamless. Part 1: Cylinders and tubes made of quenched and tempered steel, with a tensile strength of less than 1100 MPa.

SR EN ISO 9809-2: Gas cylinders. Design, construction and testing of refillable steel gas cylinders and tubes, seamless. Part 2: Cylinders and tubes made of quenched and tempered steel, with a tensile strength of 1100 MPa or greater.

SR EN ISO 9809-3: Gas cylinders. Design, construction and testing of refillable steel gas cylinders and tubes, seamless. Part 3: Cylinders and tubes made of normalized steel.

SR EN 13322-2: Transportable gas cylinders. Rechargeable, welded steel gas cylinders. Design and manufacture. Part 2: Stainless steel.

SR EN 13322-2/A1: Transportable gas cylinders. Rechargeable, welded steel gas cylinders. Design and manufacture. Part 2: Stainless steel.

SR EN 12245: Transportable gas cylinders. Cylinders completely wrapped in composite material.

SR EN 13110: LPG equipment and accessories. Transportable, refillable aluminium cylinders, welded, for liquefied petroleum gas (LPG). Design and manufacture.

SR EN 14427: LPG equipment and accessories. LPG cylinders, portable and refillable, fully wrapped, made of composite material. Design and manufacture.

SR EN 14140: LPG equipment and accessories. Portable, refillable, welded steel cylinders for LPG. Alternative design and construction solutions.

SR EN ISO 10961: Gas cylinders. Electron beam. Design, manufacture, testing and inspection.

SR EN 14638-1: Transportable gas cylinders. Rechargeable welded containers of a capacity of 150 litres or less. Part 1: Welded austenitic stainless steel cylinders designed using experimental methods.

SR EN 14638-3: Transportable gas cylinders. Rechargeable welded containers of a capacity of 150 litres or less. Part 3: Welded carbon steel cylinders designed using experimental methods.

SR EN 14638-3/AC: Transportable gas cylinders. Rechargeable welded containers of a capacity of less than or equal to 150 l. Part 3: Welded carbon steel cylinders designed using experimental methods.

ISO 11515 Gas cylinders – Reinforced composite cylinders, refillable, with a water capacity between 450 l and 3000 l – Design, construction and testing.

SR EN ISO 20475: Gas cylinders. Cylinder frames. Periodic inspections and tests.

ISO 10961: Gas cylinders – Cylinder frames – Design, manufacture, testing and inspection.

SR EN ISO 11623: Gas cylinders. Cylinders made of composite materials. Periodic inspection and testing.

SR EN ISO 10460: Gas cylinders. Welded gas cylinders made of aluminium alloy, carbon and stainless steel. Periodic inspection and tests.

SR EN ISO 18119: Gas cylinders. Seamless steel and aluminum alloy pressure cylinders and tubes for gas. Periodic inspection and tests.

SR EN ISO 18119/A1: Gas cylinders. Seamless steel and aluminum alloy pressure cylinders and tubes for gas. Periodic inspection and tests.

SR EN ISO 10462: Gas cylinders. Acetylene cylinders . Regular inspection and maintenance.