PART 4

PROVISIONS CONCERNING PACKAGING AND TANK

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CHAPTER 4.1

USE OF PACKINGS, INCLUDING INTERMEDIATE CONTAINERS FOR GRANÉS (IBCs) AND BIG PACKS

4.1.1 General provisions for the packaging of dangerous goods in Packaging, including IBCs and large packagings

Note 1: *For packaging of Class 2 and Subclass 6.2 products, the provisions of General of this Chapter only apply as indicated in item 4.1.8.2 (Subclass 6.2) And the applicable instructions for packaging contained in item 4.1.4 (P201 and LP02 for Class 2 and P620, P621, IBC620 and LP621 for Subclass 6.2).*

Note 2: *For packaging of Class 7 products - radioactive materials, also be met to* s provisions in the Rules of CNEN.

4.1.1.1 Hazardous products shall be packed in packages (including IBCs and large packagings) of good quality and strong enough to withstand The shocks and the loading operations normally present during the transport, Including transhipment between transport units and loading and unloading between Transport units and warehouses, as well as the removal of a pallet or After manual or mechanical handling. The packaging (Including IBCs and large packagings) must be constructed and closed so that, When prepared for transportation, avoid any loss of content that can be Normal conditions of carriage, vibration or

Temperature, humidity or pressure (resulting from altitude, for example). Packaging (Including IBCs and large packagings) must be closed according to the instructions Supplied by their manufacturers. During transportation, there can be no Hazardous waste adhering to the outside of packages or packages, IBCs and packaging big ones. These provisions apply to both new, reusable, Reconditioned or remanufactured for new, reusable, remanufactured, Reconditioned, and new, reusable or remanufactured large containers.

4.1.1.1.1 Packaging (including IBCs and large packagings) of dangerous goods Which meet the requirements of the IMDG Code International Maritime Organization (IMO) or the Technical Instructions of the

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Civil Aviation (ICAO) or the requirements based on the Recommendations for the Carriage of United Nations Hazardous Products, with legible marking, may be used in the Transport of dangerous goods, subject to periodic inspections. Established in this Regulation.

4.1.1.2 The parts of the packaging (including IBCs and large packagings) which They come into direct contact with dangerous products:

A) can not be affected or significantly weakened by such products;

(B) can not cause a dangerous effect, such as Reacting with or reacting with dangerous products; and

(C) shall not permit the penetration of dangerous products in a manner which Risk under normal conditions of carriage.

Where necessary, they shall be provided with treatment or coating Appropriate.

4.1.1.3 Unless otherwise provided in this Regulation, all packaging (Including IBCs and large packagings), other than inner packagings Shall be appropriate to a duly tested type design, in

Requirements of items 6.1.5, 6.3.5, 6.5.6 or 6.6.5, as applicable, and be submitted to the Conformity assessment process, regulated by Inmetro. Proof of the

Approval of the conformity assessment procedure shall be indicated by means of marking

Established in item 6.1.3 and the Inmetro Conformity Identification Seal.

However, IBCs are manufactured up to 180 days after the entry into force of this Regulation, and that

Conform to a standard design that has not been subjected to the vibration test of the item

6.5.6.13, or for which it has not been required to comply with the criteria of item 6.5.6.9.5

D), at the time of the fall test, may continue to be used.

4.1.1.4 When filling containers (including IBCs and large packagings) with

Liquids, sufficient clearance must be left to ensure that no leakage occurs.

Or permanent deformation of the package, as a result of an expansion of the liquid

Due to temperature variations that may occur during transportation. Except

When there is a specific prescription, liquids may not completely fill the

Packaging at a temperature of 55 ° C. In the case of IBCs,

Sufficient to ensure that at 50 ° C the

Not exceed 98% of its water capacity.

4.1.1.5 The inner packagings must be packaged in a

In such a way that, under normal conditions of carriage, they can not be broken,

Or leak their contents into the outer carton. The inner packagings

Containing liquids shall be packed with their closures

Within the outer packaging, in accordance with the guidance arrows prescribed in

Item 5.2.3.2. Inner packagings which can be easily broken or punctured,

Such as glass, porcelain, ceramics or certain plastics, etc., should be

Sidewalks within the outer packaging with suitable cushioning materials.

Possible content leaks can not significantly

Protective properties of the cushioning material, nor those of the outer packaging.

4.1.1.5.1 If the outer packaging of a combination packaging or packaging

Has been approved in the tests with different types of internal packaging,

Various combinations of such inner packagings may also be assembled within

Outer carton or large package. In addition, provided that a level

Equivalent performance is maintained, the following variations are allowed in the
Without the need to subject the volume to new tests:

(A) inner packagings of equivalent size or
Lower if:

(I) the inner packagings are of a design similar to that of the packagings
Tests (eg shapes: round, rectangular, etc.);

(Ii) the material of manufacture of the inner packaging (glass, plastic,
Metal, etc.) to offer resistance to impact and
Stacking equal to or greater than that of the inner packaging
Originally rehearsed;

(Iii) the inner packagings have apertures equal to or smaller than the
Inner packaging originally tested and the closure has a
(Eg threaded cap, locking cap, etc.);

(Iv) sufficient cushioning material is added
To fill gaps and prevent significant movement of
Inner packaging;

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(V) the inner packagings are oriented within the
Packaging in the same way as in the test volume.

(B) a smaller number of inner packagings may be used
Tests or a smaller number of alternative types of packaging
Described in item "a" above, provided
Cushion to fill voids and prevent movement.
Packaging.

4.1.1.5.2 The use of additional packaging in an outer packaging
(For example, an intermediate package or a container within a package
Required), in addition to what is required by the Instruction for Packaging is allowed,
Provided that all requirements are met, including those established in item 4.1.1.3 and,
Appropriate cushioning material should be used to prevent

Inside the package.

4.1.1.6 Hazardous products may not be placed in the same outer carton,
Or in large packagings, together with food, medicine or any other objects
Intended for human or animal use or consumption. However,
Together with other dangerous goods or other goods, provided that they do not
React dangerously to each other and do not provoke:

A) combustion and / or considerable heat release;

(B) release of flammable, toxic or asphyxiating gases;

C) formation of corrosive substances; or

D) formation of unstable substances.

4.1.1.7 Packaging containing wet or dilute substances should be
Closed so that the liquid content (water, solvent or desensitizing agent) does not fall,
During transport, below the prescribed limits.

4.1.1.7.1 Where an IBC is equipped with two or more
Series, the system closest to the transported substance shall be closed first.

4.1.1.8 Where there is a possibility of an increase in pressure in a
As a consequence of the emission of gases from the content (due to an increase in
Temperature or other causes), the packaging or the IBC may be
Provided that the gas emitted does not present a risk, for

Their flammability or the quantity emitted.

There must be a breather whenever there is a risk of dangerous overpressure
Due to the normal decomposition of the substances. The breather shall be so designed that,
When the packaging or IBC is in the intended position for transport,
Liquid leakage and penetration of foreign substances are avoided under
Transport.

4.1.1.8.1 Liquids should only be packed in
Internal pressures produced under normal conditions of transport.

4.1.1.9 Large packaging (new, reconditioned, remanufactured
Or reusable), and IBCs (new, remanufactured or reconditioned) must be capable of
Meet the tests specified in items 6.1.5, 6.3.2, 6.5.6 or 6.6.5, as applicable.
Prior to filling and dispatch, all packaging (including IBCs and packaging
Must be inspected to ensure that it is free from corrosion, contamination or
Other damage, and every IBC must also be inspected for proper operation.
Of your service equipment. All packaging (including large packaging)
Signs of lesser resistance compared to the approved
Such as visible damage such as holes and tears, should be discarded, reconditioned or
Remanufactured, so that it is able to meet the prescribed tests for the type-design,
Shall be subject to the conformity assessment procedure, which shall be governed by
Inmetro. Any IBC showing signs of decreased strength
Approved type design, shall be discarded, remanufactured or reconditioned, so that
Capable of complying with the prescribed tests for the standard design, and shall be submitted to the
Conformity assessment process, regulated by Inmetro.

4.1.1.9.1 It is the responsibility of the consignor to examine whether the reusable
Free from defects that could compromise its ability to withstand
Performance, and bears in a legible manner the mark established in item 6.1.3 and the Seal of
Identification of Inmetro Compliance, before each reuse.

4.1.1.9.1.1 Packaging (including IBCs and large packagings) of dangerous goods
The requirements of the IMDG Code of the
International Maritime Organization (IMO) or in the Technical Instructions of the
Civil Aviation (ICAO), or the requirements based on the Recommendations for the Carriage of
United Nations Hazardous Products, with legible marking, may be re-used
For the packaging of products or wastes classified as dangerous for carriage from

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That is free of defects, ensuring the tightness and compatibility of the product
Original product with the new product or waste to be transported, as well as compatibility between
Packaging and the same, observing the applicable periodic inspections established in the
This Regulation.

4.1.1.9.2. When a reusable packaging, after inspection, presents no

Of its components or present the mark established in item 6.1.3 and
The Inmetro Compliance Identification Seal are not legible, are forwarded to
Reconditioning, it is necessary that it be submitted, again, to the process of
Conformity assessment, regulated by Inmetro.

4.1.1.9.3 In the packaging refurbishing and refurbishing processes, the
Reconditioners and remanufacturers must carry out the complete cleaning of the packaging until the
Original condition when new and apply inspection that proves the non-existence of
Explosive and / or corrosive atmosphere. This cleaning must be proven by means of an award
Laboratory, Issued per laboratory no belonging at Companies
Remanufacturers / remanufacturers, where the remanufacturers / remanufacturers are responsible
Presentation of the award to all purchasers of its packaging, including
Bodies responsible for carrying out subsequent tests. The purchasers of
Reconditioned / remanufactured packaging and reconditioning / remanufacturer companies
Shall be jointly and severally liable for verifying their compatibility with the
Products that they wish to pack.

4.1.1.9.4 When packaging for the transport of dangerous substances is used
Flammable or susceptible to give rise to a cloud or to give off flammable vapors,
Appropriate measures should be taken to eliminate sources of ignition and to avoid
Hazardous electrostatic discharge during filling, transport and
substance.

4.1.1.9.5 Packaging, IBC and large plastic and metal packaging
Sufficient static electricity so that a discharge can activate
Means of initiation, ignition or operation, explosive substances and articles and / or
Packaged flammable liquids.

4.1.1.10 Liquids should only be packed in packaging, including IBCs, which
Adequate resistance to the internal pressure which can be formed under
Transport. Packagings and IBCs marked with hydraulic test pressure,

In accordance with the provisions of items 6.1.3.1 d) and 6.5.2.2.1, respectively, shall be

Filled only with liquids having a vapor pressure:

(A) such that the total gauge pressure within the package or IBC (or The vapor pressure of the contents plus the partial pressure of air or Other inert gases, minus 100 kPa) at 55 ° C, determined on the In the maximum filling degree, according to item 4.1.1.4, and to a Temperature of 15 ° C, is equal to or less than two thirds Of the test pressure marked on the package; or

B) at 50ºC, less than four sevenths of the sum of 100 kPa with the pressure Marked on the package; or

C) at 55ºC, less than two thirds of the sum of 100 kPa with the Marked on the package.

IBCs intended for the carriage of liquids may not be used for Transport liquids having a vapor pressure greater than 110 kPa (1,1 bar) at 50 ° C, or 130 kPa (1.3bar) at 55 ° C.

Examples of marking of the test pressures required for packaging (Inclusive IBCs), calculated according to item 4.1.1.10 (c).

No. UN	Name	Class	Group in Emba-Lagem	V_{p55} (KPa)	$(V_{p55)} \times 1.5$ (kPa)	$(V_{p55 \times 1 5)}$ Any less 100 (kPa)	Minimum pressure Of test (Gauge) Required according to item 6.1.5.5.4 (c) (kPa)	Minimum pressure Of test (Gauge) To be marked In packaging (kPa)
2056	TETRAHYDROFURAN	3	II	70	105	Referring to Fig	100	100
2247	n-DECAN	3	III	1.4	2.1	-97.9	100	100
1593	DICHLOROMETHANE	6.1	III	164	246	146	146	150
1155	DIETYL ESTER	3	I	199	299	199	199	250

Note 1: *For pure liquids, the vapor pressure at 55C (V_{p55}) can be obtained from Scientific Tables.*

Note 2: *The Table refers only to the use of the provisions set out in 4.1.1.10 C), which means that the marked test pressure must be greater than 1,5 times the pressure*

Steam at 55 ° C minus 100 kPa. When, for example, the test pressure for n-Decane is determined in accordance with 6.1.5.5.4 a), the minimum test pressure may be less marked.

Note 3: *For diethyl ether, the minimum test pressure required, in accordance with item 6.1.5.5.5 is 250 kPa.*

4.1.1.11 Empty and unclean packaging (including IBCs and large packagings) which Dangerous goods are subject to the same Regulation for full packaging, in compliance with Chapter 3.5.

4.1.1.11.1 The transport of empty and unclean LPG containers for the purpose of Requalification, can be transported taking into account the Which regulate the requalification services of transportable LPG containers.

4.1.1.12 Every package, as specified in Chapter 6.1, intended to contain Shall be subjected to an appropriate leakproofness test and Test indicated in item 6.1.5.4.3:

(A) before being used for transport for the first time; and

(B) after reconditioning or refurbishing, and before being re-used In transportation.

For this test, the packaging need not have Locking devices installed. The inner container of composite packagings may be tested Without the outer packaging provided that this does not affect the results of the test. This essay Not required for inner packagings of combination packagings or packagings big ones.

4.1.1.13 Packaging (including IBCs) used for solids that can be Liquefied at temperatures normally encountered in transport should also be Capable of containing such substances in a liquid state.

4.1.1.14 Packaging (including IBCs) used for Granules shall be dust-proof or coated.

4.1.1.15 In the case of plastic drums and cylinders, hard plastic IBCs and IBCs Internal plastic containers unless otherwise approved by Period of time allowed for the transport of Shall be five years from the date of manufacture of the

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A shorter duration is prescribed taking into account the nature of the substance to be Transported.

4.1.1.15.1 The IBC manufacturer of hard plastics and composite IBCs shall ensure that Marking established in item 6.1.3. And the Conformity Identification Seal has Duration of at least 5 years.

4.1.1.16 When ice is used as the refrigerant, there can be no Integrity of the packaging.

4.1.1.17. Explosives, self-extinguishing substances and organic peroxides

Unless otherwise provided in this Regulation, the packaging, IBCs and large packagings, used for Class 1 Self-reactive substances of Subclass 4.1 and for organic peroxides of Subclass 5.2 shall comply with the provisions applicable to substances presenting an average risk (Packing Group II).

4.1.1.18 Use of rescue packages

4.1.1.18.1 Packaging, including empty and uncleaned, damaged, defective, Or non-conformities, or hazardous products Spilled or leaked, may be carried in the In items 6.1.5.1.11. This does not prevent the use of larger, Level of performance, under the conditions set out in items 4.1.1.18.2.

4.1.1.18.2 Provision must be made to avoid excessive movement of Damaged or leaking packaging inside the rescue package. When the Contain liquid, a sufficient amount of Absorbent material to eliminate the presence of free liquid.

4.1.1.18.3 Appropriate measures should be taken to prevent any further Pressure.

4.1.1.18.4 The appropriate shipping name, the UN number preceded by the letters "UN" or "UN", the applicable risk labels and other symbols required by Chapter 5.2, applicable to dangerous products contained in the salvaged packaging, shall be

Applied to the rescue package when transported.

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4.1.1.19 Use of pressure vessels

4.1.1.19.1 In the case of damaged, defective
Leakage or presenting non-conformities, pressure relief
Be used, according to item 6.2.3.

Notice: *A pressure vessel can be used as a*
According to item 5.1.2 and, in this case, the marking shall be in accordance with the
To the provisions of item 5.1.2.1.

4.1.1.19.2 Pressure vessels shall be placed in pressure vessels
Of adequate size. More than one pressure vessel can be placed in the
Same container under rescue pressure only when the contents of the containers
Known and do not react dangerously between them (see item 4.1.1.6). Should be
Measures to prevent movements of pressure vessels within the
Container, such as partitions, fasteners or
damping.

4.1.1.19.3 A pressure vessel may only be placed in a container under pressure.
Rescue pressure if:

(A) the pressure relief vessel is in accordance with item 6.2.3.5
And a copy of the certificate of approval is available;

(B) parts of the container under rescue pressure which are or may be
In direct contact with dangerous products are not affected or weakened
Products and do not cause a dangerous effect (for example, by catalyzing reaction or
Reacting with dangerous products); and

(C) the components of the pressure vessel are limited in
Pressure and volume, so that in case of complete discharge into the pressure vessel
The pressure in that vessel at 65 ° C does not exceed its test pressure (for

See Instruction for Packaging P200, (3), in item 4.1.4.1). The
Reduction of the usable water capacity of the vessel under rescue pressure, for
For example, by any equipment contained or by damping material.

4.1.1.19.4 The appropriate shipping name, the UN number preceded by the letters "UN" or "UN", the applicable risk labels and other symbols required by Chapter 5.2, applicable to dangerous products contained in the pressure vessel shall be
Applied to the rescue pressure vessel when transported.

4.1.1.19.5 Vessels under rescue pressure shall be cleaned, degassed and
Visually inspected, internally and externally, after each use. They must be
Periodically inspected and tested, according to item 6.2.1.6, at least one
Every five years.

4.1.2 Additional general provisions for the use of IBCs

4.1.2.1 Where IBCs are used for the transport of liquid
Glow of 60 ° C (determined in closed vessel test) or
Dust explosion, steps must be taken to avoid electrostatic discharge
Dangerous.

4.1.2.1.1 Carriage of flammable liquids with a flash point below
37.8 ° C in hard plastic IBCs (31H1 or 31H2) and compound IBCs for liquids (31HZ1).
Only metallic IBCs, manufactured, marked and tested in accordance with
In Chapter 6.5, may be used to store and transport these liquids
Flammable.

4.1.2.1.2 Hard plastic IBCs manufactured, marked and tested in accordance with
Chapter 6.5 and used for the transport of flammable liquids, with
Flash point greater than 37.8 ° C and less than 60 ° C shall be antistatic and
Device on the outlet valve connected to a grounding cable, which must be
Connected to the metallic structural equipment. These IBCs must be
May operate in classified areas where flammable vapors are present.

Notice: For the transport of flammable liquids with a flash point greater than or equal to

60 ° C, such IBCs need not be unsightly or have grounding devices,
And may not be handled in areas where flammable vapors are present.

4.1.2.1.3 The transport of flammable liquids, regardless of their
IBC composite with flexible plastic inner container (31HZ2) or bags
Inside boxes.

4.1.2.2 Any IBC metal, rigid plastic or composite, shall be inspected and
Tested, as appropriate, in accordance with 6.5.4.4 or 6.5.4.5:

(A) before being put into service;

B) thereafter, at intervals of up to two and a half years or five years,
As appropriate; and

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(C) after reconditioning and before being re-used for the
transport.

The IBC may not be filled or offered for carriage after the date
Of the last test or periodic inspection. However, the contents of IBCs
Filled before the expiry date of the last test or the last periodic inspection,
Be transported for a maximum of three months after
expiration. In addition, IBCs may be transported after the date of expiry of the last
The latest periodic inspection:

(A) after being emptied, but before being cleaned for the purpose of
The performance of the required tests or for prior
Recharging; and

(B) unless otherwise provided by the competent authority, by a
Period of up to six months after the date of expiry of the last test or
Periodic inspection in order to allow the return of products or waste
Dangerous for proper recycling or disposal. In this case, the
Transport document shall refer to that exemption.

4.1.2.3 IBCs of type 31HZ2 shall be filled up to at least 80% of the volume
Of the outer container and are always transported in closed transport units.

4.1.2.4 Except in the case of periodic inspection of metal IBCs, IBCs of Composite IBCs or flexible IBCs carried out by their Which has the name of the country and its name or symbol permanently marked in the IBC, the Reconditioners must mark the IBC durably and close to the "UN" mark of the project type manufacturer to **show:**

(A) the country where the reconditioning was carried out;

(B) the authorized name or symbol of the part that has undergone reconditioning.

4.1.3 General Instructions for Packaging Instructions

4.1.3.1 Section 4.1.4 specifies instructions for packaging applicable to products Classes 1 to 9. Such instructions are subdivided according to the type of To which they apply:

Item 4.1.4.1 for packaging, not including IBCs or packages Large ones: these instructions are designated by a code Alphanumeric beginning with letter "P";

Item 4.1.4.2 for IBCs: these instructions are designated by a code Alphanumeric beginning with the letters "IBC";

Item 4.1.4.3 for large packagings: such instructions are designated by An alphanumeric code beginning with the letters "LP".

In general, the Packaging Instructions specify that The general provisions of items 4.1.1, 4.1.2 and / or 4.1.3, as the case may be. They May also require compliance with special provisions of items 4.1.5, 4.1.6, 4.1.7, 4.1.8 or 4.1.9, where appropriate. They may also specify special provisions in the Instruction for Packaging, applicable to specific substances or articles. These provisions Are also designated by alphanumeric codes covering letters:

"PP" for packaging, not including IBCs or large packagings

"B" for IBCs

"L" for large packages.

Unless otherwise specified, all packaging shall meet the Applicable requirements of Part 6. Generally, the Packaging Instructions do not provide Orientation on compatibility; Therefore, the user can not select a Without checking whether there is compatibility between the substance and the Packaging (eg most fluorides are unsuitable for of glass). When a Bill of Materials Instruction permits glass containers, Porcelain, ceramic or earthenware containers.

4.1.3.2 Column 10 of the List of Hazardous Products indicates, for each article or Packaging instructions to be used. Column 11 indicates the Special Packaging Provisions applicable to specific substances or articles.

4.1.3.3 Each Instruction for Packaging shows, when applicable, the packaging Simple and combined. It also indicates, for combination packagings, Acceptable internal and external packaging and, where applicable, the maximum quantity In each inner or outer carton. The maximum net mass and capacity are Defined in item 1.2.1.

4.1.3.4 The following packagings may not be used Are liable to liquefy during transport.

Packaging:

Drums	1D and 1G
Boxes	4C1, 4C2, 4D, 4F, 4G and 4H1
Bags	5L1, 5L2, 5L3, 5H1, 5H2, 5H3, 5H4, 5M1 and 5M2
Compound packs	6HC, 6HD2, 6HG1, 6HG2, 6HD1, 6PC, 6PD1, 6PD2, 6PG1, 6PG2 and 6PH1

Large packaging:

Flexible plastic	51H (outer carton)

IBCs:

For substances in Packing Group I: all types of IBCs.

For substances in Packing Groups II and III:

wood	11C, 11D and 11F
Cardboard	11G
Flexible	13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2
Compound	11HZ2 and 21HZ2

4.1.3.5 When the Packaging Instructions permit the use of a type

Particular packaging (eg 4G; 1A2), packagings which carry the same

Identification code followed by the letters "V", "U" or "W", marked in accordance with

(Eg 4GV, 4GU or 4GW, 1A2V, 1A2U or 1A2W), may

Also be used under the same conditions and with the same limitations as those

To that type of packaging in accordance with the Packaging Instructions

Relevant. For example, a combination package marked with the

"4GV" identification may be used where the combined packaging marked with

"4G" is authorized, provided that the requirements of the Packaging Instruction

Type of internal packaging and quantity limitations.

4.1.3.6 Pressure vessels for liquids and solids

4.1.3.6.1 Unless otherwise provided in this Regulation, receptacles under

That meet:

(A) the applicable requirements of Chapter 6.2; or

B) national and international standards on design, construction, testing, Manufacturing and inspection, as applied by the country in which pressure containers are manufactured, with the proviso that they are

observing the provisions of paragraphs 4.1.3.6 and 6.2.3.3,

may carry any liquid or solid substance, other explosives, thermally unstable substances, organic peroxides, autorreagentes substances, substances which can develop a significant increase in pressure, evolution of chemical reaction and radioactive material (unless authorized by the Commission National Nuclear Energy - CNEN).

This item does not apply to substances listed in Table 3 of Instruction Packing for P200, provisions of item 4.1.4.1.

4.1.3.6.2 Every design type of pressure vessel must be approved by competent authority of the country of manufacture or as indicated in Chapter 6.2.

4.1.3.6.3 Unless otherwise noted, containers should be used under pressure with a minimum test pressure of 0.6 MPa.

4.1.3.6.4 Unless otherwise noted, pressure vessels should be equipped with a device for pressure relief to be activated in an emergency to avoid they explode in the event of overload or fire accident.

The valves of pressure receptacles shall be designed and manufactured so that they can withstand damage without causing leakage of contents or be protected against any damage that may cause accidental leakage of contents pressure vessel using one of the methods described in paragraph 4.1.6.1.8 a) to e).

4.1.3.6.5 The pressure vessel can be filled with more than 95% of its capacity at 50 ° C. It should be left sufficient ullage to ensure that at a temperature of 55 ° C, the vessel contents under pressure does not liquify fully.

4.1.3.6.6 Unless otherwise noted, pressure vessels should be

submitted to inspection and periodic test every five years. Periodic inspection must consist of an external examination, an internal examination or alternative method as approved by the competent authority, a pressure test or any test method not equivalent destructive to count with the approval of the competent authority including

inspection of all accessories (eg tightness of valves, for device pressure relief to be activated in emergency or fusible elements). Receptacles pressure can not be filled after the date marked for inspection and testing periodic, but they may be carried after the expiration date limit. Repairs of pressure vessels must meet the requirements specified in item 4.1.6.1.11.

4.1.3.6.7 Prior to filling the pressure vessel must be inspected and must It is assured that it is permitted for the substances to be transported and that was complied with the provisions of this Regulation. After filling the contents in the container, the Safety valves should be closed and remain closed during transport. O dispatcher should check for leaks by closures or equipment.

4.1.3.6.8 The refillable pressure can not be filled with a substance different from that previously contained previously, unless they have been made the necessary operations for change of service.

4.1.3.6.9 The marking of pressure receptacles for liquids and solids, according with paragraph 4.1.3.6 (non-compliant with the requirements of Chapter 6.2) shall meet requirements of the competent authority of the country of manufacture.

4.1.3.7 Packages or IBCs not specifically authorized in the Instruction suitable for packaging in case, they can not be used to transport a substance or article, except by specific approval of the competent authority and since:

The) such packaging complies with the general provisions of this Part;

B) when the packing instruction indicated in Relationship Hazardous products to indicate, the alternative packaging meets the requirements of Part 6;

w) the competent authority determines that the alternative packaging presenting at least the same level of security that the substance It would be packed according to a specific method prescribed in instruction for particular packaging indicated on Relationship Products dangerous;

(D) each consignment is accompanied by a copy of the approval the competent or the transport document includes an indication that alternative packaging was approved by the competent authority.

Notice: *The competent authority grants approval for use of packaging alternatives must notify the National Land Transportation Agency - ANTT to change the provisions relating to the approval performed.*

4.1.3.8 Unpackaged articles, other than those of Class 1 articles

4.1.3.8.1 When robust articles and large can not be packaged accordance with the provisions of Chapters 6.1 or 6.6, and have to be transported empty, decontaminated and without being packed, the competent authority may approve such transport, taking into account that:

a) robust and large items should be strong enough to withstand the shocks that occur and shipments normally encountered during transport, including transfers between different transport units and loading and between transport units and warehouses as well as the removal of a pallet for subsequent manual or mechanical handling;

b) All closures and openings shall be sealed so that in normal conditions of carriage, no loss occurs content caused by vibrations or temperature variations, humidity or pressure (resulting from altitude, for example). There should be no residue dangerous adhered to the outside of the articles robust and large;

c) the parts of rugged products and large that contact direct with dangerous goods:

(I) should not be affected or significantly weakened by those dangerous goods; and

(Ii) should not cause hazardous effects, such as, e.g. catalyze a reaction or reacting with the dangerous goods.

d) robust and large articles containing liquids shall
be accommodated and fastened to ensure that during transport
They do not suffer permanent damage or deformation;

e) shall be fixed in cradles or crates or other
handling device, so that they are not released when
under normal conditions of transport.

4.1.3.8.2 Articles unpackaged approved by the competent authority in accordance with the provisions of item 4.1.3.8.1 shall be subject to the procedures Expedition Part 5 of this Regulation. Moreover, the shipper of such items should ensure that a copy of the approval accompanies the robust articles and great size during transport.

NOTE : *A robust product and large may include a flexible system fuel tank, military equipment, machine or equipment containing dangerous goods above the limited quantity fixed .*

4.1.4 Click for packaging, IBCs and large packagings

4.1.4.1 Click for packaging (except IBCs and large packagings)

P001 PACKING INSTRUCTION (LIQUIDS) P001

The following packagings are permitted provided that the general provisions of items 4.1.1 and 4.1.3 are met.

		Capacity / Net mass Maxims (see section 4.1.3.3)		
		Group of package I	**Group of package II**	**Group of package III**
combination packagings				
Packing Internal	**External packaging**			
-Glass 10L -plastic 30 L -Metal 40 L	**drums**			
	-aço (1A1, 1A2)	250 kg	400 kg	400 kg
	aluminum hydride (1B1, 1B2)	250 kg	400 kg	400 kg
	-another metal (1N1, 1N2)	250 kg	400 kg	400 kg
	-plastic (1H1, 1H2)	250 kg	400 kg	400 kg
	-compensado (1D)	150 kg	400 kg	400 kg
	-papelão (1G)	75 kg	400 kg	400 kg

boxes

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-aço (4A)	250 kg	400 kg	400 kg
aluminum hydride (4B)	250 kg	400 kg	400 kg
-another metal (4N)	250 kg	400 kg	400 kg
natural -wood (4C1, 4C2)	150 kg	400 kg	400 kg
-compensado (4D)	150 kg	400 kg	400 kg
-wood reconstituted (4F)	75 kg	400 kg	400 kg
-papelão (4G)	75 kg	400 kg	400 kg
-plastic expanded (4H1)	60 kg	60 kg	60 kg
hard -plastic (4H2)	150 kg	400 kg	400 kg
jerricans			
-aço (3A1, 3A2)	120 kg	120 kg	120 kg
aluminum hydride (3B1, 3B2)	120 kg	120 kg	120 kg
-plastic (3H1 and 3H2)	120 kg	120 kg	120 kg
Simple packaging			
drums			
-aço, non-removable head (1A1)	250 L	450 L	450 L
-aço, removable head (1A2)	250 L (*)	450 L	450 L
aluminum hydride, non-removable head (1B1)	250 L	450 L	450 L
aluminum hydride, removable head (1B2)	250 L (*)	450 L	450 L
-another metal, non-removable head (1N1)	250 L	450 L	450 L
-another metal, removable head (1N2)	250 L (*)	450 L	450 L
-plastic, non-removable head (1H1)	250 L	450 L	450 L
-plastic, removable head (1H2)	250 L (*)	450 L	450 L
jerricans			
-aço, non-removable head (3A1)	60 L	60 L	60 L
-aço, removable head (3A2)	60 L (*)	60 L	60 L
aluminum hydride, non-removable head (3B1)	60 L	60 L	60 L

aluminum hydride, removable head (3B2)	60 L (*)	60 L	60 L
-plastic, non-removable head (3H1)	60 L	60 L	60 L
-plastic, removable head (3H2)	60 L (*)	60 L	60 L

Composite packaging

*They are only permitted substances with higher viscosity of 200mm² / s.

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-Container Plastic or steel drum aluminum (6HA1, 6HB1)	250 L	250 L	250 L
-Container Plastic cardboard drum, plastic or plywood (6HG1, 6HH1, 6HD1)	120 L	250 L	250 L
-Container Plastic crate or box steel or aluminum, or plastic containers in wooden box, plywood, cardboard or hard plastic (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 L	60 L	60 L
-Container Glass steel drum, aluminum, cardboard, plywood, plastic rigid or expanded (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or steel box, aluminum, wood or cardboard, or in wicker basket (6PA2, 6PB2, 6PC, or 6PG2 6PD2)	60 L	60 L	60 L

Pressure vessels may be used provided that the general provisions of the item are met 4.1.3.6.

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Special packing provisions:

PP1 For UN 1133 numbers, 1210, 1263, 1866 and for adhesives, printing inks, material associated with printing ink, paint, ink and related materials resin solutions that are allocated to UN 3082, the packaging for substances of groups Packaging II and III, in amounts up to 5 L by metal or plastic packaging are waived to meet the performance standards of Chapter 6.1 when transported:

a) in palletized loads, a pallet box or unitization device loads, For example, containers placed or stacked and secured to a pallet by straps, film plastic shrink-wrap or corrugated or rubber band or by other appropriate means; or

b) as an inner packaging of a combination packaging with a maximum net mass 40 kg.

PP2 For UN 3065 number can be used wooden barrels with a maximum capacity of 250 L and that do not meet the requirements set out in Chapter 6.1.

PP4 For UN 1774, packagings shall meet the performance standards for the Packing Group II.

PP5 For UN 1204, packagings shall be manufactured so as to eliminate the the possibility of explosion due to increased internal pressure. Cylinders and gas receptacles They can not be used for these substances.

PP10 For UN 1791, packing group II, the packaging shall be vented.

PP31 For UN 1131, packagings shall be hermetically sealed.

PP33 For UN 1308, packing groups I and II, only combination packagings admitted with a maximum gross mass of 75 kg.

PP81 For UN 1790 number with more than 60% and less than 85% hydrofluoric acid, and the number UN 2031 over 55% nitric acid, the use of plastic drums and pails and plain packaging should be allowed up to two years after their date of manufacture.

PP93 For UN numbers 3532 and 3534, packagings shall be designed and manufactured to allow gas release or steam so as to avoid pressure buildup that could break the packaging a stabilization loss event.

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P002 **PACKING INSTRUCTION (SOLIDS)** **P002**

The following packagings are permitted provided that the general provisions of items 4.1.1 and 4.1.3 are met.

		Capacity / Net mass Maxims (See section 4.1.3.3)		
		Group of package I	**Group of package II**	**Group of package III**
Combined packaging				
Internal packaging	**External packaging**			
-Glass	10 kg	**drums**		
-plastic (1)	50 kg	-aço (1A1, 1A2)	400 kg	400 kg	400 kg
-Metal	50 kg	aluminum hydride (1B1, 1B2)	400 kg	400 kg	400 kg
-paper (1) (2) (3)	50 kg	-another metal (1N1, 1N2)	400 kg	400 kg	400 kg
-Papelão (1) (2) (3)	50 kg	-plastic (1H1, 1H2)	400 kg	400 kg	400 kg
		-compensado (1D)	400 kg	400 kg	400 kg
		-papelão (1G)	400 kg	400 kg	400 kg

(1) The packaging
the internal be

boxes

dustproof. (2) The packaging Internal should not be used to substances They can liquefy during transport (See section 4.1.3.4). (3) Packaging Internal paper and Cardboard should not be used to substances Group of Package I.	-aço (4A)	400 kg	400 kg	400 kg
	aluminum hydride (4B)	400 kg	400 kg	400 kg
	-another metal (4N)	400 kg	400 kg	400 kg
	natural -wood (4C1)	250 kg	400 kg	400 kg
	-wood Natural with dust-proof walls (4C2)	250 kg	400 kg	400 kg
	-compensado (4D)	250 kg	400 kg	400 kg
	-wood reconstituted (4F)	125 kg	400 kg	400 kg
	-papelão (4G)	125 kg	400 kg	400 kg
	-plastic expanded (4H1)	60 kg	60 kg	60 kg
	hard -plastic (4H2)	250 kg	400 kg	400 kg
	jerricans			
	-aço (3A1, 3A2)	120 kg	120 kg	120 kg
	aluminum hydride (3B1, 3B2)	120 kg	120 kg	120 kg
	-plastic (3H1 and 3H2)	120 kg	120 kg	120 kg

Simple packaging			
drums			
-aço (1A1 or 1A2 (4))	400 kg	400 kg	400 kg
aluminum hydride (1B1 or 1B2 (4))	400 kg	400 kg	400 kg
-other metal, not steel or aluminum (1N1 and 1N2 (4))	400 kg	400 kg	400 kg
-plastic (1H1 or 1H2 (4))	400 kg	400 kg	400 kg
-papelão (1G) (5)	400 kg	400 kg	400 kg
-compensado (1D) (5)	400 kg	400 kg	400 kg
jerricans			
-aço (3A1 or 3A2 (4))	120 kg	120 kg	120 kg
aluminum hydride (3B1 or 3B2 (4))	120 kg	120 kg	120 kg
-plastic (3H1 or 3H2 (4))	120 kg	120 kg	120 kg
boxes			
-aço (4A) (5)	not allowed	400 kg	400 kg
aluminum hydride (4B) (5)	not allowed	400 kg	400 kg

-other metal (4N) (5)	not allowed	400 kg	400 kg
natural -wood (4C1) (5)	not allowed	400 kg	400 kg
-compensado (4D) (5)	not allowed	400 kg	400 kg
Reconstituted -wood (4F) (5)	not allowed	400 kg	400 kg
natural -wood walls with dust-proof (4C2) (5)	not allowed	400 kg	400 kg
-papelão (4G) (5)	not allowed	400 kg	400 kg
hard -plastic (4H2) (5)	not allowed	400 kg	400 kg
bags			
-bags (5H3, 5H4, 5L3, 5M2) (5)	not allowed	50 kg	50 kg

(4) The containers must not be used for substances of packing group I that may liquefy during transport (see section 4.1.3.4).

(5) These packages can not be used for substances that can liquefy during transport (See section 4.1.3.4).

Composite packaging

-Container Plastic, steel drum, aluminum, plywood, cardboard or plastic (6HA1, 6HB1, 6HG1 (5), 6HD1 **(5)** or 6HH1)	400 kg	400 kg	400 kg
-Container Plastic crate or box or steel aluminum, or plastic container in wooden box, plywood, cardboard or hard plastic (6HA2, 6HB2, 6HC, 6HD2 (5) , 6HG2 (5) or 6HH2)	75 kg	75 kg	75 kg
-Container Glass steel drum, aluminum, plywood or cardboard (6PA1, 6PB1, 6PD1 (5) or 6PG1 (5)), or steel box, aluminum, wood, or	75 kg	75 kg	75 kg

cardboard or wicker basket (6PA2, 6PB2, 6PC, 6PD2 (5) or 6PG2 (5)), or in packaging rigid or foamed plastic (6PH1 or 6PH2 (5))

(5) These packages can not be used for substances that can liquefy during transport (see section 4.1.3.4).

Pressure vessels may be used provided that the general provisions of the item are met 4.1.3.6.

Special packing provisions :

PP7 For UN 2000 number, celluloid may be transported unpackaged on pallets, wrapped in plastic film and secured by appropriate means such as steel strapping, when in a full load in closed transport units. Each pallet shall not exceed 1,000 Kg.

PP8 For UN 2002, packagings must be designed in a way that does not occur one explosion due to increased internal pressure. Cylinders and gas receptacles shall not be used for these substances.

PP9 For UN 3175, 3243 and 3244 numbers, packaging must meet the technical characteristics the design type passed the leakage test, corresponding to the performance level Packing Group II. For UN 3175 the number tightness test is not required when the liquids are fully absorbed in solid material contained in sealed bags.

PP11 For UN 1309, Packing Group III, and UN 1362 number, are admitted 5H1, 5L1 and 5M1, since overpacked in plastic bags or wrapped in film wrap heat shrink plastic on pallets.

PP12 For UN 1361 numbers, 2213 and 3077, are admitted bags 5H1, 5L1 and 5M1, when transported in closed transport units.

PP13 For articles allocated to UN 2870 number, only combination packagings admitted that meet the standard of performance for packing group I.

PP14 For UN 2211 numbers, 2698 and 3314, packagings are exempt from trials

specified in Chapter 6.1.

PP15 For UN 1324 and 2623 numbers, packaging must meet the level of performance for Packing Group III.

PP20 For UN 2217, can be used any container dustproof and resistant tear.

PP30 For UN 2471, inner packagings are not permitted paper or cardboard.

PP34 For UN 2969 (as grain) are allowed 5H1, 5L1 and 5M1.

PP37 For UN numbers 2212 and 2590 are allowed 5M1 bags. The bags must be transported in closed transport units or placed in closed rigid overpacks.

PP38 For UN 1309, packing group II, bags are permitted only in units transport closed.

PP84 For UN 1057 number, rigid outer packaging must be used to meet performance levels required for Packing Group II. Packages must be designed, manufactured and packed in order to prevent the contents from moving, if inflame accidental ignition or dislodged accidentally flammable gas or liquid.

PP85 For UN 1748 numbers, 2208, 2880, 3485, 3486 and 3487, if bags are used as simple packaging, these should be adequately separated to allow for dissipation heat.

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P003 **PACKING INSTRUCTION** **P003**

Dangerous goods shall be placed in suitable outer packagings. Packages must

meet the provisions of paragraphs 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.8 and 4.1.3 and be designed so that meet the construction requirements of paragraph 6.1.4. External packaging made should be used suitable material with adequate strength and design in relation to their ability and to use that intended. When this instruction is used for packaging in the transport of articles or packages Internal combination packagings, the packaging must be designed and manufactured in order to prevent articles from loosening under normal conditions of transport.

Special packing provisions :

PP16 For UN 2800 number, the batteries must be protected against short-circuits within the packaging.

PP17 For UN 2037 number, the volume should not exceed 55 kg net mass for cartons or 125 kg net mass for other packages.

PP18 For UN 1845, packagings shall be designed and constructed so that permitting carbon dioxide gas release to prevent the increase of pressure might break the package.

PP19 For UN 1327 numbers, 1364, 1365, 1856 and 3360 the transporting bales.

PP20 For UN 1363 numbers, 1386, 1408 and 2793, can be used any container proof dust and resistant to tearing.

PP32 UN 2857 and 3358 numbers can be transported unpackaged, in crates or appropriate overpacks.

PP90 For UN 3506 number, sealed inner liners or bags should be used resistant casting material, drilling and is impervious to mercury and prevent the Output volume, regardless of their position or volume orientation.

PP91 For UN 1044 number, large fire extinguishers can also be transported without packaging, provided that the requirements of subparagraphs (a) to (e) of item 4.1.3.8.1 are met, valves are protected by one of the methods according to paragraphs (a) to (d) and another item 4.1.6.1.8 equipment mounted on the fire extinguisher is protected to prevent activation accidental. For purposes of this special provision "big fire extinguishers" mean extinguishers fire, as described in (c) to (e) of the Special Provision 225, established in Chapter 3.3.

P004 **PACKING INSTRUCTION** **P004**

This instruction applies to UN 3473 numbers, 3476, 3477, 3478 and 3479.

(1) For fuel cell cartridges, which meet the general provisions of items 4.1.1.1, 4.1.1.2, 4.1.1.3, 4.1.1.6 and 4.1.3:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A2, 3B2, 3H2).

Packaging must meet the level of performance required for Packing Group II.

(2) For fuel cells cartridges packed with equipment: external packaging resistant that meet the general provisions of items 4.1.1.1, 4.1.1.2, 4.1.1.6 and 4.1.3.

When fuel battery cartridges are packed with equipment, they must be placed in inner packagings, the outer packaging with cushioning material or partitions, so that the cartridges are protected against damage that may be caused by movement or placement of content on the outer package.

The equipment must be secure against movement within the outer packaging.

For purposes of this Instruction, "equipment" means apparatus which requires, for its operation, Cartridge fuel cell, with which it is packaged.

(3) For fuel cells cartridges contained in equipment: strong outer packaging that meet the general provisions of items 4.1.1.1, 4.1.1.2, 4.1.1.6 and 4.1.3.

robust and large equipment (see section 4.1.3.7), containing stacks of cartridges fuel can be transported without packaging. Fuel cells cartridges contained in equipment, the entire system must be protected against short circuit and operation accidental.

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P005 **PACKING INSTRUCTION** **P005**

This instruction applies to UN 3528 numbers, 3529 and 3530.

If the motor or machinery are constructed and designed so that the containment means intended to contain dangerous products ensure adequate protection, packaging is not required External.

Otherwise, dangerous products in engines or machinery must be packed in containers External made of suitable materials, and strength and suitable design for the ability packaging and use they are intended for, and meet the requirements set out in item 4.1.1.1, or they must be fixed in such a way that they do not loose during normal conditions of transport, by example, in cradles or crates or other handling devices.

Moreover, the way the containment means is inserted into or contained within the engine or machinery must be such that under normal conditions of transport, damage to those containment means are avoided; and in the case of damage such containment means containing hazardous products in a state liquid, no leakage of dangerous products from the engine or machinery is possible (one liner or leakproof liner may be used to meet this requirement).

containment means for containing hazardous products must be installed, wired or coated (Padded) to avoid breakage or leakage. The cushioning material may not react dangerously with the contents of the containment means. Any leakage of contents can not substantially impair the protective properties of the cushioning material.

Additional requirement:

Other hazardous materials (eg, batteries, fire extinguishers, gas accumulators tablet or safety devices) required for operation or motor safe operation or machinery should be securely mounted or affixed on the engine or machinery

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P010 **PACKING INSTRUCTION (LIQUIDS)** **P010**

The following packagings are permitted provided that the general provisions of items 4.1.1 and 4.1.3 are met.

		Net Maximum mass (see section 4.1.3.3)
combination packagings		
Packing Internal	**External packaging**	
-Glass 1L	**drums**	
-aço 40L	-aço (1A1, 1A2)	400 kg
	-plásticos (1H1, 1H2)	400 kg
	-compensado (1D)	400 kg
	-papelão (1G)	400 kg
	boxes	
	-aço (4A)	400 kg
	natural -wood (4C1, 4C2)	400 kg
	-compensado (4D)	400 kg
	-wood reconstituted (4F)	400 kg
	-papelão (4G)	400 kg
	-plásticos expanded (4H1)	60 kg
	hard plastic (4H2)	400kg

	Maximum capacity (see section 4.1.3.3)
Simple packaging	
drums	
-aço, non-removable head (1A1)	450 L
jerricans	
-aço, non-removable head (3A1)	60 L
composite packaging	
-Container plastic in steel drums (6HA1)	250 L

Steel pressure vessels may be used provided that the general provisions are met the item 4.1.3.6.

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P099 **PACKING INSTRUCTION** **P099**

They can only be used containers that have been approved by the competent authority (see item 4.1.3.7). A copy of the competent authority approval shall accompany each consignment or transport document shall include an indication that the packaging was approved by such authority.

P101 **PACKING INSTRUCTION** **P101**

Only packages can be used that have been approved by the competent authority. The code for international traffic of the country's vehicles, for which the authority acts, shall be indicated in the document transport, as follows:

"Packaging approved by the competent authority of ..."

P110 (a) **PACKING INSTRUCTION** **P110 (a)**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Intermediate packaging**	**External packaging**
bags	**bags**	**drums**
-plastic	-plastic	-aço (1A1, 1A2)
-têxtil, coated or plastic liner	-têxtil, coated or lined plastic	-metal, steel or not aluminum (1N1, 1N2)
-eraser	-eraser	-plastic (1H1, 1H2)
-têxtil, I rubberized	-têxtil, I rubberized	
-textile	**containers**	
containers	-plastic	

-wood -metal
-wood

Additional Requirements:

1. The intermediate packagings should be filled with saturated material water, as a anti-freeze solution or wetted cushioning.
2. The outer packaging must be filled with saturated material water as a solution antifreeze or moistened pad, and must be manufactured and sealed to prevent evaporation of the wetting solution, except when the product allocated to the UN number is 0224 packaged dry.

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P110 (b) **PACKING INSTRUCTION** **P110 (b)**

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Intermediate packaging**	**External packaging**
containers	**partitions**	**boxes**
-metal	-metal	natural -wood, walls to
-wood	-wood	dustproof (4C2)
rubber, conductive	-plastic	-compensado (4D)
-plastic, driver	-papelão	-wood reconstituted (4F)
bags		
rubber, conductive		
-plastic, driver		

Special packing provisions :

PP42 For UN 0074 numbers, 0113, 0114, 0129, 0130, 0135 and 0224, the following must be met conditions:

a) Inner packagings shall not contain more than 50 grams of explosive substance (Quantity corresponding to dry substance);

b) compartments between the partitions shall not contain more than one inner packaging firmly set; and

c) the outer packaging can be divided into up to 25 compartments.

P111 **PACKING INSTRUCTION** **P111**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
bags	not necessary	**boxes**
-paper, waterproof		-aço (4A)
-plastic		aluminum hydride (4B)
-têxtil, I rubberized		-another metal (4N)
containers		-wood natural, ordinary (4C1)
-wood		natural -wood, dust-proof (4C2)
Sheets		-compensado (4D)
-plastic		-wood reconstituted (4F)
-têxtil, I rubberized		-papelão (4G)
		-plastic expanded (4H1)
		hard -plastic (4H2)

drums

-aço (1A1, 1A2)
aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-compensado (1D)
-papelão (1G)
-plastic (1H1, 1H2)

Special packing provisions:

PP43 For UN 0159 number is not required when inner packagings used drums metal (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or plastic drums (1H1 or 1H2) as outer package.

P112 (a) **PACKING FOR INSTRUCTION (Solid wetted, 1.1D)** **P112 (a)**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
bags:	**bags:**	**boxes:**
-paper, multiwall, tough	-plastic	-aço (4A)
the water	-têxtil, coated or lined	aluminum hydride (4B)

-plastic
-textile
-têxtil, I rubberized
-plastic tissue

containers:

-metal
-plastic
-wood

with plastic

containers:

-metal
-plastic
-wood

-another metal (4N)
-wood natural, ordinary (4C1)
natural -wood, dust-proof (4C2)
-compensado (4D)
-wood reconstituted (4F)
-papelão (4G)
-plastic expanded (4H1)
hard -plastic (4H2)

drums:

-aço (A1, 1A2)
aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-compensado (1D)
-papelão (1G)
-plastic (1H1, 1H2)

Additional requirements :

Intermediate packagings are not required if leakproof drums are used with removable cover as outer packaging.

Special packing provisions :

PP26 For UN 0004 numbers, 0076, 0078, 0154, 0219 and 0394, the packaging should be free to lead.

PP45 For UN 0072 and 0226 numbers are not necessary intermediate packaging.

P112 (b) PACKING INSTRUCTION (Solid dry, except after 1.1.d) P112 (b)

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal Packaging Brokers

bags

-kraft paper
-paper, multiwall, waterproof
-plastic

Bags (for UN No. 0150):

-plastic
-têxtil, coated or lined plastic

External packaging

bags

-plastic cloth, dust-proof (5H2)
-plastic fabric, water-resistant (5H3)
plastic -película (5H4)
-têxtil, dust-proof (5L2)

-textile
-têxtil, I rubberized
-plastic tissue

-têxtil, water resistant (5L3)
-paper, multiwall, water resistant (5M2)

boxes

-aço (4A)
aluminum hydride (4B)
-another metal (4N)
-wood natural, ordinary (4C1)
natural -wood, dust-proof (4C2)
-compensado (4D)
-wood reconstituted (4F)
-papelão (4G)
-plastic expanded (4H1)
hard -plastic (4H2)

drums

-aço (1A1, 1A2)
aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-compensado (1D)
-papelão (1G)
-plastic (1H1, 1H2)

Special packing provisions:

PP26 For UN 0004 numbers, 0076, 0078, 0154, 0216, 0219 and 0386, the packaging should be free Of lead.

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PP46 For UN 0209 number are recommended bags dust-proof (5H2) for TNT flaked or pelletized in a dry state, with a maximum net mass of 30 kg.

PP47 For UN 0222 number, when the outer packaging is a bag, it is not necessary inner packagings.

P112 (c) **PACKING INSTRUCTION (dry solid powder 1.1D)** **P112 (c)**

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging **Intermediate packaging** **External packaging**

bags	**bags**	**boxes**
-paper, multiwall, waterproof	-paper, multiwall, water resistant, with internal coating	-aço (4A)
-plastic	plastic	aluminum hydride (4B)
-plastic tissue	**containers**	-another metal (4N)
containers	-metal	-wood natural, ordinary (4C1)
-papelão	-plastic	-wood natural dust-proof (4C2)
-metal	-wood	-compensado (4D)
-plastic	-	-wood reconstituted (4F)
-wood		-papelão (4G)
		hard -plastic (4H2)
		drums
		-aço (1A1, 1A2)
		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

Additional Requirements:

1. Intermediate packagings are not required if drums are used as packaging external.
2. The containers should be dustproof.

Special packing provisions :

PP26 For UN numbers 004, 0076, 0078, 0154, 0216, 0219 and 0386, the packaging should be free Of lead.

PP46 For UN 0209 number are recommended bags dust-proof (5H2) for TNT flaked or pelletized in a dry state, with a maximum net mass of 30 kg.

PP48 For UN 0504 number, metal packaging can not be used.

P113 **PACKING INSTRUCTION** **P113**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Intermediate packaging**	**External packaging**
bags	Non-required	**boxes**

-paper
-plastic
-têxtil, I rubberized

containers

-papelão
-metal
-plastic
-wood

-aço (4A)
aluminum hydride (4B)
-another metal (4N)
-wood natural, ordinary (4C1)
natural -wood, proof walls
powder (4C2)
-compensado (4D)
-wood reconstituted (4F)
-papelão (4G)
-plastic, hard (4H2)

drums

-aço (1A1, 1A2)
aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-compensado (1D)
-papelão (1G)
-plastic (1H1, 1H2)

Additional requirement

Packages must be dustproof.

Special packing provisions

PP49 For UN 0094 and 0305 numbers, an inner packaging must not contain more than 50 g substance.

PP50 For UN 0027 number is not required when inner packagings used drums as outer packaging.

PP51 For the number 0028, or kraft paper sheets of waxed paper can be used as inner packagings.

P114 (a) **PACKING INSTRUCTION** **P114 (a)**

(Solid wetted)

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
bags:	**bags:**	**boxes:**
-plastic	-plastic textile, with liner or plastic coating	-aço (4A)
-textile	**containers:**	-metal, not steel or aluminum (4N)
-plastic tissue	-metal	-wood natural, ordinary (4C1)
containers:	-plastic	natural -wood, proof walls
-metal	**partitions:**	powder (4C2)
-plastic	-wood	-compensado (4D)
-wood		-wood reconstituted (4F)
		-papelão (4G)
		-plastic, hard (4H2)
		drums:
		-aço (1A1, 1A2)
		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

Additional requirement :

Intermediate packagings are not required if leakproof drums are used with removable cover as outer packaging.

Special packing provisions:

PP26 For UN numbers 0077, 0132, 0234, 0235 and 0236, packagings shall be lead free.

PP43 For UN 0342 number are not necessary internal packaging when used Metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or plastic drums (1H1 or 1H2) as outer package.

P114 (b) **PACKING INSTRUCTION** **P114 (b)**

(Dry solid)

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
bags:	not necessary	**boxes:**
-kraft paper		-wood natural, ordinary (4C1)
-plastic		natural -wood, proof walls
-têxtil, dustproof		powder (4C2)
-plastic fabric, dustproof		-compensado (4D)
containers:		-wood reconstituted (4F)
-papelão		-papelão (4G)
-metal		
-paper		**drums:**
-wood		-aço (1A1, 1A2)
-plastic fabric, dustproof		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

Special packing provisions:

PP26 For UN numbers 0077, 0132, 0234, 0235 and 0236, packagings shall be lead free.

PP48 For UN numbers 0508 and 0509 should not be used metal containers.

PP50 For UN 0160 numbers, 0161 0508, are not required inner packaging if drums used as outer packaging.

PP52 For UN 0160 and 0161 numbers, when metal drums are used (1A1, 1A2, 1B1 1B2, 1N1 or 1N2) and external packaging, they must be made to avoid the risk explosion due to increased internal pressure caused by internal or external causes.

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P115 **PACKING INSTRUCTION** **P115**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
containers	**bags**	**boxes**
-plastic	-plastic in containers	-wood natural, ordinary (4C1)
-wood	metal	natural -wood, proof walls
	drums	powder (4C2)
	-metal	-compensado (4D)
	containers	-wood reconstituted (4F)
	-wood	**drums**
		-aço (1A1, 1A2)
		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

Special packing provisions :

PP45 For UN 0144 number are not necessary intermediate packaging.

PP53 For UN 0075 numbers, 0143, 0495 and 0497, when boxes are used as packaging external, internal packaging should be threaded fasteners with tape and capacity of up to 5 L each. Inner packagings shall be surrounded with absorbent cushioning materials and non-combustible. The amount of absorbent cushioning material should be sufficient for absorb the liquid contents. Metal containers must be separated from each other by the material padding. When the external packaging is made up of boxes, the net mass propellant must be limited to 30 kg per volume.

PP54 For UN 0075 numbers, 0143, 0495 and 0497, when drums are used as the outer package, and when the intermediate packaging consist of drums, these should It is enveloped by absorbent cushioning material, non-combustible in an amount enough to absorb the liquid contents. It can be used comprises a package formed in a plastic container within a metal drum, instead of the internal packaging and intermediate. The net volume of propellant shall not exceed 120 L in each volume.

PP55 For UN 0144 paragraph shall be inserted absorbent cushioning material.

PP56 For UN number 0144, metal containers can be used as inner packing.

PP57 For UN numbers 0075, 0143, 0495 and 0497, should be used as packaging bags intermediate when boxes are used as outer packaging.

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PP58 For UN 0075 numbers, 0143, 0495 and 0497, drums shall be used as packaging intermediate when drums are used as outer packagings.

PP59 For UN 0144 number can be used cardboard boxes (4G) as outer packaging.

PP60 For UN 0144 number they can not be used aluminum drums (1B1 or 1B2) or other metal, not steel or aluminum (1N1, 1N2).

P116 **PACKING INSTRUCTION** **P116**

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Interim External Packaging**	
bags	not necessary	**bags**
-paper, resistant to water and oil		-plastic tissue (5H1, 5H2, 5H3)
-plastic		-paper, multiwall, water resistant (5M2)
-textile, with lining or plastic coating		plastic -película (5H4)
-plastic fabric, dustproof		-têxtil, dust-proof (5L2)
containers		-têxtil, water resistant (5L3)
- Cardboard, water resistant		**boxes**
-metal		-aço (4A)
-plastic		aluminum hydride (4B)
-wood, dustproof		-another metal (4N)
Sheets		-wood natural, ordinary (4C1)
-paper, water resistant		natural -wood, proof walls powder (4C2)
-paper, waxed		-compensado (4D)
-plastic		-wood reconstituted (4F)
		-papelão (4G)
		-plastic, hard (4H2)
		drums:
		-aço (1A1, 1A2)

aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-compensado (1D)
-papelão (1G)
-plastic (1H1, 1H2)

jerricans:

-aço (3A1, 3A2)
-plastic (3H1 and 3H2)

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Special packing provisions:

PP61 For UN numbers 0082, 0241, 0331 and 0332, are not required inner packaging if used drums watertight with removable lid and outer packaging.

PP62 For UN numbers 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a waterproof material to liquid.

PP63 For UN 0081 number, when contained in rigid plastic waterproof the nitric esters, not inner packagings are required.

PP64 For UN 0331 number are not necessary internal packaging when bags are used (5H2, 5H3 or 5H4) as outer packaging.

PP65 Deleted.

PP66 For UN 0081 number should not be used as outer packaging bags.

P130 **PACKING INSTRUCTION** **P130**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal Packaging	**Brokers**	**External packaging**
not necessary	not necessary	**boxes** -aço (4A) aluminum hydride (4B) -another metal (4N) -wood natural, ordinary (4C1) natural -wood, dust-proof walls (4C2) -compensado (4D) -wood reconstituted (4F)

-papelão (4G)
-plastic, expanded (4H1)
-plastic, hard (4H2)

drums

-aço (1A1, 1A2)
aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-compensado (1D)
-papelão (1G)
-plastic (1H1, 1H2)

Special packing provisions:

pp67 For UN numbers 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0243, 0244, 0245, 0246, 0254,

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0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0488 and 0502, articles explosives robust and large, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective devices, They may be carried unpackaged. When such articles have propelling charges or are autopropelentes, their ignition systems shall be protected against stimuli found under normal conditions of transport. A negative result in Test Series 4 for an article unpackaged, it indicates that this item may be considered for transport unpackaged. Those unpackaged articles may be fixed to cradles or be placed in crates or other devices suitable for handling.

P131 **PACKING INSTRUCTION** **P131**

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Intermediate packaging**	**External packaging**
bags	not necessary	**boxes**
-paper		-aço (4A)
-plastic		aluminum hydride (4B)
containers		-another metal (4N)
-papelão		-wood natural, ordinary (4C1)
-metal		natural -wood, dust-proof walls (4C2)
-plastic		

-wood

spools

-plastic, hard (4H2)
-compensado (4D)
-wood reconstituted (4F)
-papelão (4G)

drums

-aço (1A1, 1A2)
aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-compensado (1D)
-papelão (1G)
-plastic (1H1, 1H2)

Special packing provisions:

PP68 For UN 0029 numbers, 0267 and 0455, they can not be used as bags or reels inner packagings.

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P132 (a) **PACKING INSTRUCTION** **P132 (a)**

(Items that consist of a closed case, metallic, plastic or cardboard having a detonating explosive, or consisting of detonating explosive, plastic binder)

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
not necessary	not necessary	**boxes** -aço (4A) aluminum hydride (4B) -another metal (4N) -wood natural, ordinary (4C1) natural -wood, dust-proof walls (4C2) -compensado (4D) reconstituted wood (4F) -papelão (4G) -plastic, hard (4H2)

P132 (b) PACKING INSTRUCTION (Articles without closed cases) P132 (b)

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
containers -papelão -metal -plastic -wood **Sheets:** -paper -plastic	not necessary	**boxes** -aço (4A) aluminum hydride (4B) -another metal (4N) -wood natural, ordinary (4C1) natural -wood, dust-proof walls (4C2) -compensado (4D) reconstituted wood (4F) -papelão (4G) -plastic, hard (4H2)

P133 PACKING INSTRUCTION P133

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
containers -papelão -metal -plastic -wood **Trays, fitted with dividers**	**containers** -papelão -metal -plastic -wood	**boxes** -aço (4A) aluminum hydride (4B) -another metal (4N) -wood natural, ordinary (4C1) natural -wood, dust-proof walls (4C2) -compensado (4D) reconstituted wood (4F)

-papelão
-plastic
-wood

-papelão (4G)
-plastic, hard (4H2)

Additional requirement :

Only containers are required as intermediate packagings when trays are used as inner packagings.

Special packing provisions:

PP69 For UN numbers 0043, 0212, 0225, 0268 and 0306, they can not be used as trays inner packagings.

P134 **PACKING INSTRUCTION** **P134**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Interim External Packaging**	
bags	not necessary	**boxes**
-resistentes water		-aço (4A)
		aluminum hydride (4B)
containers		-another metal (4N)
-papelão		-wood natural, ordinary (4C1)
-metal		natural -wood, dust-proof walls (4C2)
-plastic		-compensado (4D)
-wood		reconstituted wood (4F)

Sheets

-papelão, corrugated

tubes

-papelão

-papelão (4G)
-plastic expanded (4H1)
-plastic, hard (4H2)

drums

-aço (1A1, 1A2)
aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-compensado (1D)
-papelão (1G)
-plastic (1H1, 1H2)

P135 **PACKING INSTRUCTION** **P135**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Interim External Packaging	
bags	not necessary	**boxes**
-paper		-aço (4A)
-plastic		aluminum hydride (4B)
		-another metal (4N)
containers		-wood natural, ordinary (4C1)
-papelão		natural -wood, dust-proof walls (4C2)
-metal		-compensado (4D)
-plastic		reconstituted wood (4F)
-wood		-papelão (4G)
		-plastic expanded (4H1)
Sheets		-plastic, hard (4H2)
-paper		**drums**
-plastic		-aço (1A1, 1A2)
		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

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P136 **PACKING INSTRUCTION** **P136**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Interim External Packaging

bags not necessary

-plastic

-textile

boxes

-papelão

-plastic

-wood

Partitions on packaging

external

boxes

-aço (4A)

aluminum hydride (4B)

-another metal (4N)

-wood natural, ordinary (4C1)

natural -wood, dust-proof walls (4C2)

-compensado (4D)

reconstituted wood (4F)

-papelão (4G)

-plastic, hard (4H2)

drums

-aço (1A1, 1A2)

aluminum hydride (1B1, 1B2)

-another metal (1N1, 1N2)

-compensado (1D)

-papelão (1G)

-plastic (1H1, 1H2)

P137 **PACKING INSTRUCTION** **P137**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging **Interim External Packaging**

bags not necessary

-plastic

boxes

-papelão

-wood

tubes

-papelão

boxes

-aço (4A)

aluminum hydride (4B)

-another metal (4N)

-wood natural, ordinary (4C1)

natural -wood, dust-proof walls (4C2)

-plastic, hard (4H2)

-compensado (4D)

-metal

-wood reconstituted (4F)

-plastic

-papelão (4G)

drums

-aço (1A1, 1A2)

aluminum hydride (1B1, 1B2)

-another metal (1N1, 1N2)

-compensado (1D)

-papelão (1G)

-plastic (1H1, 1H2)

Partitions on packaging

external

Special packing provisions:

PP70 For UN 0059 numbers, 0439, 0440 and 0441, when the shaped charges are packed singly, the conical cavity should face down and the volume identified with the following expression: "THIS SIDE UP". When the shaped charges are packed in pairs, the conical cavities should be face inward to minimize the effect on jet case of accidental initiation.

P138 **PACKING INSTRUCTION** **P138**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Interim External Packaging**	
bags	not necessary	**boxes**
-plastic		-aço (4A)
		aluminum hydride (4B)
		-another metal (4N)
		-wood natural, ordinary (4C1)
		natural -wood, dust-proof walls (4C2)
		-compensado (4D)
		-wood reconstituted (4F)
		-papelão (4G)
		-plastic, hard (4H2)
		drums
		-aço (1A1, 1A2)
		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

Additional requirement

If the ends of the articles are sealed, it is not necessary to use internal packaging.

P139 **PACKING INSTRUCTION** **P139**

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
bags	not necessary	**boxes**
-plastic		-aço (4A)
		aluminum hydride (4B)
containers		-another metal (4N)
-papelão		-wood natural, ordinary (4C1)
-metal		natural -wood, dust-proof walls
-plastic		(4C2)
wood		-compensado (4D)
		-wood reconstituted (4F)
spools		-papelão (4G)
		-plastic, hard (4H2)
Sheets		**drums**
-paper		-aço (1A1, 1A2)
-plastic		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

Special packing provisions:

PP71 For UN numbers 0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord must be sealed by means of a cap, for example, set so that the explosive can not escape. The ends of flexible detonating cord should be firmly attached.

PP72 For UN 0065 and 0289 numbers are not required internal packaging when they are in coils.

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P140 **PACKING INSTRUCTION** **P140**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Intermediate packaging	External packaging
bags	not necessary	**boxes**
-plastic		-aço (4A)
		aluminum hydride (4B)
containers		-another metal (4N)
-wood		-wood natural, ordinary (4C1)
		natural -wood, dust-proof walls (4C2)
spools		-compensado (4D)
		-wood reconstituted (4F)
Sheets		-papelão (4G)
-kraft paper		-plastic, hard (4H2)
-plastic		
		drums
		-aço (1A1, 1A2)
		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

Special packing provisions:

PP73 For UN 0105 number, it is not necessary to use internal packaging the ends They are sealed.

PP74 For UN 0101 number, the packaging should be sift-proof except when the fuse is contained in a paper tube and both ends of the tube are closed with lids removable.

PP75 For UN 0101 number they can not be used boxes or drums steel or aluminum.

P141 **PACKING INSTRUCTION** **P141**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Interim External Packaging	
containers	not necessary	**boxes**
-papelão		-aço (4A)
-metal		aluminum hydride (4B)
-plastic		-another metal (4N)
-wood		-wood natural, ordinary (4C1)
		natural -wood, dust-proof walls
Trays, fitted with		(4C2)
partitions		-compensado (4D)
-plastic		-wood reconstituted (4F)
-wood		-papelão (4G)
		-plastic, hard (4H2)
partitions in		
external packaging		**drums**
		-aço (1A1, 1A2)
		aluminum hydride (1B1, 1B2)
		-another metal (1N1, 1N2)
		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

P142 **PACKING INSTRUCTION** **P142**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	Interim External Packaging

bags	not necessary	**boxes**
-paper		-aço (4A)
-plastic		aluminum hydride (4B)
		-another metal (4N)
containers		-wood natural, ordinary (4C1)
-papelão		natural -wood, dust-proof walls
-metal		(4C2)
-plastic		-compensado (4D)
-wood		-wood reconstituted (4F)

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		-papelão (4G)
Sheets:		-plastic, hard (4H2)
-paper		**drums**
		-aço (1A1, 1A2)
Trays, fitted with		aluminum hydride (1B1, 1B2)
partitions		-another metal (1N1, 1N2)
-plastic		-compensado (1D)
		-papelão (1G)
		-plastic (1H1, 1H2)

P143 **PACKING INSTRUCTION** **P143**

The following packagings are permitted provided that the general provisions for packaging of items 4.1.1 and 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Interim External Packaging**	
bags	not necessary	**boxes**
-kraft paper		-aço (4A)
-plastic		aluminum hydride (4B)
-textile		-another metal (4N)
-têxtil, I rubberized		-wood natural, ordinary (4C1)
containers		natural -wood, dust-proof walls
-papelão		(4C2)
-metal		-compensado (4D)
-plastic		-wood reconstituted (4F)
-wood		-papelão (4G)
Trays, fitted		-plastic, hard (4H2)

with dividers	**drums**
-plastic	-aço (1A1, 1A2)
-wood	aluminum hydride (1B1, 1B2)
	-another metal (1N1, 1N2)
	-compensado (1D)
	-papelão (1G)
	-plastic (1H1, 1H2)

Additional requirement:

composite packaging may be used (6HH2) (plastic container with hard plastic outer casing) instead of internal and external packaging specified above.

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Special packing provisions:

PP76 For UN 0271 numbers, 0272, 0415 and 0491, when metal packagings are used, they should be constructed to avoid risk of explosion due to increased pressure internal caused by internal or external causes.

P144 **PACKING INSTRUCTION** **P144**

The following packagings are permitted provided that the general provisions met for packaging of items 4.1.1, 4.1.3 and special provisions for packaging the item 4.1.5.

Internal packaging	**Interim External Packaging**	
containers	not necessary	**boxes**
-papelão		-aço (4A)
-metal		aluminum hydride (4B)
-plastic		-another metal (4N)
-wood		-wood natural, ordinary (4C1) with liner metallic
partitions in external packaging		-compensado (4D) with metal liner
		- Reconstituted wood (4F) with metal liner
		-plastic, expanded (4H1)
		-plastic, hard (4H2)
		drums

-aço (1A1, 1A2)
aluminum hydride (1B1, 1B2)
-another metal (1N1, 1N2)
-plastic (1H1, 1H2)

Special packing provisions:

PP77 For UN 0248 and 0249 numbers, the packaging must be protected against the ingress of water. When actionable devices are carried by water without packaging, they should be provided with at least two independent protective devices to prevent ingress of water.

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P200 **PACKING INSTRUCTION** **P200**

Pressure vessels must meet the general packing requirements described in item 4.1.6.1.
In addition, MEGCs must meet the general requirements described in item 4.2.4.

The cylinders, tubes, pressure drums and cylinders made packages as specified in Chapter 6.2 and MEGCs manufactured in accordance with the specified in item 6.7.5 are allowed to transporting a specific substance as specified in the following Tables. for some substances, the special provisions for packaging may prohibit a particular type of cylinder, tube, drum pressurized cylinders or packages.

(1) Pressure receptacles containing toxic substances with LC_{50} less than or equal to 200 ml / m^3 (Ppm) as specified in Table must not be equipped with any relief device pressure. The pressure relief devices shall be installed in pressure vessels used for the transport of UN number 1013, carbon dioxide and UN 1070 number, oxide nitrous. Other pressure receptacles shall be provided with a pressure relief device whenever specify the competent authority of the country of use. The type of device Pressure relief the discharge pressure and decompression ability of relief devices

pressure, if required, must be specified by the competent authority of the country of use.

(2) The following three tables cover compressed gases (Table 1), liquefied gases and gases dissolved (Table 2) and substances not in Class 2 (Table 3). They show:

(A) the UN number, the proper shipping name and description and classification substance;

(b) the CL_{50} for toxic substances;

(C) the types of pressure vessels allowed for the substance in question, marked the letter "X";

(D) the maximum period of validity of the periodic inspections of pressure vessels;

NOTE: *In the pressure vessels in which are used composite materials, the frequency of periodic inspections is determined by the competent authority to approve such containers;*

(E) the minimum test pressure of pressure vessels;

(F) the maximum working pressure of the pressure receptacles for compressed gases (if not is known no value, the operating pressure should not exceed two-thirds of test pressure) or (s) reason (s) Max (s) function in filling pressure testing for liquefied gases and dissolved gases;

(G) special provisions for packaging which is specific for the substance.

(3) Pressure receptacles may not be filled above the limit allowed by the following requirements:

(A) for compressed gases, the working pressure must not exceed two-thirds of

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the pressure vessel test pressure. Restrictions to this upper limit pressure work imposed by the Special packing provisions, contained in the Provision Special Packaging "the" item (4). In no case shall the internal pressure at 65 ° C, can exceed the test pressure.

(B) for liquefied gases under high pressure, the packing ratio should be such that the pressure stabilized at 65 ° C is not higher than the pressure vessel test pressure.

The use of test pressures and filling ratios different from those of the table and permitted, except where applicable to Special Provision Packaging, constant in Special Provision Packaging "the" item (4), provided that:

(I) the criteria in the letter "r" of the item (4) are met, where applicable; or

(Ii) the above criteria are met in all other cases.

For high pressure liquefied gases and gas mixtures that do not

available data, Maximum filling ratio (FR) is determined as follows way:

$$FR = 105.8 - 4 \times d_g \times P_H$$

On what:

FR = Reason Filling Maximum

d_g = gas density (at 15 ° C, 1 bar) (g / L)

P_h = Test Minimum pressure (in bar)

If the density of the gas is unknown, the maximum fill ratio is determined from follows:

$$FR = \frac{P_H \times MM \times 10^{-3}}{R \times 338}$$

on what: FR = Reason Filling Maximum

P_h = Test Minimum pressure (bar)

MM = Molecular mass (g / mol)

R = 8.31451×10^{-2} bar.L / mol.K (gas constant)

For gas mixtures will take to average molecular weight, taking into account the volume concentration of the various components.

(C) for liquefied gases under low pressure, the maximum mass of contents per liter water capacity (filling factor) should be equal to 0.95 times the phase density liquid at 50 ° C; Furthermore, the substance in liquid phase shall not fill the container under pressure at any temperature up to 60 ° C. The container test pressure pressure must be at least equal to the vapor pressure (absolute) of the liquid at 65 ° C, least 100 kPa (1 bar).

For low pressure liquefied gases and gas mixtures that do not

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data available, the maximum filling ratio is determined as follows way:

$$FR = (0032.0 \times BP - 24.0) \times d$$

On what:

FR = Reason Filling Maximum

BP = boiling point (in Kelvin)

d_l = liquid density at the boiling point (in kg / l)

(D) For UN 1001, dissolved acetylene, and the UN number 3374, free acetylene solvent, see Special packing provisions "p" of item (4).

(4) Special packing provisions:

Compatibility of materials

The: aluminum alloy pressure receptacles are not allowed.

B: copper valves can not be used.

w: The metal parts in contact with the contents shall not contain more than 65% copper.

d: If used steel pressure vessels are only allowed those who possess the mark "M" in accordance with item 6.2.2.7.4 (P).

Requirements for toxic substances with an LC_{50} less than or equal to 200 ml / m^3 (ppm)

k: valve exits must be provided with caps or retaining airtight lids
Threaded pressure at the outlets of the valves.
Each cylinder within a package must be provided with an individual valve, which should be kept closed during transportation. After filling, the collector pipe should be emptied, purged and capped.
The cylinder containing compressed packets fluoride (ONU 1045 number) may be equipped with isolation valves in the cylinder groups not exceeding 150 L
Total water capacity instead of isolation valves on each cylinder.
The cylinders and each individual cylinder in a package should have a higher test pressure or equal to 20 bar and a minimum thickness of 3.5 mm wall, if aluminum alloy, or 2 mm, if the steel. The individual cylinders that do not comply with this requirement They should be transported in a rigid outer packaging able to protect it effectively, as well as its accessories, and to meet the level of performance of the Group Package I.
Pressure drums shall have a minimum wall thickness according to specification of the competent authority.
Pressure receptacles may not be equipped with pressure relief device.
The cylinders and each individual cylinder inside a package must have a capacity limit Maximum in water of 85 L.

Each valve must have a threaded connection or other means that meets the

requirements of ISO 10692-2: 2001, in the pressure vessel and should be able to withstand the pressure vessel test pressure.

Each valve must be of the type without package, with no perforate membrane, or a type to prevent leakage.

Once filled, all pressure receptacles shall be subjected to a test tightness.

Specific provisions for gases

l: The product number allocated to UN 1040, ethylene oxide can also be packaged in inner packaging of glass or metal, hermetically sealed and properly protected in cardboard boxes, wood or metal that meet the performance level Packing Group I. The maximum quantity permitted in any internal packaging glass is 30 g and the maximum quantity permitted in any metal inner packaging is 200 g. After filling, it should be given the tightness of each package internal, placing it in a hot water bath at a temperature and for a range of to ensure that sufficient time has reached an internal pressure equal to the pressure Steam at 55 ° C ethylene oxide. The maximum net mass in an outer packaging does not should be greater than 2.5 kg.

m: Pressure receptacles shall be filled to a maximum working pressure of 5 Pub.

N: cylinder groups and individual cylinders of a package must not contain more than 5 kg gas. When packages containing the product allocated to UN 1045 number, compressed fluorine, is divided into cylinder groups, according to the Special Provision Packaging "k" of item (4), each group may not contain more than 5 kg gas.

O: In any case, the working pressure or filling ratio shown in Tables It must be exceeded.

P: For UN 1001, dissolved acetylene, and the UN 3374 number, free acetylene solvent: cylinders shall be filled with a porous, monolithic and homogeneous material; The working pressure and the quantity of acetylene shall not exceed the values prescribed in approval or in ISO 3807-1: 2000 standards or ISO 3807-2: 2000, as applicable.
For UN 1001, dissolved acetylene: cylinders shall contain a quantity of acetone or suitable solvent that is specified in the approval (see ISO standards 3807-1: 2000 or ISO 3807-2: 2000, as applicable); cylinders fitted with devices Pressure relief or joined together by a manifold should be transported in vertical position.
The 52 bar test pressure applies only to cylinders that comply with the ISO 3807-2: 2000.

q: The outlet valves of pressurized containers for pyrophoric gases or gas mixtures flammable containing more than 1% of pyrophoric compounds shall be fitted with caps or airtight lids. When these pressure vessels meet in

one united package by collecting tubes, each of pressure vessels must be provided its own valve, which must be kept closed during transportation, and valve collector pipe outlet must be provided with buffer or airtight pressure retention.

r: The filling ratio of this gas must be limited so that if an complete decomposition, the pressure does not exceed two-thirds of the container test pressure under pressure.

ra: This gas should be packed in capsules under the following conditions:

(The) the gas mass must be less than 150 g per capsule;

(B) capsules should be free from defects that may compromise their resistance;

(w) the closure of sealing should be ensured by an additional device (Cap, crown, seal, etc.) capable of preventing any leakage by closing during transport;

(D) capsules should be placed in sufficient strength of the outer packaging. The volume can not weigh more than 75 kg.

s: Aluminium alloy pressure receptacles shall:

- Be equipped only with brass or stainless steel valves; and

- To be cleaned in accordance with ISO 11621: 1997 and oil contamination.

t: (I) the wall thickness of the pressure vessel can not be less than 3 mm.

(Ii) before transport, it should be ensured that the pressure has not increased due to possible generation of hydrogen.

periodic inspection

u: The intervals between periodic tests may reach up to 10 years in the case of aluminum alloy pressurized containers and container since the alloy has been to be tested for stress corrosion cracking, as specified in ISO 7866: 1999.

v: The interval between periodic inspections for steel cylinders may be up to 15 years approved by the competent authority of the country of use.

Requirements in terms "NE" and mixtures

z: The materials of construction of pressure vessels and their accessories must be compatible with the contents and do not react therewith to form harmful compounds or hazardous.

The test pressure and filling ratio shall be calculated in accordance with the Item prescriptions (3).

Toxic substances with an LC_{50} less than or equal to 200 ml / m^3 should not be transported in tubes, pressure drums or CGEM and must meet the requirements of Special provision for packaging "k" of item (4). However, nitric oxide mixture, and

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dinitrogen tetroxide (ONU 1975 number) can be transported in drums under pressure.

Pressure receptacles containing pyrophoric gases or flammable mixtures of gases containing more than 1% of pyrophoric compounds shall meet the requirements of Special provision for packaging "q" of item (4).

the necessary precautions so that during transport should be taken not produce dangerous reactions (e.g., polymerization or decomposition). If necessary, must resort to stabilization or addition of an inhibitor.

The mixtures containing diborane (ONU 1911 number) must be potted into a where pressure in the event of complete decomposition of diborane, not more than two thirds of the pressure vessel of the test pressure.

Mixtures containing germanium (ONU 2192 number), except mixtures containing more than 35% germanium in hydrogen or nitrogen, or more than 28% of germanium in helium or argon, should be potted to pressure such that, if there is a complete decomposition of germanium, does not exceed two-thirds of the pressure vessel of the test pressure.

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P200 **PACKING INSTRUCTION *(cont.)*** **P200**

Table 1: GASES PILLS

At the. UN	Name and description	Class	Sub Ris	LC 50 ml/m3	ros Drums	tubes	OK Pres	Paw	EGM	Frand	Prend	Pres	Prand
1002	COMPRESSED AIR	2.2			X	X	X	X	X	10			
1006	ARGON, COMPRESSED	2.2			X	X	X	X	X	10			
1016	MONOXIDE CARBON, PILL	2.3	2.1	3760	X	X	X	X	X	Referring to Fig.			U
1023	COAL GAS, PILL	2.3	2.1		X	X	X	X	X	Referring to Fig.			
1045	FLUORIDE, COMPRESSED	2.3	5.1	185 Referring to Fig.	X			X		Referring to Fig.	200	30	a, k at the
1046	HELIUM, COMPRESSED	2.2			X	X	X	X	X	10			
1049	HYDROGEN, PILL	2.1			X	X	X	X	X	10			d
1056	KRYPTON, PILL	2.2			X	X	X	X	X	10			
1065	NEON, COMPRESSED	2.2			X	X	X	X	X	10			
1066	NITROGEN PILL	2.2			X	X	X	X	X	10			
1071	OIL GAS, PILL	2.3	2.1		X	X	X	X	X	Referring to Fig.			
1072	OXYGEN, COMPRESSED	2.2	5.1		X	X	X	X	X	10			s
1612	MIX OF tetraphosphate HEXAETILO AND GAS PILL	2.3			X	X	X	X	X	Referring to Fig.			z
1660	NITRIC OXIDE, PILL	2.3	5.1	115 Referring to Fig.	X			X		Referring to Fig.	225	33	k, a
1953	TOXIC GAS, FLAMMABLE, PILL, NE	2.3	2.1	≤ 5000	X	X	X	X	X	Referring to Fig.			z
1954	FLAMMABLE GAS, PILL, NE	2.1			X	X	X	X	X	10			z
1955	TOXIC GAS, PILL, NE	2.3		≤ 5000	X	X	X	X	X	Referring to Fig.			z
1956	COMPRESSED GAS, NE	2.2			X	X	X	X	X	10			z
1957	Deuterium, PILL	2.1			X	X	X	X	X	10			d

1964	MIX OF HYDROCARBON GASEOUS, DEPRESSED, HUH	2.1			X	X	X	X	X	10		z
1971	METHANE, COMPRESSED, or NATURAL GAS, COM-Pressed in with high content methane	2.1			X	X	X	X	X	10		

2034	MIX OF HYDROGEN AND METHANE, DEPRESSED	2.1			X	X	X	X	X	10		d
2190	difluoride OXYGEN, PILL	2.3	5.1	2.6 Referring to Fig.	X			X		Referring to Fig.	200 30	a, k at the
3156	OXIDIZING GAS, PILL, NE	2.2	5.1		X	X	X	X	X	10		z
3303	TOXIC GAS, oxidant PILL, NE	2.3	5.1	≤ 5000	X	X	X	X	X	Referring to Fig.		z
3304	TOXIC GAS, CORROSIVE, PILL, NE	2.3	Referring to Fig.	≤ 5000	X	X	X	X	X	Referring to Fig.		z
3305	TOXIC GAS, FLAMMABLE, CORROSIVE, PILL, NE	2.3	2.1	≤ 5000 Referring to Fig.	X	X	X	X	X	Referring to Fig.		z
3306	TOXIC GAS, oxidant CORROSIVE, PILL, NE	2.3	5.1	≤ 5000 Referring to Fig.	X	X	X	X	X	Referring to Fig.		z

The *In cases where the entry is blank, the working pressure should not exceed two-thirds of the pressure test.*

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P200 **PACKING INSTRUCTION *(cont.)*** **P200**

Table 2: LIQUEFIED GASES AND DISSOLVED GASES

At the. UN	Name and description															
1001	ACETYLENE, DISSOLVED	2.1			X			X		10	60	52			c, p	
1005	AMMONIA, ANHYDROUS	2.3	8	4000	X	X	X	X	X	Referring to Fig.					B	
1008	boron trifluoride	2.3	8	387	X	X	X	X	X	Referring to Fig.					The	
1009	BROMOTRIFLUOROMETANO (GAS Refrigerant R 13B1)	2.2			X	X	X	X	X	10	42	120	250	1.13	1.44	1.60
1010	butadienes, SPEEDS (1,2-butadiene), or	2.1			X	X	X	X	X	10	10			0.59		
1010	butadienes, SPEEDS (1,3-butadiene), or	2.1			X	X	X	X	X	10	10			0.55		
1010	butadienes AND MIXING HYDROCARBONS, SPEEDS, containing more than 40% of butadienes	2.1			X	X	X	X	X	10					z, v	
1011	Butano	2.1			X	X	X	X	X	10	10			0.52	V	
1012	butylene (mixture of butylene) or	2.1			X	X	X	X	X	10	10			0.50	z	
1012	Butylene (1-butene) or	2.1			X	X	X	X	X	10	10			0.53		
1012	Butylene (cis-2-butylene) or	2.1			X	X	X	X	X	10	10			0.55		

1012	Butylene (trans-2-butylene)	2.1			X	X	X	X	X	10	10	0.54		
1013	DIOXIDE CARBON	2.2			X	X	X	X	X	10	190 250	0.68 0.76		
1017	CHLORINE	2.3	5.1	293	X	X	X	X	X	Referring to Fig.				The
1018	CLORODIFLUOROMETAN The (REFRIGERANT GAS R 22)	2.2			X	X	X	X	X	10	27	1.03		
1020	CLOROPENTAFLUOROETYEAR (GAS SODA R 115)	2.2			X	X	X	X	X	10	25	1.05		
1021	1-Chloro-1,2,2,2-tetrafluoroethane (REFRIGERANT GAS R 124)	2.2			X	X	X	X	X	10	11	1.20		
1022	CLOROTRIFLUOROME-TANO (GAS REFRIGERANT R 13)	2.2			X	X	X	X	X	10	100 120 190 250	0.83 0.90 1.04 1.11		
1026	cyanogen	2.3	2.1	350	X	X	X	X	X	Referring to Fig.				U
1027	cyclopropane	2.1			X	X	X	X	X	10	18	0.55		

1028	DICLORODIFLUOROMETANO (GAS COOLING R12)	2.2			X	X	X	X	X	10	16	1.15		
1029	dichlorofluoromethane (REFRIGERANT GAS R 21)	2.2			X	X	X	X	X	10	10	1.23		
1030	1,1-difluoroethane (REFRIGERANT GAS R 152a)	2.1			X	X	X	X	X	10	16	0.79		
1032	Dimethylamine, anhydrous	2.1			X	X	X	X	X	10	10	0.59		B
1033	dimethyl ether	2.1			X	X	X	X	X	10	18	0.58		
1035	ETHANOL	2.1			X	X	X	X	X	10	95 120 300	0.25 0.30 0.40		
1036	ethylamine	2.1			X	X	X	X	X	10	10	0.61		B
1037	CHLORIDE ETHYL	2.1			X	X	X	X	X	10	10	0.80		a, r
1039	ETHER ETILMETÍLICO	2.1			X	X	X	X	X	10	10	0.64		
1040	ETHYLENE OXIDE or ETHYLENE OXIDE WITH NITROGEN up pressure total of 1 MPa (10 bar) to 50 ° C	2.3	2.1	2900	X	X	X	X	X	Referring to Fig.				L
1041	MIXED OXIDE Ethylene and DIOXIDE CARBON over And 9% to 87% of oxide ethylene	2.1			X	X	X	X	X	10	190 250	0.66 0.75		
1043	FERTILIZER, SOLUTION AMMONIACAL,	2.2			X		X	X		Referring to Fig.				b, z

	containing ammonia free													
1048	BROMIDE HYDROGEN, ANHYDROUS	2.3		Referring to Fig.	X	X	X	X	X	Referring to Fig.	60		F51	a, d
1050	CHLORIDE HYDROGEN, ANHYDROUS	2.3		Referring to Fig.	X	X	X	X	X	Referring to Fig.	100		F39	a, d
											120	0.56		a, d
											150	0.67		a, d
											200	0.74		a, d
1053	sulfide HYDROGEN	2.3	2.1	712	X	X	X	X	X	Referring to Fig.	48		F67	d, u
1055	isobutylene	2.1			X	X	X	X	X	10	10	0.52		
1058	LIQUEFIED GASES, nonflammable, containing nitrogen, carbon dioxide or	2.2			X	X	X	X	X	10	Pressure test = 1.5 × pressure			
1060	MIX OF methylacetylene and PROPADIENE, Stabilized or	2.1			X	X	X	X	X	10	job			c, z
	MIX OF methylacetylene and PROPADIENE, Stabilized (Propadiene with 1% to 4% methylacetylene)	2.1			X	X	X	XX	10	22		0.52		w
1061	methylamine, ANHYDROUS	2.1			X	X	X	X	X	10	13	0.58		B
1062	Methyl Bromide	2.3		850	X	X	X	X	X	Referring to Fig.	10		F51	The
1063	Methyl chloride (REFRIGERANT GAS R 40)	2.1			X	X	X	X	X	10	17	0.81		The

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1064	METILMERCAPTANA	2.3	2.1	1350	X	X	X	X	X	Referring to Fig.	10		F78	d, u
1067	tetroxide Dinitrogen (DIOXIDE NITROGEN)	2.3	5.1	115 Referring to Fig.	X		X	X		Referring to Fig.	10		F39	K
1069	CHLORIDE nitrosyl	2.3		Referring to Fig. 35	X			X		Referring to Fig.	13		F19	K
1070	NITROUS OXIDE	2.2	5.1		X	X	X	X	X	10	180	0.68		
											225	0.74		
											250	0.75		
1075	GAS (ES) OIL, LIQUEFIED (S) or GAS (ES) LIQUEFIED (S) OIL or LPG	2.1			X	X	X	X	X	10				v, z
1076	PHOSGENE	2.3		Referring to Fig. Referring to Fig.	X		X	X		Referring to Fig.	20		F23	a, k
1077	PROPYLENE	2.1			X	X	X	X	X	10	27	0.43		
1078	REFRIGERANT GAS, HUH	2.2			X	X	X	X	X	10				z
1079	SULPHUR DIOXIDE	2.3		Referring to Fig. 2620	X	X	X	X	X	Referring to Fig.	12		F23	
1080	hexafluoride SULFUR	2.2			X	X	X	X	X	10	70	1.06		
											140	1.34		
											160	1.38		
1081	tetrafluoroethylene, STABILIZED	2.1			X	X	X	X	X	10	200			m, o

1082	TRIFLUORCLORO ETHYLENE, STABILIZED (Refrigerant Gas R 1113)	2.3	2.1	2000	X	X	X	X	X	Referring to Fig.			U
1083	trimethylamine, ANHYDROUS	2.1			X	X	X	X	X	10	10	0.56	B
1085	VINYL bromide, STABILIZED	2.1			X	X	X	X	X	10	10	1.37	The
1086	VINYL CHLORIDE, STABILIZED	2.1			X	X	X	X	X	10	12	0.81	The
1087	Methylvinyl ether, STABILIZED	2.1			X	X	X	X	X	10	10	0.67	
1581	MIX OF And CHLOROPICRIN Methyl Bromide	2.3		850	X	X	X	X	X	Referring to Fig.			The
1582	MIX OF And CHLOROPICRIN Methyl chloride	2.3			X	X	X	X	X	Referring to Fig.			The
1589	CHLORIDE CYANOGEN, STABILIZED	2.3	Referring to Fig.	80	X			X		Referring to Fig.			K
1741	Trichloride BORO	2.3	Referring to Fig.	2541	X	X	X	X	X	Referring to Fig.			The
1749	trifluoride CHLORINE	2.3	5.1	299 Referring to Fig.	X	X	X	X	X	Referring to Fig.			The
1858	hexafluoropropylene (REFRIGERANT GAS R 1216)	2.2			X	X	X	X	X	10	22	1.11	
1859	tetrafluoride SILICON	2.3	Referring to Fig.	450	X	X	X	X	X	Referring to Fig.	200 300	0.74 1.10	The
1860	FLUORIDE VINYL, STABILIZED	2.1			X	X	X	X	X	10	250	0.64	The
1911	diborane	2.3	2.1	80	X			X		Referring to Fig.	250	0.07	d, k, the
1912	CHLORIDE MIXTURE Methyl and CHLORIDE methylene	2.1			X	X	X	X	X	10	17	0.81	The

1952	OXIDE MIXING Ethylene and DIOXIDE CARBON up to 9% 9% of ethylene oxide	2.2			X	X	X	X	X	10	190 250	0.66 0.75	
1958	1,2-dichloro-1,1,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 114)	2.2			X	X	X	X	X	10	10	1.30	
1959	1,1-DIFLUORETILENO (REFRIGERANT GAS R 1132nd)	2.1			X	X	X	X	X	10	250	0.77	
1962	ETHYLENE	2.1			X	X	X	X	X	10	225 300	0.34 0.38	
1965	MIX OF HYDROCARBON GASEOUS LIQUEFIED, NE	2.1			X	X	X	X	X	10			v, z
1967	TOXIC INSECTICIDE,	2.3			X	X	X	X	X	Referring to Fig.			z

1968	GASEOUS, NE INSECTICIDE GASEOUS, HUH	2.2				X	X	X	X	X	10			z
1969	ISOBUTANE	2.1				X	X	X	X	X	10	10	0.49	V
1973	MIX OF CLORODIFLUOR-METHANE AND CLOROPENTA-FLUORETANO with point constant boiling, with approximately 49% of chlorodifluoromethane (GAS Refrigerant R 502)	2.2				X	X	X	X	X	10	31	1.01	
1974	CLORODIFLUORBROMO-METHANE (GAS Refrigerant R 12B1)	2.2				X	X	X	X	X	10	10	1.61	
1975	OXIDE MIXTURE NITRIC and osmium dinitrogen (OXIDE MIXTURE DIOXIDE AND NITRIC NITROGEN)	2.3	5.1	115 Referring to Fig.		X		X	X		Referring to Fig.			k, z
1976	OCTAFLUORCICLO-BUTANO (GAS COOLING RC 318)	2.2				X	X	X	X	X	10	11	1.32	
1978	PROPANE	2.1				X	X	X	X	X	10	23	0.43	V
1982	tetrafluoromethane (REFRIGERANT GAS R 14)	2.2				X	X	X	X	X	10	200 300	0.71 0.90	
1983	1-CHLORO-2,2,2-Trifluoroethane (GAS Refrigerant R 133a)	2.2				X	X	X	X	X	10	10	1.18	
1984	trifluoromethane (REFRIGERANT GAS R 23)	2.2				X	X	X	X	X	10	190 250	0.88 0.96	
2035	1,1,1-trifluoroethane (REFRIGERANT GAS R 143a)	2.1				X	X	X	X	X	10	35	0.73	
2036	XENON	2.2				X	X	X	X	X	10	130	1.28	
2044	2,2-Dimethylpropane	2.1				X	X	X	X	X	10	10	0.53	
2073	AMMONIA SOLUTION, WITH relative density less than From 0.880 to 15 ° C in water over 35% but not	2.2				X	X	X	X	X	Referring to Fig.	10	0.80	B

	more than 40% of ammonia with more than 40% but not more than 50% ammonia					X	X	X	X	X	Referring to Fig.	12	0.77	B
2188	arsine	2.3	2.1	20		X			X		Referring to Fig.	42	1.10	d, k
2189	dichlorosilane	2.3	2.1	314 Referring to Fig.		X	X	X	X	X	Referring to Fig.	10 200	0.49 1.08	The
2191	FLUORIDE sulfuryl	2.3		3020		X	X	X	X	X	Referring to Fig.	50	1.10	U
2192	GERMANIUM	2.3	2.1	620		X	X	X	X	X	Referring to Fig.	250	0.96	d, q, r

2193	Hexafluoroethane (REFRIGERANT GAS R 116)	2.2			X	X	X	X	X	10	200	1.13			
2194	hexafluoride SELENIUM	2.3	Referring to Fig.	50	X			X		Referring to Fig.		26	1.46		K
2195	hexafluoride TELLURIUM	2.3	Referring to Fig.	25	X			X		Referring to Fig.		20	1.90		K
2196	hexafluoride TUNGSTEN	2.3	Referring to Fig.	160	X			X		Referring to Fig.		10	3.08		a, k
2197	Hydrogen iodide, ANHYDROUS	2.3	Referring to Fig.	2860	X	X	X	X	X	Referring to Fig.		23	2.25		a, d
2198	PENTAFLUORIDE PHOSPHOR	2.3	Referring to Fig.	190	X			X		Referring to Fig.		200	0.90		K
												300	1.25		K
2199	PHOSPHINE	2.3	2.1	20	X			X		Referring to Fig.		225	0.30		d, k, q
												250	0.45		d, k, q
2200	PROPADIENE, STABILIZED	2.1			X	X	X	X	X	10		22	0.50		
2202	selenide HYDROGEN, ANHYDROUS	2.3	2.1	2	X			X		Referring to Fig.		3	1.60		K
2203	SILANE	2.1			X	X	X	X	X	10		225	0.32		Q
												250	0.36		Q
2204	carbonyl sulfide	2.3	2.1	1700	X	X	X	X	X	5		30	0.87		U
2417	FLUORIDE carbonyl	2.3	Referring to Fig.	360	X	X	X	X	X	5		200	0.47		
												300	0.70		
2418	tetrafluoride SULFUR	2.3	Referring to Fig.	40	X			X		Referring to Fig.		0.91	to 30		k
2419	BROMOTRIFLUOROethylene	2.1			X	X	X	X	X	10	10	1.19			
2420	HEXAFLUORACETONA	2.3	Referring to Fig.	470	X	X	X	X	X	Referring to Fig.		22	1.08		
2421	trioxide NITROGEN	2.3	5.1	57	X			X		Referring to Fig.					K
			Referring to Fig.												
2422	OCTAFLUORBUT-2-ene (REFRIGERANT GAS R 1318)	2.2			X	X	X	X	X	10	12	1.34			
2424	OCTAFLUORPROPANO (REFRIGERANT GAS R 218)	2.2			X	X	X	X	X	10	25	1.04			
2451	trifluoride NITROGEN	2.2	5.1		X	X	X	X	X	10	200	0.50			
2452	ETILACETILENO, STABILIZED	2.1			X	X	X	X	X	10	10	0.57			w
2453	ETHYL FLUORIDE (REFRIGERANT GAS R 161)	2.1			X	X	X	X	X	10	30	0.57			
2454	FLUORIDE methyl (REFRIGERANT GAS R 41)	2.1			X	X	X	X	X	10	300	0.63			
2455	NITRITE methyl	2.2													
2517	1-CHLORO-1,1-difluoroethane (REFRIGERANT GAS R 142b)	2.1			X	X	X	X	X	10	10	0.99			

2534	METILCLOROSSITHERE IN	2.3	2.1	600	X	X	X	X	X	Referring to Fig.					z
			Referring to Fig.												
2548	PENTAFLUORIDE	2.3	5.1	122	X			X		Referring to Fig.		13	1.49		a, k

	CHLORINE			Referring to Fig.										
2599	MIXTURE azeotropic OF CLOROTRIFLUORMETYEAR AND trifluoromethane approximately 60% of chlorotrifluoromethane (REFRIGERANT GAS R 503)	2.2			X	X	X	X	X	10	31 42 100	0.12 0.17 0.64	
2601	cyclobutane	2.1			X	X	X	X	X	10	10	0.63	
2602	MIXTURE azeotropic OF DICLORODIFLUORMETAIN AND difluoroethane approximately 74% of dichlorodifluoromethane (GAS Refrigerant R 500)	2.2			X	X	X	X	X	10	22	1.01	
2676	stibnite	2.3	2.1	20	X			X		Referring to Fig.	200	0.49	k
2901	CHLORIDE BROMO	2.3	5.1	290	X	X	X	X	X	Referring to Fig.	10	1.50	R The
3057	CHLORIDE TRIFLUORACETILA	2.3		Referring to Fig. 10	X		X	X		Referring to Fig.	17	1.17	K
3070	MIXED OXIDE ethylene and DICLORODIFLUORMETANO, up to 12.5% of ethylene oxide	2.2			X	X	X	X	X	10	18	1.09	
3083	FLUORIDE PERCLORILA	2.3	5.1	770	X	X	X	X	X	Referring to Fig.	33	1.21	U
3153	Perfluoro (ETHER methylvinyl)	2.1			X	X	X	X	X	10	20	0.75	
3154	Perfluoro (ETHER ethyl vinyl)	2.1			X	X	X	X	X	10	10	0.98	
3157	OXIDIZING GAS LIQUEFIED, HUH	2.2	5.1		X	X	X	X	X	10			z
3159	1,1,1,2 TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)	2.2			X	X	X	X	X	10	18	1.05	
3160	GAS, TOXIC, FLAMMABLE, LIQUEFIED, NE	2.3	2.1	≤ 5000	X	X	X	X	X	Referring to Fig.			z
3161	GAS, FLAMMABLE, LIQUEFIED, NE	2.1			X	X	X	X	X	10			z
3162	GAS, TOXIC LIQUEFIED, NE	2.3		≤ 5000	X	X	X	X	X	Referring to Fig.			z
3163	LIQUEFIED GAS, NE	2.2			X	X	X	X	X	10			z
3220	PENTAFLUOROETHANE (REFRIGERANT GAS R 125)	2.2			X	X	X	X	X	10	49 35	0.95 0.87	
3252	difluoromethane (REFRIGERANT GAS R 32)	2.1			X	X	X	X	X	10	48	0.78	
3296	heptafluoropropane (REFRIGERANT GAS R 227)	2.2			X	X	X	X	X	10	13	1.21	

3297	MIXED OXIDE ethylene and CLOROTETRAFLUORET YEAR with UP 8.8% of ethylene oxide	2.2			X	X	X	X	X	10	10	1.16	
3298	MIXED OXIDE ethylene and PENTAFLUOROETHANE, up to 7.9% of oxide ethylene	2.2			X	X	X	X	X	10	26	1.02	
3299	MIXED OXIDE ethylene and TETRAFLUOROETHANE, up to 5.6% of oxide ethylene	2.2			X	X	X	X	X	10	17	1.03	
3300	MIXED OXIDE Ethylene and DIOXIDE CARBON over 87% of ethylene oxide	2.3	2.1	More of what 2900	X	X	X	X	X	Referring to Fig.	28	0.73	
3307	GAS, TOXIC, oxidant LIQUEFIED, NE	2.3	5.1	≤ 5000	X	X	X	X	X	Referring to Fig.			z
3308	GAS, TOXIC, CORROSIVE, LIQUEFIED, NE	2.3		Referring to Fig. ≤ 5000	X	X	X	X	X	Referring to Fig.			z
3309	GAS, TOXIC, FLAMMABLE, CORROSIVE, LIQUEFIED, NE	2.3	2.1	≤ 5000 Referring to Fig.	X	X	X	X	X	Referring to Fig.			z
3310	GAS, TOXIC, oxidant CORROSIVE, LIQUEFIED NE	2.3	5.1	≤ 5000 Referring to Fig.	X	X	X	X	X	Referring to Fig.			z
3318	AMMONIA SOLUTION, with relative density less than 0.880 15 ° C in water with more 50% Ammonia	2.3		Referring to Fig.	X	X	X	X	X	Referring to Fig.			B
3337	REFRIGERANT GAS R 404A	2.2			X	X	X	X	X	10	36	0.82	
3338	REFRIGERANT GAS R 407A	2.2			X	X	X	X	X	10	32	0.94	
3339	REFRIGERANT GAS R 407B	2.2			X	X	X	X	X	10	33	0.93	
3340	REFRIGERANT GAS R-407C	2.2			X	X	X	X	X	10	30	0.95	
3354	INSECTICIDE FLAMMABLE, GASEOUS, HUH	2.1			X	X	X	X	X	10			z
3355	TOXIC INSECTICIDE, FLAMMABLE, GASEOUS, HUH	2.3	2.1		X	X	X	X	X	Referring to Fig.			z
3374	ACETYLENE, FREE SOLVENT	2.1			X			X		Referring to Fig.	60 52		c, p

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P200 **PACKING INSTRUCTION *(cont.)*** **P200**

Table 3: SUBSTANCES NOT INCLUDED IN CLASS 2

At the. UN	Name and description											
1051	CYANIDE HYDROGEN, STABILIZED containing less than 3% water	6.1	3	40	X		X	Referring to Fig.				K
1052	FLUORIDE HYDROGEN, ANHYDROUS	Referring to Fig.	6.1	90	X	X	X	Referring to Fig.				to t
1745	PENTAFLUORIDE BROMO	5.1	6.1	25	X	X	X	Referring to Fig.				K
1746	trifluoride BROMO	5.1	6.1	50	X	X	X	Referring to Fig.				K
2495	PENTAFLUORIDE IODINE	5.1	6.1	120	X	X	X	Referring to Fig.				K
2983	MIXED OXIDE AND ETHYLENE OXIDE Propylene, up to 30% of ethylene oxide	3	6.1		X	X	X	Referring to Fig.				z

The *It requires a minimum clearance of 8% by volume.*

P201 **PACKING INSTRUCTION** **P201**

This instruction applies to UN 3167 numbers, 3168 and 3169.

The following packagings are allowed:

1) Cylinders and gas containers that meet the requirements for the manufacture, testing and filling approved by the competent authority.

2) The following combination packagings provided that the general provisions of the items are met 4.1.1 and 4.1.3:

Outer packaging:

drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2).

Inner packing:

The) Non-toxic gases, hermetically sealed inner packaging made of glass or metal, with a maximum capacity of 5 L by volume;

B) for toxic gases, hermetically sealed inner packaging made of glass or metal, with

maximum capacity of 1 liter volume.

Packages must meet the performance levels for Packing Group III.

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P202 **PACKING INSTRUCTION** **P202**

(Reserved)

P203 **PACKING INSTRUCTION** **P203**

This instruction applies to refrigerated liquefied gases of Class 2.

Requirements for closed cryogenic receptacles:

(1) shall be met the general requirements of paragraph 4.1.6.1.

(2) Chapter 6.2 requirements must be met.

(3) The closed cryogenic containers should be sealed so that they are not covered with ice.

(4) Test pressure

Refrigerated liquids shall be filled in closed cryogenic receptacles with the following minimum test pressure:

The) in the case of closed cryogenic receptacles with vacuum insulation, not test pressure It should be less than 1.3 times the sum of the maximum internal pressure of the filled container, including during filling and desenvasamento plus 100 kPa (1 bar);

B) for other closed cryogenic receptacles, the test pressure shall not be less than 1.3 times the maximum internal pressure of the filled container, taking into account the pressure developed during the filling and the desenvasamento.

(5) Filling Degree

In the case of refrigerated liquefied gases not toxic and not flammable, the volume of the liquid phase filling temperature and at a pressure of 100 kPa (1 bar) must not exceed 98% of capacity Water in the pressure vessel.

In the case of refrigerated liquefied flammable gases, the degree of filling should be kept below level at which, when the content is subjected to the temperature at which the vapor pressure equals the opening pressure of the relief valve, the volume of the liquid phase reaches 98% of capacity water at that temperature.

(6) Pressure Relief Devices

Closed cryogenic receptacles shall be equipped with at least one relief device pressure.

(7) Compatibility

The materials used to ensure the tightness of the joints or for the maintenance of closing devices must be compatible with the contents. In the case of containers intended the transport of oxidizing gases (i.e., with a subsidiary risk of the Class 5.1), such materials should not react with the gases in a dangerous manner.

(8) Periodic Inspection

Periodic inspection and the frequency of testing of pressure relief valves in accordance with item 6.2.1.6.3 must not exceed 5 years.

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Requirements for open cryogenic receptacles:

Only the following non oxidizing refrigerated liquefied gases of Division 2.2 may be transported in open cryogenic receptacles: UN 1913 numbers 1951, 1963, 1970, 1977, 2591, 3136 and 3158.

open cryogenic receptacles shall be constructed so that meet the following requirements:

(1) The receptacles shall be designed, manufactured, tested and equipped in order to support all conditions, including fatigue, they are subjected to during normal use and normal transport.

(2) The capacity should be up to 450 L.

(3) The container should have a double wall, with space between the inner and outer walls must be evacuated (insulation vacuum). The insulation shall prevent the formation of ice on the outside of the container.

(4) Construction materials must have suitable mechanical properties at operating temperature.

(5) Materials which are in direct contact with dangerous goods must not be affected or weakened by the dangerous goods transported and shall not cause harmful effects, for example, catalyze a reaction or reacting with the dangerous goods.

(6) Glass double-walled containers must be packed in outer packaging materials absorbent and adequate cushioning to support the pressures and impacts likely to occur under normal conditions of transport.

(7) The receptacles shall be designed to remain upright during transport, for example, having the base so that its lower horizontal dimension is greater than the central gravity when filled to its maximum capacity.

(8) The openings in the containers should be fitted with a device allowing gases to escape, preventing any leak of liquid and being configured so that they remain in place during transport.

(9) Open cryogenic receptacles shall bear the following information in order permanent:

- The name and address of the manufacturer;
- The number or model name;
- The number of serious or lot;

- The UN number and the proper shipping name of the products that can be transported in container;
- The capacity in liters.

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P205 **PACKING INSTRUCTION** **P205**

This instruction applies to UN 3468 number.

1) For metal hydride storage devices, the provisions must be met general packaging item 4.1.6.1.
2) This packing instruction refers only to pressure vessels with a capacity Water up to 15 L and reach a maximum pressure up to 25 MPa.
3) The metal hydride storage devices that meet the manufacturing requirements and testing of pressure receptacles containing gas of Chapter 6.2 are only permitted for transporting hydrogen.
4) When containers are used in steel pressure vessels or pressure compounds steel casing, only those having the mark "M" in accordance with item 6.2.2.9.2 (j) They can be used.
5) metal hydride storage systems must meet the service conditions, criteria design, rated capacity, type of test, test per lot, periodic inspection, testing pressure, rated charging pressure and provisions for pressure relief devices for systems metal hydrides transportable storage as specified in ISO 16111: 2008, and must conform to and be approved in accordance with paragraph 6.2.2.5.
6) metal hydride storage systems shall be filled with hydrogen at a pressure not exceeding the rated pressure shown in the permanent markings specified in ISO 16111: 2008.
7) The requirements for periodic tests for a metal hydride storage system must be in accordance with ISO 16111: 2008 and were conducted according to the item 6.2.2.5, and the interval between periodic inspections may not exceed 5 years.

P206 **PACKING INSTRUCTION** **P206**

This instruction applies to UN numbers 3500, 3501, 3502, 3503, 3504, 3505.

Unless otherwise stated in this Regulation are allowed cylinders and pressure drums that meet the applicable requirements of Chapter 6.2:

(1) The general requirements of item 4.1.6.1 packaging must be met.

(2) The maximum test time for periodic inspections should be 5 years.

(3) Pressure cylinders and drums to be filled so that at 50 ° C, non-gaseous phase does not exceed 95% of its water capacity and are not completely filled at 60 ° C. When filled, the internal pressure at 65 ° C can not exceed the test pressure of the cylinders and pressure drums. The vapor pressures and volumetric expansion of all substances in cylinders and pressure drums shall be taken into consideration.

(4) The minimum test pressure shall be in accordance with the Instruction for P200 Packaging for propellant, but may not be less than 20 bar.

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Additional Requirements:

Cylinders and pressure drums may not be offered for transport when connected spray application equipment such as a hose and mounted sprayers.

Special provisions Packaging

PP89 For UN numbers 3501, 3502, 3503, 3504 and 3505, notwithstanding the provisions of section 4.1.6.1.9 (b) non-refillable cylinders may have a water capacity, expressed in liters not exceeding 1000 L divided by test pressure in bar, since capacity constraints and pressure construction standard comply with ISO 11118: 1999, which limits the maximum capacity to 50 liters.

P207 **PACKING INSTRUCTION** **P207**

This instruction applies to UN number 1950.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met.

The) Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2).

Packages must meet the level of performance of Packing Group II.

B) rigid outer packaging with a maximum net mass as follows:

Cardboard 55 kg

Others 125 Kg

The provisions of item 4.1.1.3 need not be met.

Packages must be designed and constructed to prevent movement of the aerosols and unloading Inadvertent during normal transport.

Special provisions Packaging

PP87 For UN number 1950 in the case of aerosol containers disposed according transported with Special Provision 327, the packages must have retention means any liquid cart that can escape during transport, for example, using absorbent material. At packages must be properly vented to avoid the creation of flammable atmosphere and the pressure buildup.

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P208 **PACKING INSTRUCTION** **P208**

This instruction applies to Class 2 adsorbed gases.

(1) The following packagings are permitted, provided that the general provisions of item 4.1.6.1 are met:

specified in Chapter 6.2 and cylinders according to ISO 11513: 2011 and ISO 9809-1: 2010.

(2) The pressure of each cylinder filled should be less than 101.3 kPa at 20 ° C and lower than 300 kPa at 50 ° C.

(3) The minimum pressure cylinder test must be 21 bar.

(4) The minimum pressure cylinder rupture should be 94.5 bar.

(5) The internal pressure of the filled cylinder at 65 ° C, can not be higher than its pressure test.

(6) The adsorbent material should be compatible with the cylinder and can not form harmful compounds or with the harmful gas to be adsorbed. The gas, when combined with the sorbent material, can not affect or weaken the cylinder or cause dangerous reactions (eg catalyzing a reaction).

(7) The quality of the adsorbent must be ascertained at each filling to ensure that the pressure requirements and chemical stability willing this Instruction Packaging are being met every time a volume containing gas adsorbed is offered for transport.

(8) The adsorbent material may not meet the classification criteria of any class or subclass described in this Regulation.

(9) The requirements for cylinder locks and containing toxic gases with an LC_{50} less than or equal to 200 ml / m^3 (Ppm) (see Table 1) are as follows:

(A) the valve outlets shall be fitted with gas-tight plugs with pressure retaining or with covers with corresponding threads to those of the outputs of the valves;

(B) each valve must be of the type without tightening with non-perforate membrane, or be of a type which prevent leakage through the package;

(C) each cylinder and closing shall be tested against leakage after filling;

(D) each valve must be able to withstand the cylinder test pressure and be connected directly to the cylinder is for a taper thread or other means which meets the requirements of ISO 10692-2: 2001;

(E) cylinders and valves may not be equipped with a pressure relief device.

(10) The outputs of valves for cylinders containing pyrophoric gases must be equipped with the plugs or gas-tight closures with threads corresponding to those of the outputs of the valves.

(11) The filling procedure should be in accordance with Annex "A" of ISO 11513: 2011.

(12) The maximum period for periodic inspection shall be 5 years.

(13) special packing provisions that are specific to the particular substance (see Table 1: Adsorbed) gases

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Material compatibility

to: aluminum alloy cylinders can not be used.

b: When steel cylinders are used, only those flying its marked "M" in accordance with the established in paragraph (p) of item 6.2.2.7.4, are allowed.

Specific provisions gases

A: The filling of the gas must be limited so that if complete decomposition occurs, the pressure does not exceed two-thirds of the cylinder test pressure.

Compatibility material gas adsorbed designations NE

z: The construction materials of the cylinders and their accessories must be compatible with the contents and They can not react to form hazardous or harmful compounds contained in the product.

Table 1 : GASES adsorbed

No. Onu	Name and Description	class or subclass	Risk Subsidiary	CL50 ml / m3	special provision packing
(1)	(2)	(3)	(4)	(5)	(6)
3510	Adsorbed GAS, FLAMMABLE, NE	2.1			z
3511	ADSORVATED GAS, NE	2.2			z
3512	adsorbed GAS TOXIC, NE	2.3		≤ 5,000	z
3513	Adsorbed GAS, OXIDIZING, NE	2.2	5.1		z
3514	GAS Adsorbed, TOXIC FLAMMABLE, NE	2.3	2.1	≤ 5,000	z
3515	adsorbed GAS TOXIC, OXIDIZING, NE	2.3	5.1	≤ 5,000	z
3516	Adsorbed GAS, TOXIC, CORROSIVE, HUH	2.3	Referring to Fig.	≤ 5,000	z
3517	Adsorbed GAS, TOXIC, FLAMMABLE, Corrosive, NE	2.3	2.1 Referring to Fig.	≤ 5,000	z
3518	Adsorbed GAS, TOXIC, OXIDIZING, Corrosive, NE	2.3	5.1 Referring to Fig.	≤ 5,000	z
3519	trifluoride BORON adsorbed	2.3	Referring to Fig.	387	The
3520	CHLORINE adsorbed	2.3	5.1 Referring to Fig.	293	The
3521	tetrafluoride SILICON adsorbed	2.3	Referring to Fig.	450	The
3522	Arsine, ADSORBED.	2.3	2.1	20	d
3523	GERMANO, Adsorbed	2.3	2.1	620	d, r
3524	PENTAFLUORIDE PHOSPHORUS adsorbed	2.3	Referring to Fig.	190	-
3525	PHOSPHINE, ADSORBED	2.3	2.1	20	d
3526	selenide HYDROGEN, adsorbed	2.3	2.1	2	-

P300 **PACKING INSTRUCTION** **P300**

This instruction applies to UN 3064 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

Combination packagings consisting of inner metal cans with a capacity of up to 1 L each and Outdoor wooden boxes (4C1, 4C2, 4D and 4F) containing up to 5 L of solution.

Additional Requirements:

1. The metal can be completely surrounded with absorbent cushioning material.
2. Wooden boxes shall be completely lined with suitable impervious material water and nitroglycerin.

P301 **PACKING INSTRUCTION** **P301**

This instruction applies to UN 3165 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

1) aluminum pressure vessel made of welded pipe and with lids.
The primary containment of the fuel within this container should consist of one ampoule welded aluminum, with a maximum internal volume of 46 L.
The outer vessel shall have a minimum gauge pressure of 1,275 kPa project and a Minimum gauge pressure of 2,755 kPa break.
Each container should be checked for leaks during manufacture and before shipment; and It should be considered waterproof.
The complete inner unit shall be securely packed with cushioning material non-combustible, such as vermiculite, a metal external packaging and strongly resistant closed, adequately protect all fittings.
The maximum amount of fuel per unit and package is 42 L.

2) aluminum pressure vessel.
The primary containment of the fuel within that container must consist of a compartment fuel, soldier, tight vapor with an elastomeric bulb with an internal volume maximum of 46 L.
The pressure vessel must have a minimum gauge pressure of 2680 kPa design and Minimum gauge pressure of 5,170 kPa break.
Each container should be checked for leaks during manufacture and before shipment and securely wrapped with non-combustible cushioning material such as vermiculite, a metal outer packaging resistant and tightly closed, adequately protect all accessories.
The maximum amount of fuel per unit and package is 42 L.

This instruction applies to UN 3269 number.

Are allowed the following combination packagings provided that the general provisions of items 4.1.1 and 4.1.3 are met:

External packaging:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2).

Inner packagings:

The activator (organic peroxide) shall have a maximum capacity of 125 ml per container when internal liquid, and 500 g per inner package when solid.
The base material and the activator (organic peroxide) must be packed separately in separate inner packagings.

The components may be placed on the same outer packaging, provided they do not interact dangerously in case of leakage
Packages must meet the performance levels to packing groups II or III, according with the criteria for class 3, applied to the base material.

P400 PACKING INSTRUCTION P400

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

1) Pressure vessels, provided the general provisions of item 4.1.3.6. Shall be of steel and subjected to an initial test and periodic tests every 10 years at a pressure greater than 1 MPa (10 bar, gauge pressure). During transport, the liquid should be under a layer of inert gas at a pressure exceeding 20 kPa (0.2 bar).
2) Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F or 4G), drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1D or 1G) or jerricans (3A1, 3A2, 3B1 and 3B2) involving metal cans with hermetically sealed inner packagings of glass or metal, with a capacity of up to 1 L each, with threaded closures provided with gaskets. The inner packagings shall be cushioned on all sides with materials dry absorbent non-combustible in sufficient quantity to absorb the entire contents. At Inner packagings shall not be filled to more than 90% of its capacity. packaging External shall have a maximum net mass of 125 kg.
3) steel drums, aluminum or other metal (1A1, 1A2, 1B1, 1B2, 1N1, 1N2), jerricans (3A1, 3A2, 3B1 or 3B2) or boxes (4A, 4B or 4N) with a maximum net mass of 150 kg each, with metal cans internal hermetically sealed, for up to 4 L each, with threaded closures fitted with

gaskets. The inner packagings shall be cushioned on all sides with absorbent material Dry, non-combustible, in sufficient quantity to absorb the entire contents. The layers inner packages must be separated from each other by partitions, in addition to material padding. Inner packagings shall not be filled to more than 90% of its capacity.

Special provision for packaging:

PP86 For UN 3392 and 3394 numbers, the air must be eliminated from the vapor space by nitrogen or otherwise.

P401 PACKING INSTRUCTION P401

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

1) Pressure vessels, provided that the general provisions of item 4.1.3.6 are met. Must be made of steel and subjected to an initial test and periodic tests every 10 years, a pressure greater than 0,60MPa (6 bar gauge pressure). During transport, the liquid must be under an inert gas layer at a pressure exceeding 20 kPa (0.2 bar).

2) Combination packagings:

External packaging:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2).

Inner packagings:

Glass, metal or plastics which have threaded closures and a maximum of 1 liter capacity

Each inner packaging shall be involved with absorbent cushioning material and inert sufficient quantity to absorb the entire contents.

The maximum net mass per outer packaging shall not exceed 30 kg.

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P402 **PACKING INSTRUCTION** **P402**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

1) Pressure vessels, provided that the general provisions of item 4.1.3.6 are met. Must be made of steel and subjected to an initial test and periodic tests every 10 years, a pressure greater than 0.60 MPa (6 bar gauge pressure). During transport, the liquid must be under an inert gas layer at a pressure exceeding 20 kPa (0.2 bar).

2) Combination packagings:

External packaging:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2).

inner packagings, with the following net maximum capacity:

Glass	10 kg
Metal or plastic	15 kg

Each inner packaging shall be fitted with threaded closures.

Each inner packaging shall be involved with absorbent cushioning material and inert sufficient quantity to absorb the entire contents.

The maximum net mass per outer packaging shall not exceed 125 kg

3) Steel drums (1A1) with a maximum capacity of 250 L.

4) Composite packagings consisting of plastics receptacle in steel or aluminum drum (6HA1 or 6HB1) with a maximum capacity of 250 L.

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P403 PACKING INSTRUCTION P403

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

Combined packaging

Internal packaging	**External packaging**	**Net mass Maximum**
-glass 2 kg	**drums:**	
-plastic 15 kg	-aço (1A1, 1A2)	400 kg
-metal 20 kg	aluminum hydride (1B1, 1B2)	400 kg
	-another metal (1N1, 1N2)	400 kg
Inner packagings	-plastic (1H1, 1H2)	400 kg
must to be closed	-compensado (1D)	400 kg
tightly (per	-papelão (1G)	400 kg
example with tape or		
screw caps).	**boxes:**	
	-aço (4A)	400 kg
	aluminum hydride (4B)	400 kg
	-another metal (4N)	400 kg
	natural -wood (4C1)	250 kg
	natural -wood, dust-proof walls (4C2)	250 kg
	-compensado (4D)	250 kg
	-wood reconstituted (4F)	125 kg
	-papelão (4G)	125 kg
	-plastic expanded (4H1)	60 kg
	hard -plastic (4H2)	250 kg
	jerricans:	
	-aço (3A1, 3A2)	120 kg
	aluminum hydride (3B1, 3B2)	120 kg

-plastic (3H1 and 3H2) 120 kg

Simple packaging	**Net mass Maximum**
drums:	
-aço (1A1, 1A2)	250 kg
aluminum hydride (1B1, 1B2)	250 kg
-other metal other than steel or aluminum (1N1, 1N2)	250 kg
-plastic (1H1, 1H2)	250 kg
jerricans:	
-aço (3A1, 3A2)	120 kg
aluminum hydride (3B1, 3B2)	120 kg
-plastic (3H1 and 3H2)	120 kg
Composite packaging:	
-Container plastic, steel or aluminum drum (6HA1 or 6HB1)	250 kg
-Container plastic cardboard drum, plastic or plywood (6HG1, 6HH1, 6HD1)	75 kg
-Container plastic steel box, aluminum, wood, plywood, cardboard or hard plastic (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	75 kg

Pressure vessels, provided they meet the general provisions of item 4.1.3.6.

Special provision for packaging

PP83 For UN 2813 number can be used to transport bags waterproof that containing not more than 20 g of substance for the formation of heat. Each waterproof bag It must be placed in a sealed plastic bag and placed inside this packaging intermediate. No outer packaging can contain more than 400 g of substance. At

Packaging can no water or any other liquid that can react with hidrorreativa substance.

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P404 **PACKING INSTRUCTION** **P404**

This instruction applies to pyrophoric solids: UN Nos 1383, 1854, 1855, 2005, 2008, 2441, 2545, 2546, 2846, 2881, 3200, 3391, 3393 and 3461.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

1) **Combination packagings:**

Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F or 4H2).

Inner packagings: Metal containers with a maximum net mass of up to 15 kg each. At Inner packagings shall be hermetically sealed and have lids threaded.
glass containers with a maximum net mass of up to 15 kg each, with screw caps with gaixetas, padded on all sides and contained in hermetically sealed metal can.

Outer packagings shall have a maximum net mass of 125 kg.

2) **Metal packaging:** (1A1, 1A2, 1B1, 1N1, 1N2, 3A1, 3A2, 3B1 and 3B2). Maximum gross mass: 150 kg

3) **Composite packaging:** plastic container in steel or aluminum drum (6HA1 or 6HB1). maximum gross mass: 150 kg.

Pressure vessels , provided they meet the general provisions of item 4.1.3.6.

Special provision for packaging:

PP86 For UN 3391 and 3393 numbers, the air must be eliminated from the vapor space by nitrogen or otherwise.

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P405 PACKING INSTRUCTION P405

This instruction applies to UN 1381 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

1) For UN 1381 number dampened match:

The) **combination packagings**

Outer packagings: (4A, 4B, 4N, 4C1, 4C2, 4D or 4F). Maximum net mass: 75 kg

Inner packagings:

(I) hermetically sealed metal cans, with a maximum net mass of 15 kg; or

(Ii) glass inner packagings, cushioned on all sides with absorbent, dry material, noncombustible, in sufficient quantity to absorb the entire contents with net mass maximum 2 kg; or

B) **Drums** (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2); maximum net mass: 400 kg.

Drums (3A1 or 3B2); maximum net mass: 120 kg.

These packages must be able to be approved in the tightness test specified in item 6.1.5.4, for the level of performance of Packing Group II.

2) For UN 1381 number, dry phosphorus:

The) When fused, **drums** (1A2, 1B2 or 1N2) with a maximum net mass of 400 kg; or
B) projectiles or articles in hard cases transported without Class 1 components as specified by the competent authority.

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P406 **PACKING INSTRUCTION** **P406**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1) combination packagings

outer packagings: (4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2, 1G, 1D, 1H1, 1H2, 3H1 or 3H2)

inner packagings: water-resistant packaging.

(2) plastic drums, plywood or cardboard (1H2, 1D or 1G) or boxes (4A, 4B, 4N, 4C1, 4D, 4F, 4C2, 4G and 4H2) with resistant inner bag to water, plastic film lining or water resistant coating.

(3) Steel drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2), plastics drums (1H1 or 1H2), jerricans metal (3A1, 3A2, 3B1 and 3B2), plastic jerricans (3H1 or 3H2), plastic container steel drum or aluminum (6HA1 or 6HB1), plastic containers in cardboard drums, plastic or offset (6HG1, 6HH1 or 6HD1) plastic container in stainless steel, aluminum, wood,

plywood, cardboard or hard plastic (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2).

Additional Requirements:

1. The packaging must be designed and constructed to prevent loss of water content, alcohol or phlegmatizer.
2. Packaging shall be constructed and closed so as to avoid an increase in pressure that may cause an explosion or developing pressure greater than 300 kPa (3 bar).
3. The type of packaging and maximum permitted quantity per packaging are limited by the provisions established in item 2.1.3.6.

Special packing provisions:

PP24 The UN 2852 numbers, 3364, 3365, 3366, 3367, 3368 and 3369 can not be transported in quantities greater than 500 g per package.

PP25 UN 1347 number may not be transported in quantities greater than 15 kg per package.

PP26 For UN numbers 1310, 1320, 1321, 1322, 1344, 1347, 1348, 1349, 1517, 2907, 3317, 3344 and 3376, packagings shall be lead free.

PP48 For UN 3474 number can be used metal containers.

PP78 UN 3370 number may not be transported in quantities of more than 11,5 kg per package.

PP80 For UN 2907 and 3344 numbers, packaging must meet the performance level Packing Group II. Packaging must not be used to meet the level of Performance Packaging Group I.

P407 **PACKING INSTRUCTION** **P407**

This instruction applies to UN 1331 numbers 1944, 1945 and 2254.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

External packaging:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2).

Inner packagings:

Matches shall be tightly packed in inner packaging securely closed,
to prevent accidental ignition under normal conditions of transport.

The maximum gross mass of the package may not exceed 45 kg except in the case of cardboard boxes when can not exceed 30 kg.

Packages must meet the level of performance of Packing Group III.

Special provision for packaging:

PP27 For UN 1331 number, the type matches "scratch anywhere," can not be packaged in the same outer packaging with any other dangerous goods other matches safety or beeswax matches, which must be packed in inner packagings separated. Inner packagings shall not contain more than 700 matches of the "risque in anywhere".

P408 **PACKING INSTRUCTION** **P408**

This instruction applies to UN 3292 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1) For cells:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A2, 3B2, 3H2).

Must have sufficient cushioning material to prevent contact between cells and between them and the inner surface of the outer packaging and to ensure that there is no dangerous movement the battery inside the external packaging during transport.

Packages must meet the performance levels of Packing Group II.

(2) Batteries can be transported without packaging or protective casings (e.g. fully enclosed or wooden crates). The terminals shall not support the weight of other batteries or other materials packaged with the batteries.

The volumes need not meet the provisions of item 4.1.1.3.

Additional requirement:

Batteries must be protected against short circuits and isolated in order to avoid them.

P409 **PACKING INSTRUCTION** **P409**

This instruction applies to UN 2956 numbers, 3242 and 3251.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1) cardboard drum (1G) can be equipped with a liner or coating; maximum net mass: 50 Kg.

(2) Combined packaging: cardboard box (4G) with a single inner plastic bag; net mass Maximum: 50 kg.

(3) Combined packaging: cardboard box (4G) or cardboard drum (1G) with inner packagings plastic, each containing at most 5 kg; maximum net mass: 25kg.

P410 **PACKING INSTRUCTION** **P410**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

combination packagings

Inner packagings		**Outer packagings**	**Maximum net mass**	
			Group in package II	**Group in package III**
-Glass	10 kg	**drums**		
-Plastic the	30 kg	-aço (1A1, 1A2)	400 kg	400 kg
-Metal	40 kg	aluminum hydride (1B1, 1B2)	400 kg	400 kg
-paper A, b	10 kg	-another metal (1N1, 1N2)	400 kg	400 kg
-Papelão A, b	10 kg	-plastic (1H1, 1H2)	400 kg	400 kg
		-compensado (1D)	400 kg	400 kg
		-papelão (1G) to	400 kg	400 kg
		boxes		
		-aço (4A)		
The*packaging*		aluminum hydride (4B)	400 kg	400 kg
should be proof		-another metal (4N)	400 kg	400 kg
powder .		natural -wood (4C1)	400 kg	400 kg
B *such packaging*		natural -wood walls with dust-proof (4C2)	400 kg	400 kg
Internal should not		-compensado (4D)	400 kg	400 kg
to be used		-wood reconstituted (4F)	400 kg	400 kg
When	*The*	-papelão (4G) to	400 kg	400 kg
substance		-plastic expanded (4H1)	400 kg	400 kg
transported can		hard -plastic (4H2)	60 kg	60 kg
liquefy up		**jerricans**	400 kg	400 kg
during transport		-aço (3A1, 3A2)		
(see section 4.1.3.4) .		aluminum hydride (3B1, 3B2)	120 kg	120 kg
		-plastic (3H1 and 3H2)	120 kg	120 kg
			120 kg	120 kg

simple packaging

drums		
-aço (1A1 or 1A2)	400 kg	400 kg
aluminum hydride (1B1 or 1B2)	400 kg	400 kg
-metal, not steel or aluminum (1N1, 1N2)	400 kg	400 kg
-plastic (1H1, 1H2)	400 kg	400 kg
jerricans		
-aço (3A1 or 3A2)	120 kg	120 kg
aluminum hydride (3B1 or 3B2)	120 kg	120 kg
-plastic (3H1 or 3H2)	120 kg	120 kg

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boxes		
-aço (4A) [c]	400 kg	400 kg
aluminum hydride (4B) [c]	400 kg	400 kg
- Other metal (4N) [c]	400 kg	400 kg
natural -wood (4C1) [c]	400 kg	400 kg
-compensado (4D) [c]	400 kg	400 kg
-wood reconstituted (4F) [c]	400 kg	400 kg
natural -wood walls with dust-proof (4C2) [c]	400 kg	400 kg
-papelão (4G) [c]	400 kg	400 kg
hard -plastic (4H2) [c]	400 kg	400 kg
bags		
-bags (5H3, 5H4, 5L3, 5M2) [c, d]	50 kg	50 kg

w *These packages can not be used when the substances transported may become liquid during transport (see item 4.1.3.4).*

d *These packages should only be used for the Group substances Package II when transported in closed transport units.*

composite packaging		
-Container plastic, steel drum, aluminum, plywood, cardboard or plastic (6HA1, 6HB1, 6HG1, 6HD1 or 6HH1).	400 kg	400 kg
-Container plastic box or steel or aluminum crate or wooden box, plywood, cardboard or hard plastic (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2).	75 kg	75 kg
-Container glass steel drum, aluminum, plywood or cardboard (6PA1, 6PB1, 6PD1 or 6PG1) or steel box, aluminum, wood, wicker basket or cardboard (6PA2, 6PB2, 6PC, 6PD2 or 6PG2) or rigid or expanded plastics packaging (6PH1 or 6PH2).	75 kg	75 kg

Pressure vessels , provided they meet the general provisions of item 4.1.3.6.

Special packing provisions:

PP39 For UN 1378 number, a ventilation device is required for metal packaging.

Pp40 For UN 1326 numbers, 1352, 1358, 1437 and 1871, and the UN number 3182, Group Package II, are not allowed bags.

PP83 For UN 2813 number can be used to transport bags waterproof containing maximum 20 g of substance for the formation of heat. Each waterproof bag shall be placed in a sealed plastic bag and this placed in an intermediate container.
No outer packaging can contain more than 400 g of substance. The package must not

be water or any other liquid which may react with hidrorreativa substance.

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P411 **PACKING INSTRUCTION** **P411**

This instruction applies to UN 3270 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A2, 3B2, 3H2).

provided that an explosion due to increased internal pressure is not possible.

Maximum net mass shall not exceed 30 kg.

P412 **PACKING INSTRUCTION** **P412**

This instruction applies to UN 3527 number.

Are allowed the following combination packagings provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1) Outer packagings:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2).

(2) inner packagings:

(A) the activator (organic peroxide) should have a maximum amount of 125 ml per package Internal if liquid, and 500 g per inner packaging if solid.

(B) the base material and the activator must be, each packaged separately inner packagings.

The components can be packed in the same foreign packaging, since it does not interact, in dangerous way, in case of leakage.

Packaging must conform to the performance level of packing groups II and III, according to the criterion for subclass 4.1 applied to the base material.

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P500 **PACKING INSTRUCTION** **P500**

This instruction applies to UN 3356 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A2, 3B2, 3H2).

Packages must meet the level of performance of Packing Group II.

Generators must be carried in a package that meet the following requirements when one generator the volume is triggered:

(A) other generators in the volume are not triggered;

(B) the packaging material can not ignite; and

(C) the temperature of the outer surface of the entire volume can not exceed 100 ° C.

P501 **PACKING INSTRUCTION** **P501**

This instruction applies to UN 2015 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

combination packagings	**Inner packing: capacity maxim**	**Outer packaging: pasta net maxim**
(1) Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4H2) or drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D) or jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2) with inner packagings glass, plastic or metal.	5L	125 kg
(2) Cardboard box (4G) or cardboard drum (1G) with Inner packing plastic or metal, each in a	2L	50 kg

plastic bag.

simple packaging	**Maximum capacity**
drums	
-aço (1A1)	250 L
aluminum hydride (1B1)	250 L
-metal, not steel or aluminum (1N1)	250 L
-plastic (1H1)	250 L
jerricans	
-aço (3A1)	60 L

aluminum hydride (3B1)	60 L
-plastic (3H1)	60 L
composite packaging	
-Container plastic, steel or aluminum drum (6HA1, 6HB1)	250 L
-Container plastic cardboard drum, plastic or plywood (6HG1, 6HH1, 6HD1)	250 L
-Container plastic crate or box or steel aluminum or wood plastic box, plywood, cardboard or hard plastic (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2).	60 L
-Container glass steel drum foil, plywood (6PA1, 6PB1, 6PD1 or 6PG1) or cash steel, aluminum, wood or cardboard or wicker basket (6PA2, 6PB2, 6PC, 6PG2 or 6PD2) or packing hard plastic or foamed plastic (6PH1 or 6PH2)	60 L

Additional Requirements:

1. The packaging should have a filling gap of at least 10%.

2. Packaging must be ventilated.

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P502 **PACKING INSTRUCTION** **P502**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

combination packagings

inner packagings		**external packaging**	**Maximum net mass**
-Glass	5L	**drums**	
-Metal	5L	-aço (1A1, 1A2)	125 kg
-plastic	5L	aluminum hydride (1B1, 1B2)	125 kg
		-another metal (1N1, 1N2)	125 kg
		-plastic (1H1, 1H2)	125 kg
		-compensado (1D)	125 kg
		-papelão (1G)	125 kg
		boxes	
		-aço (4A)	125 kg
		aluminum hydride (4B)	125 kg
		-another metal (4N)	125 kg
		natural -wood (4C1)	125 kg
		natural -wood walls with dust-proof (4C2)	125 kg

-compensado (4D)	125 kg
-wood reconstituted (4F)	125 kg
-papelão (4G)	125 kg
-plastic expanded (4H1)	60 kg
hard -plastic (4H2)	125 kg

simple packaging	**Maximum capacity**
drums	
-aço (1A1)	250 L
aluminum hydride (1B1)	250 L
-plastic (1H1)	250 L
jerricans	
-aço (3A1)	60 L
aluminum hydride (3B1)	60 L
-plastic (3H1)	60 L

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composite packaging	**Maximum capacity**
-Container plastic, steel or aluminum drum (6HA1, 6HB1)	250 L
-Container plastic cardboard drum, plastic or plywood (6HG1, 6HH1, 6HD1)	250 L
-Container plastic crate or box or steel or aluminum container plastic wooden box, plywood, cardboard or hard plastic (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 L
- Glass container in steel drums, foil, cardboard or plywood (6PA1, 6PB1, 6PD1ou 6PG1) or steel box, aluminum, wood or cardboard or wicker basket (6PA2, 6PB2, 6PC, 6PG2 or 6PD2) or hard plastic container or expanded plastic (6PH1 or 6PH2)	60 L

Special provision for packaging:

PP28 For UN 1873 number, only glass inner packagings and containers are allowed internal glass, respectively, for the combined packaging and composite packaging.

P503 **PACKING INSTRUCTION** **P503**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

combination packagings

inner packagings		**external packaging**	**Maximum net mass**
-Glass	5 kg	**drums**	
-Metal	5 kg	-aço (1A1, 1A2)	125 kg
-Plastic	5 kg	aluminum hydride (1B1, 1B2)	125 kg
		-another metal (1N1, 1N2)	125 kg
		-plastic (1H1, 1H2)	125 kg
		-compensado (1D)	125 kg
		-papelão (1G)	125 kg
		boxes	
		-aço (4A)	125 kg
		aluminum hydride (4B)	125 kg
		-another metal (4N)	125 kg
		natural -wood (4C1)	125 kg
		natural -wood walls with dust-proof (4C2)	125 kg
		-compensado (4D)	125 kg
		-wood reconstituted (4F)	125 kg
		-papelão (4G)	40 kg
		-plastic expanded (4H1)	60 kg
		hard -plastic (4H2)	125 kg

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simple packaging	**Maximum capacity**
drums	
-Tambores metal (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2)	250 kg
cardboard -Tambores (1G) or plywood (1D) fitted with liners internal.	200 kg

P504 **PACKING INSTRUCTION** **P504**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

combination packagings **Maximum net mass**

(1) Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2)	75 kg
Inner packagings: glass containers with a maximum capacity of 5 L	
(2) Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2)	75 kg
inner packaging: plastic containers with a maximum capacity of 30L	
(3) Outer packagings: (1G, 4F or 4G)	125 kg
Inner packagings: Metal containers with a maximum capacity of 40L	
(4) Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 4A, 4B, 4N, 4C1, 4C2, 4D, 4H2)	
Inner packagings: Metal containers with a maximum capacity of 40L	225 kg

simple packaging	**Maximum capacity**
drums	
-aço, non-removable head (1A1)	250 L
aluminum hydride, non-removable head (1B1)	250 L
-other metal other than steel or aluminum, non-removable cover (1N1)	250 L
-plastic, non-removable head (1H1)	250 L
jerricans	
-aço, non-removable head (3A1)	60 L
aluminum hydride, non-removable head (3B1)	60 L
-plastic, non-removable head (3H1)	60 L

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composite packaging	**Maximum capacity**
-Container plastic, steel or aluminum drum (6HA1, 6HB1)	250 L
-Container plastic cardboard drum, plastic or plywood (6HG1, 6HH1, 6HD1)	120 L
-Container plastic crate or steel or aluminum box, or in cash wood, plywood, cardboard or hard plastic (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 L

- Glass container in steel drums, foil, cardboard or plywood (6PA1, 6PB1, 6PD1 or 6PG1) or steel box, aluminum, wood or cardboard or wicker basket (6PA2, 6PB2, 6PC, 6PG2 or 6PD2) or packing hard plastic or foamed plastic (6PH1 or 6PH2)	60 L

Special provision for packaging:

PP10 For UN 2014 and 3149 numbers, the packaging must be vented.

P505 **PACKING INSTRUCTION** **P505**

This instruction applies to UN 3375 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

combination packagings	**Packing internal: capacity maxim**	**Packing external: pasta maximum net**
Boxes (4B, 4C1, 4C2, 4D, 4G, 4H2) or drums (1B2, 1G, 1N2, 1H2, 1D)	5L	125 Kg
jerricans (3B2, 3H2) with inner packagings of glass, plastic or metal.		

simple packaging	**Maximum capacity**
drums	
aluminum (1B1, 1B2) plastics (1H1, 1H2)	250 L
jerricans	
aluminum (3B1, 3B2) plastics (3H1, 3H2)	60 L
composite packaging	

-Container plastic with aluminum outer drum (6HB1)	250 L
-Container plastic outer cardboard drum, plastic or	

plywood (6HG1, 6HH1, 6HD1)	250 L
-Container plastic crate with external or foreign cash aluminum or plastic timber with external housing, plywood, cardboard or hard plastic (6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 L
-Container glass with outer aluminum drum, cardboard or offset (6PB1, 6PG1, 6PD1) or containers external hard plastic or expanded (6PH1 or 6PH2) or with crate or aluminum box or wooden box or cardboard or wicker basket outer (6PB2, 6PC, 6PG2 or 6PD2)	60 L

P520 **PACKING INSTRUCTION** **P520**

This instruction applies to organic peroxides of Class 5.2 and autorreagentes substances of Class 4.1.

Are allowed the following packaging, provided that the general provisions of 4.1.1 and 4.1.3 items and special provisions of item 4.1.7 are met.

The packing methods are designated OP1 to OP8. The packing methods appropriate for each one of organic peroxides and autorreagentes substances currently classified are listed in items 2.4.2.3.2.3 and 2.5.3.2.4.

The quantities specified for each packing method are the maximum amounts allowed by volume. The following packagings are allowed:

(1) Combination packagings with outer packagings consisting of boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2), drums (1A1, 1A2, 1B1, 1B2, 1G, 1H1, 1H2 and 1D) or jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2);

(2) Single packagings consisting of drums (1A1, 1A2, 1B1, 1B2, 1G, 1H1, 1H2 and 1D) and jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2);

(3) Composite packagings with inner plastic containers (6HA1, 6HA2, 6HB1, 6HB2, 6HC, 6HD1, 6HD2, 6HG1, 6HG2, 6HH1 and 6HH2).

Maximum quantity per package / volume [w] for OP1 packing methods OP8

packing method	**OP1**	**OP2 [w]**	**OP3**	**OP4 [w]**	**OP5**	**OP6**	**OP7**	**OP8**
maximum								
maximum mass (kg) for solids and for Combination packs (liquid and solids)	0.5	0.5 / 10	Referring to Fig. 5.2.1		25	50	50	400 [b]
Maximum contents in liters for net [c]	0.5	-	Referring to Fig. 5.2.1		30	60	60	225 [d]

The *When are provided two values, the first applies to the maximum net mass per inner packaging and the second, the maximum net mass per volume.*

b *60 kg drums for 200 kg for boxes and, for solids 400 kg in combination with packaging outer packaging consisting of boxes (4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2) and with inner packagings of plastic or cardboard with a maximum net mass of 25 kg.*

w *Viscous liquids shall be treated as solids when they do not meet the definition of "net" presented in item 1.2.1.*

d *60 L for jerricans.*

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Additional Requirements:

1. Metal packagings, including inner packagings of combination packagings and outer packagings combined or composite packagings may only be used in the OP7 and OP8 packing methods.
2. In combination packagings, glass receptacles may only be used as inner packagings with a maximum content of 0.5 kg or 0.5 U for solid to liquid.
3. In combination packagings, cushioning materials shall not be readily combustible.
4. The packaging of an organic peroxide or autorreagente substance that requires the carrying of risk label subsidiary on "EXPLOSIVE" (Model No. 1, see section 5.2.2.2.2) must meet also the provisions set out in items 4.1.5.10 and 4.1.5.11.

Special packing provisions:

PP21 For certain autorreagentes substances of types B or C, UN Nos 3221, 3222, 3223, 3224, 3231, 3232, 3233 and 3234, it may be required the use of smaller packaging than those permitted by OP5 or OP6 packing methods respectively (see items 4.1.7 and 2.4.2.3.2.3).

PP22 UN number 3241, 2-bromo-2-nitropropane-1,3-diol, must be packed according to the method of packaging OP6.

P600 **PACKING INSTRUCTION** **P600**

This instruction applies to UN numbers 1700, 2016 and 2017.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2) that meet the level of performance of Packing Group II. Articles should be packed individually and separated from one another by partitions, dividers, inner packaging or cushioning material to prevent accidental discharge under normal conditions of transport.

maximum net mass: 75 kg.

P601 **PACKING INSTRUCTION** **P601**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met and the packagings are hermetically sealed:

(1) Combination packagings with a maximum gross mass of 15 kg, consisting of:

- One or more internal containers of glass with a maximum net capacity of 1 L each, and filled to a maximum of 90% of its capacity; Your (s) close (s) (are) being arrested (s) physically by any means to prevent loosening (m) or loosen (m) in case of impact or vibration during transport, set (s) individually

- Metal containers with sufficient absorbent cushioning material to absorb full content of the inner packaging of glass, still placed in

- Outer packaging: 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2.

(2) Combination packagings consisting of inner packages of metal or plastic not exceeding 5 L capacity, individually wrapped with sufficient inert cushioning material absorb the entire contents placed in outer packages 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2, with a maximum gross mass of 75 kg. At inner packagings shall not be filled above 90% capacity. The end of each Inner packing must be physically held in place by any means which prevents that release (m) or loosen (m) in case of impact or vibration during transport.

(3) packagings consisting of:

External packaging:

steel or plastic drums (1A1, 1A2, 1H1 and 1H2), tested in accordance with test requirements set out in item 6.1.5, with a mass corresponding to the volume mounted, either as a packaging intended to contain internal packaging, or as a single packaging intended to contain solids or liquids, and marked as appropriate.

Inner packagings:

Drums and composite packagings (1A1, 1B1, 1N1, 1H1 or 6HA1) that meet the requirements of Chapter 6.1 for single packagings, subject to the following conditions:

a) the hydraulic pressure test shall be conducted at a pressure (gauge) minimum of 3 bar;

b) testing the tightness of designing and manufacturing should be conducted at a pressure of test bar 0.30;

c) they must be isolated from the outer drum by padding damping material shocks involving the inner packaging on all sides;

d) capacity should not exceed 125 L;

e) the closures shall be threaded type and are:

(I) physically held in place by any means which prevents loosening (m) or loose (M) case of impact or vibration during transport; and

(Ii) fitted with a sealed lid.

f) the internal and external containers should be periodically subjected to a test tightness in accordance with the provisions of item "b", with a maximum frequency of two and a half; and

g) The outer and inner packaging shall bear in clearly legible and durable characters:
(I) the date (month, year) of the initial test and most recent periodic test;

(Ii) the authorized name or designation of the party that carried out the tests and inspections.

(4) Pressure receptacles may be used provided that the general provisions are met
item 4.1.3.6. They must be subjected to an initial test and periodic tests every 10 years
a pressure greater than 1 MPa (10 bar) (gauge pressure). Pressure vessels can not
be provided with pressure relief devices. Every pressure vessel containing a liquid

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toxic by inhalation with an LC_{50} less than or equal to 200 ml / m^3 (ppm) should be closed by means of a buffer or a valve in accordance with the following requirements:

a) each cap or valve must have a threaded connection directly to the receptacle
pressure and must be able to withstand the test pressure container under pressure without damage or leakage;

b) each of the valves must be of type *packless* (no package), with non - perforated membrane,
except that for the corrosive substance, the valve may be of the *packed* (with package)
ensuring the tightness of the assembly sealed by a cap provided with a sealing
fixed to the valve body or container under pressure to avoid loss of substance
through the packaging;

c) every outlet of the valve must be sealed by means of a screw or rigid caps
Threaded and inert gasket material;

d) the materials of construction of pressure vessels, valves, caps, covers the
output, seals and gaskets must be compatible with each other and with the content.

Pressure vessels whose wall at any point has a thickness less than 2.0 mm
and pressure vessels, whose valves are not protected, must be transported in a
outer packaging. Pressure vessels should not be joined together by collector pipe or
interconnected.

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P602 **PACKING INSTRUCTION** **P602**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met and the packagings are hermetically sealed:

(1) Combination packagings with a maximum gross mass of 15 kg, consisting of:

- One or more internal containers of glass with a maximum net capacity of 1 L each, and Filled (s) up to a maximum of 90% of its capacity; Your (s) close (s) (are) being arrested (s) physically by any means to prevent loosening (m) or loosen (m) in case of impact or vibration during transportation, set (s) individually
- Metal containers with sufficient absorbent cushioning material to absorb full content of the inner packaging of glass, still placed in
- Outer packaging: 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2.

(2) Combination packagings consisting of inner packages of metal or plastic which does not exceed 5 L capacity, individually wrapped with sufficient inert cushioning material to absorb the entire contents placed in outer packages 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2, with a maximum gross mass of 75 Kg. Inner packagings shall not be filled above 90% capacity. The closure each inner package must be physically held in place by any means that prevents pops (m) or loosen (m) in case of impact or vibration during transport.

(3) Drums and composite packagings (1A1, 1B1, 1N1, 1H1, 6HA1 or 6HH1), subject to the following conditions:

a) the hydraulic pressure test shall be conducted at a pressure (gauge) minimum 3 Pub;

B) the tightness tests, design and production, should be conducted at a 0.30 bar test pressure;

w) closures shall be threaded type and are:

(I) physically held in place by any means which prevents loosening (m), or slacken (m) in case of impact or vibration during transport; and

(Ii) provided with a sealed cover.

(4) Pressure receptacles may be used provided that the general provisions are met item 4.1.3.6. They must be subjected to an initial test and periodic tests every 10 years a pressure above 1 MPa (10 bar) (gauge pressure). Pressure vessels not They can be equipped with pressure relief devices. Every pressure vessel containing a toxic by inhalation liquid with an LC_{50} less than or equal to 200 ml / m^3 (ppm) should be closed by means of a plug or a valve, in accordance with the following requirements:

The) each cap or valve must have a threaded connection directly to the receptacle pressure and must be able to withstand the test pressure container under pressure without

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damage or leakage.

b) each of the valves must be of type *packless* (no package), with non - perforated membrane, except in the case of corrosive substances, wherein the valve may be of the *packed* (with Package), ensuring the tightness of the joint through a sealed cover provided with a seal fixed to the valve body or the pressure vessel to avoid waste matter through the package;

w) each outlet valve must be sealed by means of a screw or rigid caps Threaded and inert gasket material;

(D) The construction materials of the vessels under pressure, of valves, caps, outlet covers, seals and gaskets must be compatible with each other and with the content.

Pressure vessels whose wall at any point has a thickness less than 2.0 mm and pressure vessels whose valves are not protected should be transported in an outer packaging. Pressure vessels should not be joined together by tube collector or interconnected.

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P620 **PACKING INSTRUCTION** **P620**

This instruction applies to UN 2814 and 2900 numbers.

Are allowed the following packaging provided that the special provisions for packaging item 4.1.8 are met.

Packages that meet the requirements of Chapter 6.3 and that have been approved, consisting of:

(A) Inner packagings comprising:

(I) container (s) primer (s) sealingly (s);

(Ii) a watertight secondary packaging;

(Iii) except for solid infectious substances, absorbent material in sufficient quantity to absorb the entire contents placed between the (s) container (s) primer (s) and package secondary; secondary packaging to contain multiple primary containers, these must be individually wrapped or separated so as to avoid contact with each other;

(B) A rigid outer packaging:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2).

The smallest external dimension shall be at least 100 mm.

Additional Requirements:

1. Inner packagings containing infectious substances should not be placed together with other inner packagings containing product types not related to such substances. Complete packages may be overpacked in accordance with the provisions of items 1.2.1 and 5.1.2; such overpack may contain dry ice.

2. The following additional requirements apply, except for exceptional consignments by eg, whole organs which require special packaging:

The) substances shipped at room temperature or higher: the primary receptacles must be glass, metal or plastic. a means of ensuring tight seal, for example should be adopted, heat sealing, coating or stopper with metal seal. If covers are used threaded, they must be safe by effective means, for example, tape sealant tape paraffin or manufactured locking closure;

B) chilled or frozen substances issued: ice, dry ice or other refrigerant must be placed around (s) of package (s), secondary (s) or, alternatively, in a overpack with one or more complete packages marked in accordance with paragraph 6.3.3. There must be to maintain the interior brackets (s) Package (s), secondary (s) or volumes position after the ice or dry ice have dissipated. If ice is used, the outer packaging or overpack shall be leakproof. If dry ice is used, the outer packaging or overpack must allow gaseous carbon dioxide release. The primary container and

secondary packaging shall maintain their integrity at the temperature of the refrigerant used;

w) issued substances in liquid nitrogen: should be used primary plastic containers able to withstand the very low temperatures used. The secondary packaging must also be able to withstand very low temperatures and, in most cases, should fit on each primary receptacle individually. The provisions for the transport of liquid nitrogen They must be met. The primary receptacle and the secondary packaging shall maintain their integrity at the temperature of liquid nitrogen;

d) Lyophilized substances may also be carried in primary receptacles that are glass ampoules and heat-sealed glass vials with rubber stoppers fitted with metal seals.

3. Whatever the shipment of temperature, the primary receptacle and the secondary packaging shall be able to withstand, without leakage, an internal pressure which produces a pressure differential of at least 95 kPa and temperatures in the range of -40ºC to + 55ºC.

4. In the same packaging of infectious substances of Class 6.2 shall not be other products dangerous unless they are necessary to maintain the viability of the infectious substances for stabilize them or prevent their degradation, or to neutralize the dangers they present. In each primary container containing the infectious substances may be packed an amount maximum 30 ml of dangerous goods in Classes 3, 8 or 9. When these small quantities of dangerous goods are packed with infectious substances in accordance with this Instruction Packaging does not apply any other requirements of this Regulation.

5. For animal transport materials, alternative packaging may be authorized by the competent, in accordance with the provisions of item 4.1.3.7.

P621 PACKING INSTRUCTION P621

This instruction applies to UN 3291 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1, except 4.1.1.15, and 4.1.3 are met:

(1) Since there is sufficient absorbent material to absorb the entire amount of liquid present and the container is capable of retaining liquids

(1A2, 1B2, 1N2, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A2, 3B2, 3H2).

Packaging must meet the performance level of Packing Group II, for solids.

(2) For packages containing larger amounts of liquid:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2);
Compound (6HA1, 6HB1, 6HG1, 6HH1, 6HD1, 6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2, 6PA1,

6PB1, 6PG1, 6PD1, 6PH1, 6PH2, 6PA2, 6PB2, 6PC, 6PG2 or 6PD2).

Packaging must meet the level of Packing Group II performance, for liquids.

Additional requirement:

Packaging intended for sharp objects such as broken glass and needles shall be resistant to puncture and retain liquids under the test conditions specified in Chapter 6.1.

P650 **PACKING INSTRUCTION** **P650**

This instruction applies to UN 3373 number.

(1) The packaging shall be of good quality, strong enough to withstand the shocks and loads that may be produced normally during transport and the transfer between different transport units and between transport units and warehouses as well as the removal of pallets or overpacks for subsequent manual or mechanical handling. Packages must be manufactured and closed to prevent loss of content when prepared for shipment and normal conditions of transport, due to vibrations or changes in temperature, humidity or pressure.

(2) The packaging must consist of at least the following three components:

The) a primary receptacle;

B) a secondary packaging; and

w) an outer packaging.

Since the secondary packaging and the outer packaging must be rigid.

(3) Primary receptacles shall be placed in a secondary packaging so that, in normal conditions of transport, they do not break, be punctured or let her escape content to the secondary packaging. Secondary packaging must be held within external packaging with a suitable cushioning material. No leakage of the contents may compromise the integrity of the cushioning material or of the outer packaging.

(4) For transport, the mark shown in the following must appear on the outside of the packaging outside on a background color that contrasts with her and it is visible and legible. The mark must be form of a square placed at 45 degree angle (diamond-shaped), wherein each side must have a minimum length of 50 mm, the width of the lines should be 2 mm and the height minimum of letters and number must be 6 mm. The proper shipping name "SUBSTANCE BIOLOGICAL, CATEGORY B "in letters minimum height of 6 mm, shall appear on the outer packaging side of the mark to the diamond-shaped.

or

(5) At least one surface of the outer packaging must have a minimum size of 100 mm × 100 mm.

(6) The complete volume must pass the drop test described in item 6.3.5.3, as specified in section 6.3.5.2 of this Regulation, when subjected to a drop height of 1.2 m. After the drop test, there should be no leakage of primary containers, which must remain protected by absorbent material, when required, in the secondary packaging.

(7) For liquid substances:

The) (S) container (s) primer (s) (are) is sealed (s);

B) the secondary packaging shall be leakproof;

w) if they placed several fragile primary receptacles in a secondary packaging simple, primary containers must be individually wrapped or separated to prevent contact between them;

(D) absorbing material should be placed between the primary containers and packaging secondary in sufficient quantity so that it can absorb the contents of the containers primary so that no leakage of liquid substance to compromise integrity of the cushioning material or of the outer packaging;

and) the primary receptacle or the secondary packaging must withstand without leakage a internal pressure of 95 kPa (0.95 bar).

(8) For solid substances:

The) the (s) holder (s) server (s) to (m) be dustproof;

B) the secondary packaging must be dustproof;

w) if they placed several fragile primary receptacles in a secondary packaging simple, primary containers must be individually wrapped or separated to prevent contact between them;

(D) when there is doubt about the presence of residual liquid in the primary container for the transportation, packaging should be used suitable for liquids, including equipment Absorbent.

(9) Refrigerated or frozen specimens: Ice, dry ice and liquid nitrogen:

The) when using dry ice or liquid nitrogen to keep specimens cold as soda, must be met the requirements of item 5.5.3. When used, the ice should be placed outside the secondary packaging or the outer packaging or in a overpack. Internal shims should be placed so that the secondary packaging remain in its original position. If ice is used, the outer packaging or overpack shall be leakproof;

B) the primary receptacle and the secondary packaging shall maintain their integrity at the temperature the refrigerant used, as well as the temperatures and pressures to be produced if lost cooling.

(10) When packages are placed in a overpack, marking the volumes required by this statement must be clearly visible or be reproduced on the outside of the overpack.

(11) The infectious substances allocated to UN 3373 number are packed and labeled in compliance with this instruction are not subject to any other requirements of this Resolution or Regulation for the Transport of Dangerous Goods.

(12) packaging manufacturers and subsequent distributors shall provide clear instructions on its filling and closing the consignor or to the person who prepares the volume (for example, a patient), so that it can be properly prepared to transport.

(13) In the same packaging of infectious substances of Class 6.2 shall not be other products dangerous unless they are necessary to maintain the viability of the infectious substances for stabilize them or prevent their degradation, or to neutralize the dangers they present. In each primary container containing the infectious substances may be packed an amount maximum 30 ml of dangerous goods in Classes 3, 8 or 9. When these small quantities dangerous goods are packed with infectious substances in accordance with this Instruction Packaging, does not apply any other requirements of this Resolution or Regulations for the Transport of Dangerous Goods.

Additional requirement:

For animal transport materials, alternative packaging may be authorized by the competent, in accordance with the provisions of item 4.1.3.7.

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P800 **PACKING INSTRUCTION** **P800**

This instruction applies to UN 2803 and 2809 numbers.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1) Pressure receptacles may be used provided that the general provisions are met the item 4.1.3.6.

(2) bottles or steel bottles with threaded closures with a capacity of up to 3 L; or

(3) Combination packagings which meet the following requirements:

The) the inner packages must be glass, metal or rigid plastics intended to contain liquids with maximum net mass of 15 kg each;

B) the inner packagings must be packed with sufficient cushioning material prevent breakage;

w) the inner packagings or the outer packagings shall have inner liners or bags material strong, waterproof, resistant to puncturing and impermeable to the content and that involves completely to prevent volume exhaust, whatever their position or orientation;

(D) The following outer packagings and maximum net masses are allowed:

Outer packaging:	**Maximum net mass**
drums	
-aço (1A1, 1A2)	400 kg
- Metal, which is not steel or aluminum (1N1, 1N2)	400 kg
-plastic (1H1, 1H2)	400 kg
-compensado (1D)	400 kg
-papelão (1G)	400 kg
boxes	
-aço (4A)	400 kg
-metal, not steel or aluminum (4N)	400 kg
natural -wood (4C1)	250 kg
natural -wood, dust-proof walls (4C2)	250 kg
-compensado (4D)	250 kg
-wood reconstituted (4F)	125 kg
-papelão (4G)	125 kg
-plastic expanded (4H1)	60 kg
hard -plastic (4H2)	125 kg

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Special provision for packaging:

PP41 For UN 2803 number, when necessary to transport Gallium at low temperatures, to keep it in solid state, the above packages may be in a pack sobreembaladas strong external water-resistant, that contain dry ice or other cooling means. If used cooling means all materials used in the above Gallium packaging must be chemically and physically resistant to this process and have impact resistance at low temperatures employed cooling. If dry ice is used, the outer packaging must permit the release of Gaseous carbon dioxide.

P801 **PACKING INSTRUCTION** **P801**

This instruction applies to new and used batteries allocated to UN numbers 2794, 2795 or 3028.

Are allowed the following packaging, provided that the general provisions of items 4.1.1, except 4.1.1.3, and 4.1.3 are met:

(1) rigid outer packaging;

(2) Wooden Crates;

(3) Pallets.

Batteries may also be transported loose in plastic boxes or stainless steel capable to withhold any free liquid.

Additional Requirements:

1. Batteries must be protected against short circuits.
2. Batteries must be properly stacked in separate layers attached by a layer of non-conductive material.
3. The battery terminals shall not support the weight of other elements on them.
4. Batteries should be packaged or secured to prevent accidental movement.

P802 **PACKING INSTRUCTION** **P802**

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1) combination packagings

Outer packagings: 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4C1, 4C2, 4D, 4F, 4G or 4H2; maximum net mass: 75 kg.

Inner packagings: glass or plastic; Maximum capacity: 10 L.

(2) combination packagings

Outer packagings: 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2; maximum net mass: 125 kg.

Inner packagings: Metal; Maximum capacity: 40 L.

(3) Composite packagings: Glass receptacle in steel drum, aluminum, plywood (6PA1, or 6PB1 6PD1) or steel box, aluminum or wood or wicker basket (6PA2, 6PB2, 6PC or 6PD2) or in rigid plastic packaging (6PH2); Maximum capacity: 60 L.

(4) Steel drums (1A1) with a maximum of 250 L capacity

(5) Pressure vessels: can be used provided that the general provisions are met the item 4.1.3.6.

Special packing provisions:

PP79 For UN 1790 number with more than 60% but not more than 85% hydrogen fluoride, see Instruction for P001 packaging.

P803 **PACKING INSTRUCTION** **P803**

This instruction applies to UN 2028 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are

met:

(1) Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);

(2) Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2);

maximum net mass: 75 kg.

The articles must be individually packaged and separated from each other by partitions, dividers, internal packaging or cushioning material to prevent inadvertent discharge during normal conditions transport.

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P804 **PACKING INSTRUCTION** **P804**

This instruction applies to UN 1744 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met and the packagings are hermetically sealed:

(1) **Combination packagings** with a maximum gross mass of 25 kg, consisting of:

- One or more container (s) internal (s) of glass having a capacity of 1.3 L each, and Filled (s) up to 90% of their capacity; The (s) lock (s) (are) being physically retained in place by any means capable of preventing loosening or loosen in case of impact or vibration during transportation, individually wrapped in
- Metal or hard plastic containers with absorbent cushioning material sufficient to absorb the entire content (s) of package (s) internal (s), glass, packed still in
- Outer packaging: 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2.

(2) **Combination packagings** consisting of inner packaging made of metal or polyvinyl difluoride (PVDF), not exceeding 5 l in capacity, packed individually with sufficient absorbent material to absorb the contents and inert cushioning material in outer packagings 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2, with a gross mass maximum of 75 kg. inner packagings are not filled to more than 90% of their capacity. O closure of each inner package must be physically held in place by any means capable of prevent loosening or loosen in the event of impact or vibration during transport;

(3) **Packaging** consisting of:

External packaging:

steel or plastic drums (1A1, 1A2, 1H1 and 1H2) tested in accordance with the requirements of assays set forth in item 6.1.5, with a mass corresponding to the mass volume as much as a container intended to contain internal packaging, or as a single pack intended to contain solid or liquid and consequently properly marked.

Inner packagings:

Drums and combination packagings (1A1, 1B1, 1N1, 1H1 or 6HA1) that meet the requirements set out in Chapter 6.1 for single packagings, subject to the following conditions:

(A) the hydraulic pressure test shall be performed at a pressure of 300 kPa (3 bar) (manometric pressure);

(B) tightness test during the design and construction should be carried out at a pressure Test 30 kPa (0.3 bar);

(C) must be isolated from other drums through the use of cushioning material involves the inner packaging on all sides;

(D) the capacity shall not exceed 125 liters;

(E) the closures shall be threaded type and are:

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(I) physically held in place by any means which prevents loosening (m) or loose (M) case of impact or vibration during transport;

(Ii) fitted with a sealed lid;

(F) the internal and external containers should be periodically subjected to internal inspection and tightness test, as stated in item (b) above, at intervals of two and a half; and

g) The outer and inner packaging shall bear in clearly legible and durable characters:

(I) the date (month, year) of the initial test and the latest periodic test and final inspection inner packaging; and

(Ii) the authorized name or designation of the party that carried out the tests and inspections.

(4) Pressure receptacles, provided they meet the general provisions of item 4.1.3.6.

(A) must be subjected to an initial test and periodic tests every 10 years at a higher pressure than 1 MPa (10 bar) (gauge pressure);

(B) must be submitted periodically to the internal inspection and tightness testing intervals of no more than 2 and a half years;

(C) they may not be equipped with any pressure relief device;

(D) Each pressure vessel must be closed with a plug or valve equipped with a second

Closing device; and

(E) the materials of construction of pressure vessels, valves, plugs, outlet covers, welding and gaskets must be compatible with each other and the content.

P805 **PACKING INSTRUCTION** **P805**

This instruction applies to UN 3507 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3, as well the special provisions established by CNEN for the loading of containers and contamination the outer surface of the packaging, are met:

consisting packaging

(A) primary plastic or metal containers; in

(B) rigid secondary packaging leakproof; in

(C) A rigid outer packaging:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);

Boxes (4A, 4B, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A2, 3B2, 3H2).

Additional requirement :

1. Internal primary containers must be packed in secondary packaging so that, in

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normal conditions of carriage, they can not break, be punctured or leak their contents in Secondary packaging. Secondary packaging shall be secured in outer packages with adequate cushioning to prevent material handling. If multiple primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated to prevent contact between them.

2. transported content of uranium hexafluoride shall meet the requirements established by CNEN.
3. The provisions relating to exceptivos volumes established by CNEN must be met.

Special packing provisions

In the case of excepted fissile material, must be met any limits established by CNEN.

P900 **PACKING INSTRUCTION** **P900**

This instruction applies to UN 2216 number.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

1) Packaging in accordance with the Instruction for P002 Packaging; or

2) Bags (5H1, 5H2, 5H3, 5H4, 5L1, 5L2, 5L3, 5M1 or 5M2) with a maximum net mass of 50 kg.

Fishmeal may also be transported without packaging, provided that in packaged units wherein the transport closed air space has been reduced to a minimum.

P901 PACKING INSTRUCTION P901

This instruction applies to UN 3316 number.

Are allowed the following combination packagings provided that the general provisions of items 4.1.1 and 4.1.3 are met:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2).

Packaging must meet the appropriate level of performance to the packing group that was allocated to case as a whole (see section 3.3.1, Special Provision 251). When the kit contains hazardous product which there is no packing group, the packaging should the level of performance of the Group Package II.

Maximum quantity of dangerous goods per outer packaging: 10 kg excluding the mass of any quantity of solid carbon dioxide (dry ice) used as refrigerant.

Additional requirement :

Dangerous goods in kits shall be packed in inner packagings which do not exceed 250 ml or 250 g and should be protected from other materials of the case.

P902 PACKING INSTRUCTION P902

This instruction applies to UN 3268 number.

Articles packaged:

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A2, 3B2, 3H2).

Packaging must meet the level of performance of Packing Group III.
The packaging must be designed and constructed to prevent movement of the articles and inadvertent discharge under normal conditions of transport.

Unpackaged articles:

The articles can be transported without packaging specific handling devices, vehicles, or containers when moved from the manufacturing site to the assembly line.

Additional requirement :
Every pressure vessel shall comply with the provisions established by the competent authority for (s) substance (s) it contains.

P903 **PACKING INSTRUCTION** **P903**

This instruction applies to UN 3090 numbers, 3091, 3480 and 3481.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1) For cells and batteries:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A2, 3B2, 3H2).

Batteries must be packed in the form of packaging are protected against damage
They can be caused by accommodation or movement within the packaging.
Packaging must meet the performance level for Packing Group II.

(2) In addition to batteries or batteries with a gross mass of 12 kg or more, contained in an outer case strong and resistant to impact, as well as sets of such cells or batteries:

(A) strong outer packaging;
(B) protective wrappers (e.g., fully closed or wood slat crates); or
(C) pallets or other handling devices.

Batteries should be secured to prevent inadvertent movement, and the terminals must not bear the weight of other superimposed elements.

Packaging must meet the requirements set out in item 4.1.1.3.

(3) For cells and batteries packed with equipment:

Packaging must meet the requirements of clause (1) above, and be placed with the equipment in an outer carton; or
Packaging must completely cover the battery or batteries and are then placed with the

equipment in a packaging that meets the requirements of item (1) above.

The equipment must be packed in order to prevent movement in the outer packaging.

For purposes of this Instruction Packaging, "equipment" means apparatus requiring batteries or batteries lithium metal or lithium ion, with which it is packed for its operation.

(4) For cells or batteries contained in equipment:

outer packaging must be strong, durable, built with proper materials and resistance and design appropriate to its capacity and destination. They shall be constructed so as to avoid operations accidental during transport. The packages do not need to meet the requirements of clause 4.1.1.3.

Large equipment can be offered for carriage unpackaged or on pallets, where equivalently that the cells or batteries are protected by the equipment in which they are contained.

Additional requirement:
Batteries must be protected against short circuits.

P904 PACKING INSTRUCTION P904

This instruction applies to UN 3245 number.

The following packagings are allowed:

(1) packagings that meet the provisions of paragraphs 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.8 and 4.1.3 and are designed to meet the construction requirements of item 6.1.4. packages must be used External constructed of suitable material and of adequate strength and design in relation to its capacity and destination. When this packing instruction is used to transport inner packagings of combination packagings, the packaging must be designed and constructed to avoid accidental discharge under normal conditions of transport.

(2) Packagings need not meet the test requirements of Part 6 packs but consisting of:

The) an inner packaging comprising:

(I) vessel (s) primer (s) and a secondary packaging, the container (s) primer (s) or secondary packaging shall be leakproof for liquids or dust-proof for solids;

(Ii) for liquid, placed between the absorbent material (s) container (s) primer (s) and package secondary. The absorbent material must be in sufficient quantity to absorb the entire (s) of content (s) (s) container (s) primer (s) to prevent a leakage of the substance net compromise the integrity of the cushioning material or packaging;

(Iii) if placed several fragile primary receptacles in a single secondary packaging, such containers must be individually wrapped or separated so as to avoid

contact between them;

B) an outer packaging of adequate strength for its capacity, its mass and its use. THE smallest external dimension should be at least 100 mm .

For transport, the mark shown below should appear on the outer surface of the outer packaging on a background color that contrasts with her and it is visible and legible. The mark must be in the form of a square set to 45 degrees (diamond-shaped), each side must have a minimum length 50 mm, the width of the lines should be 2 mm and the minimum height of the letters and numbers should be 6 Mm.

or

adicionai requirement:

Ice, dry ice and liquid nitrogen

When using dry ice or liquid nitrogen as a coolant, the requirements should be applied arranged in item 5.5.3. When used ice must be placed outside the secondary packaging or outer packaging or overpack. internal supports must be used to keep the packaging secondary to its original position. If ice is used, both the outer packaging as overpack must be waterproof.

P905 PACKING INSTRUCTION P905

This instruction applies to UN 2990 and 3072 numbers.

Are permitted any appropriate packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met **.** If not require, for such packaging requirements contained in Part 6.
When the life-saving appliances are manufactured to incorporate or are contained in wrappers external hard Weatherproof (eg, lifeboats), they can be transported without packing.

Additional Requirements :

1) All dangerous substances and articles contained as equipment within the appliances shall be fixed to prevent accidental movement and in addition:

The) Class 1 flags should be packed in inner packagings of plastic or cardboard;

B) gases (Division 2.2) shall be contained in cylinders as specified by the competent authority, which may be connected to the device;

w) accumulative electric batteries (Class 8) and lithium batteries (Class 9) shall be disconnected or electrically isolated and secured to prevent discharge of liquid; and

(D) small amounts of other hazardous substances (for example, subclasses of class 3 and 4.1 and 5.2) must be packed in strong inner packagings.

2) The preparation for transport, packaging and stowage should include precautions to prevent the device accidentally inflate.

P906 PACKING INSTRUCTION P906

This instruction applies to UN 2315 numbers, 3151, 3152 and 3432.

Are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

1) For liquids and solids containing or contaminated with PCBs (polychlorinated biphenyls) or by polihalogenadas biphenyls or terphenyls: packages that meet the instructions Packaging P001 or P002, as appropriate.

2) For transformers, condensers and other devices:

(A) packaging in accordance with the Instructions for Packaging P001 or P002. Articles should be safe with adequate cushioning material to prevent inadvertent movement during normal conditions of carriage; or

(B) leakproof containers capable of containing, besides the devices at least 1.25 times the volume of liquid PCBs, biphenyls or terphenyls polihalogenadas they contained. There must be, on the packaging, sufficient absorbent material to absorb at least 1.1 times the volume of liquid contained in devices. In general, transformers and capacitors must be transported in metal packaging watertight able to retain, in addition to the transformers and capacitors in least 1.25 times the volume of liquid present therein.

In addition, liquids and solids packed in violation of the instructions for P001 and P002 packing, unpackaged transformers and condensers may be carried in cargo transport units equipped with a metal tray sealed with a minimum height of 800 mm, containing absorbent material inert sufficient to absorb at least 1.1 times the volume of any free liquid.

Additional requirement :

Appropriate measures should be taken to seal the transformers and condensers to prevent leakage under normal conditions of transport.

P907 **PACKING INSTRUCTION** **P907**

If the machinery or apparatus is constructed and designed so that the containers used to hold the dangerous goods are afforded adequate protection, there is no need for an external box. Otherwise, hazardous products contained in machinery or equipment must be packed in containers External made of a suitable material, resistance and suitable projects on the ability of packaging and its intended use, and meeting the willing requirements in item 4.1.1.1.

Containers containing dangerous goods must comply with the general provisions of 4.1.1, except of items 4.1.1.3, 4.1.1.4, 4.1.1.12 and 4.1.1.14 do not apply. For gases of Division 2.2, the cylinder or inner container, its contents and filling density shall satisfy the competent authority of country in which the cylinder or inner container is filled.

Furthermore, the containers containing hazardous products must be contained in machinery or apparatus so that under normal conditions of carriage, they can not be harmed; and, should it suffer damage, do not be likely no leakage of dangerous products (liquids or solids) to the machinery or apparatus (one watertight protective coating may be used to satisfy this condition). containing containers dangerous products must be installed, arrested or padded so that they can not be disrupted or leaks, as well as to control their movement within the machinery or apparatus during normal conditions carriage. The cushioning material must not react dangerously with the contents of the containers. Any leakage of the contents must not affect the protective properties of the material padding.

P908 **PACKING INSTRUCTION** **P908**

This instruction applies to UN 3090 numbers, 3091, 3480 and 3481.

the packages are allowed to follow for batteries and lithium ion or lithium metal or damaged defective, including those contained in equipment, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

For batteries and equipment containing batteries:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A2, 3B2, 3H2).

Packaging must meet the level of performance of Packing Group II.

1) Each cell or battery or equipment containing such cells or batteries must be individually packed in inner packaging and placed within an outer package. The package

internal or external packaging shall be leakproof to prevent the potential release electrolytes.

2) Each inner carton should be surrounded by heat insulating material non-combustible and non-conductor, in an amount sufficient to protect against a dangerous evolution of heat.

3) sealed packaging must be provided with ventilation devices, when appropriate.

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4) Appropriate measures should be taken to minimize the effects of vibration and shock, prevent moves from the batteries into the packaging which can cause damage to a condition and dangerous during transport. non-combustible cushioning material and non-driver can also It is used to meet this requirement.

5) should be assessed to non-combustibility according to a recognized standard in the country where the packaging was designed or manufactured.

For cells or batteries leaking, sufficient inert absorbent material must be added to the packaging internal or external to the absorber to release any electrolyte. A cell or battery with liquid mass more than 30 kg should be limited to a battery or battery for outer packaging.

Additional requirement :
Batteries should be protected against short circuit.

P909 **PACKING INSTRUCTION** **P909**

This instruction applies to UN 3090 numbers, 3091, 3480 and 3481 transported to disposal or recycling packed with or without without ion batteries.

(1) cells and batteries must be packed in accordance with the following:

(A) are allowed the following packaging, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1A2, 1B2, 1N2, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A2, 3B2, 3H2).

(B) packaging must meet the level of performance of Packing Group II.

(C) Metal containers should be provided with non-conductive coating (e.g., plastic) of adequate strength according to the use for which they are intended.

(2) However, Ion batteries with lithium watt-hour rating of up to 20 Wh, lithium-ion batteries with watt hour rating up to 100 Wh lithium metal batteries, containing up to 1 g of lithium batteries and lithium metal with lithium content added up to 2g may be packaged in accordance with the following:

(A) in strong outer packaging of 30 kg gross mass, given the general provisions of

items 4.1.1, except 4.1.1.3, and 4.1.3.

(B) metal packagings must be provided with non-conductive coating (e.g., plastic) of adequate strength according to the use for which they are intended.

(3) For cells and batteries contained in equipment, resistant to strong external packaging, built with suitable material, resistance and design appropriate to its capacity and destination can be used. Packaging need not meet the requirement provided in item 4.1.1.3. Large equipment can be offered for transport unpackaged or on pallets, where the battery or batteries are equivalently protected by the equipment in which they are contained.

(4) In addition to batteries or batteries with a gross mass equal to or greater than 12 kg, contained in a kit strong external and impact-resistant, resistant to strong external packaging, built with materials

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adequate strength and design appropriate to its capacity and destination can be used. Packaging need not meet the requirement provided in item 4.1.1.3.

Additional Requirements :

1. Batteries or batteries must be designed or packaged to prevent short circuit and evolution dangerous heat.

2. Short-circuit protection and dangerous evolution of heat include, but are not limited to:

- Individual protection of the battery terminals;
- Inner packaging to prevent contact between cells and batteries;
- Batteries with built-in terminals designed to prevent a short circuit; or
- The use of a non-conductive cushioning material, non-combustible to fill the empty space between the battery or batteries in the pack.

3. Batteries should be secured within the outer packaging in order to prevent movement Excessive during transport (e.g., by using cushioning material noncombustible and nonconducting or through the use of a tightly closed plastic bag).

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4.1.4.2 Packing instructions concerning the use of IBCs

IBC01 **PACKING INSTRUCTION** **IBC01**

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2 and 4.1.3 are met:

-Metal (31A, 31B, and 31N)

IBC02 **PACKING INSTRUCTION** **IBC02**

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2 and 4.1.3 are met:

(1) Metal (31A, 31B, and 31N);

(2) Hard Plastic (31H1e 31H2);

(3) Composite (31HZ1).

Special packing provisions :

B5 For UN numbers 1791, 2014, 2984 and 3149, IBCs shall be provided with device enabling ventilated during transport. Entrance to the ventilation device must be located in space Steam IBC under maximum filling conditions during transport.

B7 For UN 1222 and 1865 numbers are not allowed IBCs with a capacity greater than 450 L, because explosion potential of substance when transported in large volumes.

B8 This substance may not be transported in IBCs in its pure form, it is known that its pressure vapor is higher than 110 kPa, or 130 kPa at 50 to 55 ° C.

B15 For UN 2031 number with up to 55% nitric acid, the permitted time use of plastic IBCs rigid and composite IBCs with rigid plastics inner receptacle shall be two years from the date manufacturing.

B16 For UN 3375 IBCs type 31A and 31N are not allowed without approval of the authority competent.

IBC03 **PACKING INSTRUCTION** **IBC03**

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2 and 4.1.3 are met:

(1) Metal (31A, 31B, and 31N);

(2) Hard Plastic (31H1 and 31H2);

(3) Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2).

Special packing provisions :

B8 This substance may not be transported in IBCs in its pure form, it is known that its pressure

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vapor is higher than 110 kPa, or 130 kPa at 50 to 55 ° C.

B11 For UN 2672 number, ammonia solution with a concentration of up to 25%, despite the provisions of item 4.1.1.10, may be transported in rigid or composite plastics IBCs (31H1, 31H2 and 31HZ1).

B19 For UN 3532 and 3534 numbers, IBCs shall be designed and manufactured to allow the release of gas or vapor so as to avoid pressure buildup that could break the IBCs in an event loss stabilization.

IBC04 **PACKING INSTRUCTION** **IBC04**

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2 and 4.1.3 are met:

-Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N)

Special packing provisions :

B1 For substances of packing group I, the IBCs shall be transported in units transport closed.

IBC05 **PACKING INSTRUCTION** **IBC05**

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2 and 4.1.3 are met:

(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);

(2) Hard Plastic (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);

(3) Composite (11HZ1, 21HZ1 and 31HZ1).

Special packing provisions :

B1 For substances of packing group I, the IBCs shall be transported in units transport closed.

B2 For solid substances packed in IBCs other than metal or rigid plastic, the IBCs shall be transported in closed transport units.

IBC06 **PACKING INSTRUCTION** **IBC06**

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2 and 4.1.3 are met:

(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);

(2) Hard Plastic (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);

(3) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2 and 31HZ1).

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Additional requirement :

When the solids can liquefy up during transport, see section 4.1.3.4.

Special packing provisions :

B1 For substances of packing group I, the IBCs shall be transported in units transport closed.

B2 For solid substances packed in IBCs other than metal or rigid plastic, the IBCs shall be transported in closed transport units.

B12 For UN 2907 number, the IBCs shall meet the performance standards for the Group Package II. They can not be used IBCs that meet the performance level of the Group Package I.

IBC07 **PACKING INSTRUCTION** **IBC07**

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2 and 4.1.3 are met:

(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);

(2) Hard Plastic (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);

(3) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2 and 31HZ1);

(4) Wood (11C, 11D and 11F).

Additional requirement :

1. When the solids can liquefy up during transport, see section 4.1.3.4.
2. Liners of wooden IBCs shall be sift-proof.

Special packing provisions :

B1 For substances of packing group I, the IBCs shall be transported in units transport closed.

B2 For solid substances packed in IBCs other than metal or rigid plastic, the IBCs shall be transported in closed transport units.

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IBC08 **PACKING INSTRUCTION** **IBC08**

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2 and 4.1.3 are met:

(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);

(2) Hard Plastic (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);

(3) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2 and 31HZ1);

(4) Cardboard (11G);

(5) Wooden (11C, 11D and 11F);

(6) Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2).

Additional requirement :

When the solids can liquefy up during transport, see section 4.1.3.4.

Special packing provisions :

B2 For solid substances packed in IBCs other than metal or rigid plastic, the IBCs shall be transported in closed transport units.

B3 flexible IBCs should be dust-proof and water resistant or be provided with a liner proof dust and water resistant.

B4 Flexible IBCs, cardboard or wood, should be dust-proof and water resistant or be provided with a liner dustproof and water resistant.

B6 For UN 1327 numbers, 1363, 1364, 1365, 1386, 1408, 1841, 2211, 2217, 2793 and 3314, is not required that IBCs meet the test requirements prescribed in Chapter 6.5.

IBC99 **PACKING INSTRUCTION** **IBC99**

They can only be used IBCs which are approved by the competent authority (see section 4.1.3.7). A copy of competent authority approval shall accompany each consignment or the transport document shall include an indication that the packaging was approved by the authority.

IBC100 **PACKING INSTRUCTION** **IBC100**

This instruction applies to UN 0082 numbers, 0222, 0241, 0331 and 0332.

The following IBCs are permitted provided that the general provisions of items 4.1.1, 4.1.2, 4.1.3 and special provisions of item 4.1.5 are met:

(1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N);

(2) Flexible (13H2, 13H3, 13H4, 13L2, 13L3, 13L4 and 13M2);

(3) Hard plastic (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2);

(4) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2).

Additional Requirements :

1. IBCs may only be used for substances which can flow freely.

2. Flexible IBCs may only be used for solids.

Special packing provisions :

B1 For UN number 0222 in IBCs than hard plastic or metal, should the IBC be transported in closed transport units.

B3 For UN 0222, flexible IBCs should be leak proof and water resistant or should contain coating leak proof and water resistant.

B9 For UN 0082 number, this Instruction for packaging can be used only when it is mixtures of ammonium nitrate or other inorganic nitrates with other combustible substances non explosive ingredients. Such explosives must not contain nitroglycerin, organic nitrates Similar fluids, or chlorates. Metal IBCs are not allowed.

B10 For UN 0241 number, this Instruction for packaging should only be used for substances that having water as an essential ingredient and high proportions of ammonium nitrate or other substances oxidizing all or some of which in solution. The other ingredients may include hydrocarbons or aluminum powder, but do not include nitro-derivatives such as trinitrotoluene. IBCs metal are not permitted.

B17 For UN 0222 number are not allowed metal IBCs.

IBC520 **PACKING INSTRUCTION** **IBC520**

This instruction applies to organic peroxides and autorreagentes substances of type F.

The following IBCs are permitted to related formulations, provided that the general provisions of items 4.1.1, 4.1.2, 4.1.3 and special provisions of item 4.1.7.2 are met.

For non-constant formulations in the following relationship may be used IBCs approved competent authority (see section 4.1.7.2.2).

No. UN	Organic peroxide	Kind of IBC	Amount maxim (Ls)	Temp. in control	Temp. in emerg cia
3109	**ORGANIC PEROXIDE, TYPE F, LIQUID**				
	T-butyl hydroperoxide, in concentrations of up to 72% water	31A	1250		
	T-butyl peracetate, at concentrations up to 32%, in diluent type A.	31A 31HA1	1250 1000		

Per-3,5,5-trimethyl hexanoate in t-butyl, in up to 37% concentration in diluent type A.	31A 31HA1	1250 1000		
Cumila hydroperoxide, in concentrations of up to 90% in diluent type A.	31HA1	1250		
Dibenzoyl peroxide, in concentrations of up to 42% as a stable dispersion.	31H1	1000		
Peroxide, di-t-butyl, in concentrations of up to 52%, in diluent type A.	31A 31HA1	1250 1000		
1,1-Di- (t-butylperoxy) cyclohexane in concentrations up to 37% in diluent type A.	31A	1250		
1,1-Di- (t-butylperoxy) cyclohexane in concentrations up to 42% in diluent type A.	31H1	1000		
Dilauroíla peroxide at concentrations of up to 42%, stable dispersion in water.	31HA1	1000		
Isopropilcumila hydroperoxide, in concentrations up to 72% in diluent type A.	31HA1	1250		
P-menthyl hydroperoxide, in concentrations of up to 72% in diluent type A.	31HA1	1250		
Peracetic acid stabilized in concentrations of up to 17%.	31H1 31H2 31HA1 31A	1500 1500 1500 1500		
3110 ORGANIC PEROXIDE TYPE F, SOLID				
Dicumylperoxide	31A 31H 31HA1	2000		
3119 ORGANIC PEROXIDE, TYPE F, LIQUID, CONTROLLED TEMPERATURE				
T-amyl perpivalate the at concentrations up to 32%, in diluent type A.	31A	1250	+ 10 ° C	+ 15ºC
Per-2-ethylhexanoate t-butyl, in concentrations up to 32% in diluent type B	31HA1 31A	1000 1250	+ 30 ° C + 30 ° C	+ 35 ° C + 35 ° C
Perneodecanoato t-butyl, in concentrations of up to 32% in diluent type A.	31A	1250	0ºC	+ 10 ° C
Perneodecanoato t-butyl, in concentrations of up to 42% stable dispersion in water.	31A	1250	- 5 ° C	+ 5 ° C

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Perneodecanoato t-butyl, in concentrations of up to 52% stable dispersion in water.	31A	1250	- 5 ° C	+ 5 ° C
Perpivalate t-butyl, in concentrations of up to 27%, in diluent type B.	31HA1 31A	1000 1250	+ 10 + 10	+ 15ºC + 15ºC
Perneodecanoato of cumila in concentrations of up to 52% stable dispersion in water	31A	1250	- 15 ° C	- 5 ° C
Perdicarbonato di- (4-t-butylcyclohexyl-hexyl) in up to 42% concentrations, stable dispersion in Water	31HA1	1000	+ 30 ° C	+ 35 ° C
Perdicarbonato of dicetila in concentrations up 42% stable dispersion in water	31HA1	1000	+ 30 ° C	+ 35 ° C
Diciclohexilperoxidicarbonato in concentrations of up to 42% as a stable dispersion in water	31A	1250	+ 10 ° C	+ 15ºC
Perdicarbonato di- (2-ethylhexyl) at concentrations up to 62% stable dispersion in water.	31A	1250	- 20 ° C	- 10 ° C
Diisobutirila peroxide in concentrations up 28% as a stable dispersion in water.	31HA1 31A	1000 1250	- 20 ° C -20ºC	- 10 ° C -10ºC
Diisobutirila peroxide in concentrations up 42% as a stable dispersion in water.	31HA1 31A	1000 1250	- 25 ° C -25ºC	- 15 ° C -15ºC
Perdicarbonato of dimiristila in concentrations of up to 42% stable dispersion in water.	31HA1	1000	+ 15ºC	+ 20 °
Di- (2-isopropyl-neodecanoilperóxi) benzene, in up to 42% concentrations, stable dispersion in Water.	31A	1250	- 15 ° C	- 5 ° C
Peroxide in di- (3,5,5-trimethyl-hexanoíla) in up to 52% concentration in diluent type A	31HA1 31A	1000 1250	+ 10 ° C + 10 ° C	+ 15ºC + 15ºC
Peroxide in di- (3,5,5-trimethyl-hexanoíla) in up to 52% concentrations, stable dispersion in Water.	31A	1250	+ 10 ° C	+ 15ºC
Perneodecanoato 1,1-dimetilbutila-3-hydroxyl in up to 52% concentrations, stable dispersion in Water.	31A	1250	- 15 ° C	- 5 ° C
Perneodecanoato of 1,1,3,3-tetrametilbutila in			- 5 ° C	+ 5 ° C

up to 52% concentrations, stable dispersion in Water.	3	IA1	1250 1000	- 5 ° C	+ 5 ° C

3120 ORGANIC PEROXIDE TYPE F, SOLID,

CONTROLLED TEMPERATURE

Additional Requirements :

1. IBCs shall be provided with device enabling ventilation during transport. Entrance to the ventilation device must be located in the vapor space of the IBC in the filling conditions Maximum during transport.
2. To prevent explosive rupture of metal IBCs or composite IBCs with full involvement in metal, emergency relief devices shall be designed to vent all products Decomposition and vapors released during the decomposition or autoacelerável for one hour at least complete fire engulfment as calculated by the formula specified in item 4.2.1.13.8. At control and emergency temperatures specified in this Instruction for packaging are IBC based on a non-isolated. When an organic peroxide is issued in accordance with IBC this instruction, it is the shipper's responsibility to ensure that:

   The) the pressure relief devices and emergency installed in the IBC have been designed to take into account the autoacelerável decomposition of the organic peroxide and fire engulfment; and

   B) when applicable, the control and emergency temperatures indicated are appropriate, taking into account the design (e.g., insulation) of the IBC to be used.

IBC620 **PACKING INSTRUCTION** **IBC620**

This instruction applies to UN 3291 number.

The following IBCs are permitted provided that the general provisions of items 4.1.1, except 4.1.1.15, 4.1.2 and 4.1.3 are met:

IBCs rigid, watertight, to conform to the performance level Packing Group II.

Additional Requirements :

1. There must be sufficient absorbent material to absorb all the liquid contained in the IBC.
2. The IBCs should be capable of retaining liquids.
3. IBCs intended to contain sharp objects such as broken glass and needles shall be resistant to punching.

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4.1.4.3 Packing instructions concerning the use of large packagings

LP01 **PACKING INSTRUCTION (LIQUIDS)** **LP01**

The following large packagings are permitted provided that the general provisions of items 4.1.1 and 4.1.3:

Internal packaging	**External packaging Big ones**	**Group of package** I	**Group of package II**	**Group of package III**
-glass 10 L	-aço (50A)			
-plastic 30 L	aluminum hydride (50B)			
-metal 40 L	-metal that no aluminum (50N)			Capacity maxim 3 m^3
	hard -plastic (50H)	Not allowed	not allowed	
	natural -wood (50C)			
	-compensado (50D)			
	-wood reconstituted (50F)			
	hard -papelão (50G)			

LP02 **PACKING INSTRUCTION (SOLIDS)** **LP02**

The following large packagings are permitted provided that the general provisions of items **4.1.1** and **4.1.3** :

Internal packaging	**External packaging Big ones**	**Group of package** I	**Group of package II**	**Group of package III**
-glass 10 kg	-aço (50A)			
-plastic (2) 50 kg	aluminum hydride (50B)			
-metal 50 kg	-metal, not steel or aluminum			

-paper (1) (2)	50 kg	(50N)		
-papelão (1) (2)	50 kg	Flexible -plastic (51H) (3) hard -plastic (50H) natural -wood (50C) -compensado (50D) -wood reconstituted (50F) hard -papelão (50G)	Not allowed not allowed	Capacity maxim 3 m 3

Referring to Fig.

(1) These packages can not be used when the transported substances can be liquefy during transport.

(2) Packages must be dustproof.

(3) To be used only with internal flexible packaging.

Special packing provisions:

L2 For UN number 1950, aerosols, the large packaging shall meet the Group 's performance level Packaging III. Large aerosol containers discarded transported in accordance with Special Provision 327 should furthermore be provided with means (for example, material absorber) allowing to retain any leakage of liquid occurs during transport.

LP99 **PACKING INSTRUCTION** **LP99**

Large packs may only be used after approval by the competent authority (see item 4.1.3.7). A copy of the competent authority approval shall accompany each consignment or document transport should include an indication that the packaging was approved.

LP101 **PACKING INSTRUCTION** **LP101**

Are allowed the following large packs, provided that the general provisions of 4.1.1 and 4.1.3 items and special provisions of item 4.1.5 are met:

Internal packaging **Intermediate packaging** **Great packaging**

not necessary	not necessary	-aço (50A) aluminum hydride (50B) -metal, not steel or aluminum (50N) hard -plastic (50H) natural -wood (50C) -compensado (50D) -wood reconstituted (50F) hard -papelão (50G)

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Special packing provisions :

L1 For UN numbers 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0488 and 0502, large explosive articles and robust normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried packing. When such articles have propelling charges or are self-propelled, their systems ignition must be protected against stimuli present in normal conditions of carriage. a negative result in Test Series 4 for an article without packaging indicates that the article can be transported unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.

LP102 **PACKING INSTRUCTION** **LP102**

Are allowed the following large packs, provided that the general provisions of 4.1.1 and 4.1.3 items and special provisions of item 4.1.5 are met:

Internal packaging	**Intermediate packaging**	**External packaging**
bags:	not necessary	-aço (50A)

-resistentes water

containers:

-papelão

-metal

-plastic

-wood

Sheets:

-papelão, corrugated

pipes:

-papelão

aluminum hydride (50B)

-metal, not steel or aluminum (50N)

hard -plastic (50H)

natural -wood (50C)

-compensado (50D)

-wood reconstituted (50F)

hard -papelão (50G)

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LP621 **PACKING INSTRUCTION** **LP621**

This instruction applies to UN 3291 number.

They are allowed the following large packs, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

(1) For clinical waste placed in inner packagings, large packagings should be used strict, tight, conforming to the requirements of Chapter 6.6 for solids, with level corresponding performance Packing Group II, provided there is sufficient absorbent material to absorb the entire amount of liquid present and the large packaging is capable of retaining liquids.

(2) For packages containing large amounts of liquid, large containers should be used rigid, conforming to the requirements of Chapter 6.6, with corresponding performance level to Packing Group II for liquids.

Additional requirement:

Large packagings intended to contain sharp objects such as broken glass and needles should be

resistant to puncture and retain liquids under the performance test conditions in Chapter 6.6.

LP902 **PACKING INSTRUCTION** **LP902**

This instruction applies to UN 3268 number.

Articles packaged:

They are allowed the following large packs, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

Packages that meet the level of performance of Packing Group III. Packages must be designed and constructed to prevent movement of the articles and inadvertent discharge during normal transport.

Unpackaged articles:

The articles can also be transported without packaging and in particular handling devices, vehicles, containers or wagons when shipped from the manufacturing plant to an assembly plant.

Additional requirement:

Every pressure vessel shall be in accordance with the requirements of the competent authority the control and supervision of the substance (s) (s) contained (s) in the vessel.

LP903 **PACKING INSTRUCTION** **LP903**

This instruction applies to UN 3090 numbers, 3091, 3480 and 3481.

Are allowed the following large packagings for a simple battery including a battery contained in equipment provided that the general provisions of items 4.1.1 and 4.1.3 are met:

large rigid packaging in view of the performance level of Packing Group II, made of:

Steel (50A)

Aluminium (50B)

Metal, not steel or aluminum (50N)

rigid plastics (50H)

Natural wood (50C)

Plywood (50D)

reconstituted wood (50F)

hard cardboard (50G)

The battery must be packaged so that it is protected from damage which may be caused by their moving or packaging inside the large packaging.

Additional requirement :

Batteries must be protected against short circuit.

LP904 **PACKING INSTRUCTION** **LP904**

This instruction applies to UN 3090 numbers, 3091, 3480 and 3481.

They are allowed the following large packagings for a simple battery damaged or defective and for a simple battery damaged or defective contained in equipment, provided that the general provisions of items 4.1.1 and 4.1.3 are met:

For batteries and equipment containing batteries:

Steel (50A)

Aluminium (50B)

Metal, not steel or aluminum (50N)

rigid plastics (50H)

Plywood (50D)

Packaging must meet the level of performance of Packing Group II.

1. Each battery or equipment containing such battery must be individually wrapped in packaging internal and placed within an outer package. The inner packaging or the outer packaging must be leakproof to prevent the potential release of electrolyte.
2. Each internal packaging must be surrounded by thermal insulation material non-combustible and non-

conductor, in an amount sufficient to protect against a dangerous evolution of heat.

3. sealed packaging must be provided with ventilation devices, when appropriate.
4. Appropriate measures should be taken to minimize the effects of vibration and shock, prevent moves from the batteries into the packaging which can cause damage to a condition and dangerous during transport. non-combustible cushioning material and non-driver can, also be used to meet this requirement.

5. It should be assessed to non-combustibility according to a recognized standard in the country where the packaging was designed or manufactured.

For cells or batteries leaking, sufficient inert absorbent material must be added to the packaging internal or external to absorb any electrolyte release.

Additional requirement :
Batteries must be protected against short circuit.

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4.1.5 Special provisions for Class 1 product packaging - explosives

4.1.5.1 The general provisions of 4.1.1 must be met.

4.1.5.2 All Class 1 product packaging must be designed and constructed so that:

a) protect the explosives, prevent leaks and do not cause increased risk of ignition or unintentional initiation and accumulation of static electricity under normal conditions of transport, including foreseeable changes in temperature, humidity and pressure;

b) the complete package can be safely handled in conditions normal transport; and

c) the packages will withstand any overload resulting from the stacking during transport, so as to not increase the risk posed by explosives, not harm packaging containment function and not cause them deformations able to reduce its strength or cause instability of the stack.

4.1.5.3 Any explosive substances and articles, as prepared for transport should have been classified according to the procedures detailed in item 2.1.3.

4.1.5.4 Class 1 products must be packed in accordance with Instruction for proper packaging, indicated in Column 10 of the Dangerous Goods, as detailed in section 4.1.4.

4.1.5.5 Unless otherwise provided in this Regulation, packaging, including IBCs and large packagings shall meet the requirements set out in Chapters 6.1, 6.5 or 6.6, as appropriate, and shall meet the test requirements for the Packing Group II.

4.1.5.6 containers closure devices containing liquid explosives should ensure double protection against leakage.

4.1.5.7 Metal drums closure devices must include a suitable gasket; A lock device comprises a screw, it must be avoided ingress of explosive substances in this thread.

4.1.5.8 Packaging of water-soluble substances should be water resistant. desensitized substances containers must be closed in order to avoid concentration changes during transport.

4.1.5.9 When the package contains a double wrap with water, capable of freezing during transportation should be added sufficient antifreeze to prevent freezing of water. It can not be used antifreeze that can create fire hazard because of its inherent flammability.

4.1.5.10 Nails, staples and other metal closure devices that do not provided with protective cover can not penetrate inside the outer packaging, not unless the inner packaging adequately protects the explosives against contact with the metal.

4.1.5.11 inner packages, pads and padding materials, as well as the packaging explosive substances or articles in the volume should be such that prevent the explosive substances or articles to be loose in the outer packaging under normal conditions of transport. Should be avoided contact between components metal articles and metal packaging. Articles containing substances no explosive contained in the outer shell must be separated from each other so to prevent friction or impact. To this end, padding may be used, pans, dividers on the inner or outer packaging, moldings or receptacles.

4.1.5.12 Packages must be made of materials compatible with the explosive contents, and impermeable to them, in order to prevent the transport of explosive becomes unsafe, whether the interaction between the explosives and materials packaging, whether by leakage and to prevent change of Risk or Subclass Compatibility group.

4.1.5.13 the entry of explosive substances should be avoided in the clefts of seams of metal packaging.

4.1.5.14 Plastic bags should not generate or accumulate static electricity enough so that a discharge can activate, by means of initiation, ignition or operation, substances or packaged explosive articles.

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4.1.5.15 Articles large and robust explosives, normally intended for use military, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their systems ignition must be protected against stimuli encountered during normal transport. Obtaining a negative result for a non-packaged article subjected to Test Series 4 as the *Tests and Criteria Manual* , indicates that this article may be transported unpackaged. Such unpackaged articles may be fixed to cradles or placed in crates or other handling devices, storage or release, so they do not loosen under normal conditions of transport.

When such large explosive articles are submitted as part of their operational safety testing and adjustment, the test systems according to the requirements in this Regulation, and succeed in such tests, the Ministry of Defense - Army Command can allow the transport of these items under this Regulation.

4.1.5.16 Explosive substances can not be packaged in internal or external in which the difference between the internal and external pressures, due to thermal or other effects, could cause an explosion or rupture of the volume.

4.1.5.17 Whenever loose explosive substances or the explosive substance of a Article non-packed or partially packed can contact the surface internal metal packaging (1A1, 1A2, 1B1, 1B2, 4A, 4B and metal receptacles), the metal packaging shall be provided with lining or inner lining (see item 4.1.1.2).

4.1.5.18 Packing Instruction P101 to be applied to an explosive, provided that the volume has been approved by the competent authority, regardless of this fit or not Instruction Packaging indicated in column 10, the ratio Dangerous Goods.

4.1.6 Special provisions for Class 2 product packaging - gases

4.1.6.1 general requirements

4.1.6.1.1 The following presents the general requirements applicable to the use of pressure vessels for the transport of gases of Class 2 and other hazardous products

in pressurized containers (e.g. the number UN 1051, hydrogen cyanide, stabilized). Pressure receptacles shall be constructed and closed so as to avoid any loss of content that occur under normal conditions of transport, caused by vibrations, temperature changes, humidity or pressure (e.g., due to changes altitude).

4.1.6.1.2 Parts of pressure receptacles which are in direct contact with dangerous goods can not be affected or weakened by such products dangerous and can not cause any harmful effect (for example, catalyze a reaction or reacting with the dangerous goods). the provisions shall be met from ISO 11114-1: 2012 and ISO 11114-2: 2000, as applicable.

4.1.6.1.3 Pressure receptacles, including their closures, should be so selected that contain a gas or gas mixture as the Item 6.2.1.2 prescriptions and according to the specific provisions of the Instructions for Packaging set out in item 4.1.4.1. These provisions also apply to pressure vessels which are MEGCs elements.

4.1.6.1.4 The Refillable pressure receptacles shall not be filled with a gas or a mixture of those having different gases contained above, except if they have been made the necessary operations for the exchange of service gas. The exchange service for compressed or liquefied gases must be in accordance with standard ISO 11621: 1997, as applicable. In addition, a pressure vessel that has previously contained a corrosive substance in Class 8, or another substance class with a subsidiary risk of corrosion, is not allowed to transport a substance of Class 2, unless that have performed the inspection and testing necessary, as specified in item 6.2.1.6.

4.1.6.1.5 Prior to filling, you should inspect the pressure vessel, ensuring that this is allowed for the gas and, in the case of a chemical on

pressure, for the propellant to be moved, which was granted the provisions of this Regulation. After filling the contents in the container, the safety valves

They must be closed and remain closed during transport. The consignor shall verify that

leaks by closures or equipment.

4.1.6.1.6 The pressure receptacles shall be filled in accordance with the pressures

work, filling levels and conditions specified in the corresponding

Instruction Packaging for the specific substance being bottled. the gases

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and reactive gas mixtures must be filled with a pressure such that in the case of

effect a complete decomposition of the gas is not exceeded the working pressure

pressure vessel. cylinders packages can not be filled with a pressure

greater than the lowest working pressure of any of the cylinders that comprise the package.

4.1.6.1.7 Pressure receptacles, including their closures, shall meet

technical characteristics of the design, construction and inspection requirements and testing

detailed in Chapter 6.2. When the outer package are required, it is necessary

the pressure vessel is firmly stuck inside. Unless specified

otherwise the Instructions Packaging, can be placed one or more

inner packagings in an outer packaging.

4.1.6.1.8 The valves of pressure receptacles shall be designed and constructed

so that they are inherently able to withstand damage without allowing leakage

content and must be protected from any damage that may cause accidental release

pressure vessel content using one of the following methods:

a) the valves are located inside the container neck
under pressure and secured by threaded caps or seals;

b) the valves must be protected by covers. The caps must have
sufficient section sighs to evacuate the gas if there is any
valve leakage;

c) the valves must be protected by sheaths or other devices
of security;

d) pressure vessels should be transported in structures

protective (e.g., packets); or

e) pressure vessels should be transported in a package
External. The packaging prepared for transport must be able to
meeting the drop test specified in item 6.1.5.3 for the level
performance of packing group I.

The receptacles provided with pressure valves, as described in "b" and "c" above shall meet the requirements of ISO 11117: 1998 or ISO 11117: 2008 + Color 1: 2009; valves with integrated protection must meet the requirements of Annex A of ISO 10297: 2006.

For metal hydride storage systems, the protection valve

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It meets the requirements of ISO 16111: 2008.

4.1.6.1.9 receptacles Non-refillable pressure:

a) shall be transported in an outer packaging, such as a box,
a crate or in trays with retractable or extensible wrap;

b) must have a capacity in water less than or equal to 1.25 L
when filled with flammable or toxic gas;

c) should not be used for toxic gases with an LC_{50} less than or
equal to 200 ml / m^3 ; and

d) should not be repaired after being put into service.

The 4.1.6.1.10 Refillable pressure receptacles, other than containers Cryogenic, should be subject to periodic inspections in accordance with the provisions of item 6.2.1.6 and Instruction for P200 Packing, P205 or P206 as applicable. Pressure relief valves for closed cryogenic receptacles shall be submitted periodic inspection and testing in accordance with the provisions of item 6.2.1.6.3 and Instruction Packaging for P203. Pressure receptacles may not be filled in date after the checked for periodic inspection, but may be carried after expiration date limit.

4.1.6.1.11 Repairs must adapt to the demands of manufacturing and testing that

included in the design standards and applicable construction and are only allowed as indicated in the provisions on periodic inspection specified in clause 6.2.2.4. The pressure vessels, except wraps closed cryogenic containers, not
They can be repaired if they have suffered any of the following damage:

a) cracks in welds or any other defect welding;

b) cracks in walls;

c) leaks or defects in the wall material, the top or bottom of the pressure vessel.

4.1.6.1.12 Pressure receptacles shall not be offered for filling:

a) when they are damaged to the point that its integrity or the its service equipment may be affected;

b) unless the pressure receptacles and their service equipment They have been examined and found to be in good condition

operation; or

c) unless the required certification marks, and new tests filling are clearly legible.

4.1.6.1.13 receptacles filled pressure may not be offered for transport:

a) they are leaking;

b) when they are damaged to such an extent that the integrity of their pressure vessel or its service equipment may be affected;

c) unless the pressure receptacles and their service equipment They have been examined and found to be in good condition operation; or

d) unless the markings are clearly legible required of certification, further testing and filling.

4.1.7 Special provisions for packages of Class 5.2 - Peróxidos

organic and autorreagentes substances of Class 4.1

4.1.7.0.1 All containers for organic peroxides should be closed "Effectively". When the evolution of gas is able to give significant increase pressure volume can be installed relief device, since the emitted gas does not cause no danger, otherwise it will be necessary to limit the filling ratio. The device relief must be manufactured so that the liquid can not leave the volume when it is finding a vertical position and should be capable of preventing the entry of impurities. THE outer packaging, if any, must be designed in a way that does not interfere with functioning of the relief device.

4.1.7.1 Use packaging (except IBCs)

4.1.7.1.1 Packages of organic peroxides and substances autorreagentes must meet the requirements of Chapter 6.1, with corresponding performance level to Packing Group II.

4.1.7.1.2 The methods of packaging substances and organic peroxides autorreagentes are related Instruction for P520 Packaging and are designated OP1 to OP8. The quantities specified for each packing method are the maximum amounts allowed by volume.

4.1.7.1.3 For each of the organic peroxides and substances autorreagentes currently classified, the appropriate packing methods are indicated in items 2.4.2.3.2.3 and 2.5.3.2.4.

4.1.7.1.4 For new organic peroxides, new substances or new autorreagentes organic peroxides formulations or substances currently autorreagentes sorted, it should be used the following procedure to determine the method for appropriate packaging:

a) PEROXIDE ORGANIC, KIND B or SUBSTANCE AUTORREAGENTE, TYPE B:

OP5 packing method should be adopted, provided that the peroxide organic or autorreagente substance meet the criteria of items

2.5.3.3.2 b) and 2.4.2.3.3.2 b), respectively, in a casing permitted by packing method. If the organic peroxide or autorreagente substance only meet those criteria in a smaller packaging than those permitted by the packing method OP5 (ie one of the related packaging OP1 to OP4), It should be adopted the corresponding packing method with less OP number.

b) PEROXIDE ORGANIC, KIND W or SUBSTANCE AUTORREAGENTE, TYPE C:

OP6 packing method should be adopted, provided that the peroxide organic or autorreagente substance meet the criteria of items 2.5.3.3.2 c) and 2.4.2.3.3.2 c), respectively, in a casing permitted by packing method. If the organic peroxide or autorreagente substance only meet those criteria in a smaller packaging than those permitted by the packing method OP6, it should be adopted the corresponding packing method with lower OP number.

C) PEROXIDE ORGANIC, KIND D or SUBSTANCE AUTORREAGENTE, TYPE D:

The OP7 packing method should be adopted for this type of organic peroxide or autorreagente substance.

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d) PEROXIDE ORGANIC, KIND AND or SUBSTANCE AUTORREAGENTE, TYPE E:

OP8 The packaging method must be adopted for this type of organic peroxide or autorreagente substance.

e) PEROXIDE ORGANIC, KIND F or SUBSTANCE AUTORREAGENTE, TYPE F:

OP8 The packaging method must be adopted for this type of organic peroxide or autorreagente substance.

4.1.7.2 Use of intermediate bulk containers - IBCs

4.1.7.2.1 Organic peroxides currently classified specifically Instruction related to IBC520 Packaging may be transported in IBCs as this Instruction for packaging. IBCs shall meet the requirements of Chapter 6.5, with the corresponding level of performance to the Packing Group II.

4.1.7.2.2 Other organic peroxides and autorreagentes substances of type F may be transported in IBCs under conditions laid down by the competent authority of the country of origin when, on the basis of appropriate tests, that authority is satisfied as the safety of such transport. The performed tests shall include those necessary for:

a) prove that the organic peroxide or the substance autorreagente meet the classification principles set out in items 2.5.3.3.2 f) output F of Figure 2.5.1 and 2.4.2.3.3.2 f), F output in Figure 2.4.1, respectively;

b) ensure compatibility of all materials normally in contact with the substance during transport;

c) determine, where applicable, control temperatures and Emergency derived from the decomposition temperature autoacelerável associated with the transport of the product in the IBC considered;

d) design, when applicable, pressure relief devices and emergency; and

e) determine, if necessary, special provisions for transport safe substance.

4.1.7.2.3 For autorreagentes substances required temperature control accordance with paragraph 2.4.2.3.4. For organic peroxides temperature control is required

according to the item 2.5.3.4.1. The provisions relating to the control of temperature found in item 7.1.5.3.1.

4.1.7.2.4 Are considered emergency cases autoacelerável decomposition and fire engulfment. To prevent explosive rupture of metal IBCs with full metal casing, the emergency relief devices shall be designed to to vent all the decomposition products and vapors spent during autoacelerável for one hour or decomposition, at least, complete engagement Fire, as calculated by the formula specified in item 4.2.1.13.8.

4.1.8 Special provisions for infectious substances packaging of Category A (Division 6.2, UN 2814 and 2900 numbers)

4.1.8.1 Consignors of infectious substances shall ensure the correct preparation of volumes, so arrive at their destination in good condition and, during transport, without risk to people or animals.

4.1.8.2 Apply to packaging infectious substances contained in the definitions in item 1.2.1 and the general provisions for specified packages in items 4.1.1.1 to 4.1.1.14 except items 4.1.1.10 to 4.1.1.12. However, liquids shall be filled in containers which have an appropriate resistance to internal pressure, which can be develop under normal conditions of transport.

4.1.8.3 A detailed list of contents must be enclosed in the package secondary and outer packaging. When no known substances infective to be transported, but it is suspected that they meet the criteria for inclusion in category A, the term "infectious substance suspected of belonging to Category A "must appear in parentheses after the proper shipping name in document that goes inside the outer packaging.

4.1.8.4 Before an empty packaging is returned to the consignor, or sent to another location, it must be disinfected or sterilized to nullify any hazard and all

labels or marks indicative that had contained an infectious substance shall be

removed or deleted.

4.1.8.5 Since the performance level is maintained, the following variations in primary containers, packed in secondary packaging are allowed without the need for further testing of the completed packaging:

(A) Primary receptacles of equivalent or smaller size compared to primary container tested may be used provided that:

(I) the primary receptacles are of similar design to the container Primary tested (e.g., shapes: round, rectangular, etc.);

(Ii) fabrication of the primary container material (glass, plastic, metal, etc.) offer resistance to impact and stacking forces equal to or higher than the originally tested primary receptacle;

(Iii) the primary receptacles have the same or smaller openings and the closure has similar design (eg screw cap, cover fitting, etc.);

(Iv) the cushioning material is added in sufficient quantity to fill the gaps and to prevent significant movement of the primary receptacles; and

(V) primary receptacles are oriented within the secondary packaging in the same manner as in the tested volume.

(B) may be used a smaller number of primary containers tested or a lesser number of alternative types of containers primary described in item "a" above, provided that added to the material enough padding to fill the gaps and prevent movement significant primary containers.

4.1.9 Special provisions for product packaging Class 7 - radioactive Material

4.1.9.1 The general provisions, special requirements and other controls related to packaging used in land transport of radioactive materials, are established the rules of CNEN.

CHAPTER 4.2

TANKS FOR USE LAPTOPS AND ELEMENT GAS CONTAINERS MULTIPLES (MEGCs)

4.2.1 General provisions for use of portable tanks for the transport of Class of products 1 and Classes 3 to 9.

4.2.1.1 The following set out the general requirements applicable to the use of portable tanks for the transport of products from Classes 1, 3, 4, 5, 6, 7, 8 e 9. In addition to these general requirements, portable tanks, except those for products Class 7, must meet the technical specifications of design, manufacture, inspection and test detailed in section 6.7.2. The products must be transported in tanks portable according to the portable tank instruction applicable, indicated in Column 12 of the Dangerous Goods List and described in item 4.2.5.2.6 (T1 to T23) and the Special provisions for portable tanks associated with certain products indicated in Column 13 of the Dangerous Goods List and described in item 4.2.5.3.

4.2.1.2 During transport, portable tanks shall be adequately protected against damage to the shell and service equipment resulting from impact longitudinal and lateral tipping. If the shell and service equipment are manufactured to withstand impact or overturning, this protection is not necessary. Examples of such protection are given in item 6.7.2.17.5.

4.2.1.3 Certain products are chemically unstable and are only accepted for transport if taken the necessary measures to prevent decomposition, polymerization or transformation during transport. For this, special care must be taken to ensure that the casing of the tank do not contain products capable of provoking such reactions.

4.2.1.4 The temperature of the outer surface of the housing, excluding openings and their fasteners, or the thermal insulation shall not exceed 70 ° C during transport. When necessary, the housing should be provided with thermal insulation.

4.2.1.5 Empty portable tanks not decontaminated and not degassed They must meet the same requirements as the tanks containing the substance previously transported.

4.2.1.6 They can not be transported in the same compartment or

adjacent compartments housing products which may react dangerously with each other and to tease:

a) combustion and / or considerable release of heat;

b) release of flammable, toxic or asphyxiating;

c) formation of corrosive substances;

d) formation of unstable products;

e) dangerous increase in pressure.

4.2.1.7 The competent authority or body designated by it and believed the owner should keep the project approval certificate, the tests report and certificate containing the results of the inspection and initial testing of each portable tank issued by authority or body designated by it believed. The owners should have this documentation when requested by a competent authority.

4.2.1.8 The shipper, the carrier or its (s) servant or agent (s) (are) present, when requested by the competent authority or body designated by it believed, a copy certificate specified in item 6.7.2.18.1, unless the substance name transported is disposed on the metal plate described in item 6.7.2.20.2.

4.2.1.9 Degree of filling

4.2.1.9.1 Prior to filling the consignor shall ensure that you are using the appropriate portable tank and that it is not filled with products which can react dangerously with the housing materials, gaskets, service equipment and any backing, to form dangerous products or weakening considerably said materials. The consignor may consult the manufacturer of substance and the competent authority on the substance of compatibility with the portable tank materials.

4.2.1.9.1.1 Portable tanks may not be filled beyond the specified measure in items 4.2.1.9.2 to 4.2.1.9.6. The applicability of the items 4.2.1.9.2, 4.2.1.9.3 or 4.2.1.9.5.1 to specific products is indicated in the instructions for portable tanks or provisions

special, specified in paragraphs 4.2.5.2.6 or 4.2.5.3 and indicated in columns 12 and 13, the The Dangerous Goods, respectively.

4.2.1.9.2 The maximum degree of filling (in%) for general use is determined by formula:

$$Degree\ in\ filling = \frac{97}{1 + \alpha\ (tt_R - F)}$$

4.2.1.9.3 The maximum degree of filling (in%) for liquids of Class 6.1 and Class 8, allocated to packing groups I and II, and liquids with vapor pressure more than 175 kPa absolute (1.75 bar) at 65 ° C is determined by the formula:

$$Degree\ in\ filling = \frac{95}{1 + \alpha\ (tt_R - F)}$$

4.2.1.9.4 In these formulas, α is the mean coefficient of expansion volume of the liquid between the mean temperature of the liquid during filling (t_f) and average maximum temperature during carriage (t_r) (both in ° C). For liquids carried under ambient conditions, α can be calculated by:

$$\alpha = \frac{d_{15} - d_{50}}{35\ d_{50}}$$

where d_{15} and d_{50} represent the densities of the liquid at 15 ° C and 50 ° C respectively.

4.2.1.9.4.1 The average maximum temperature load (T_r) must be estimated at 50 ° C, the except when to travel in temperate climatic conditions or conditions extreme, the competent authority accepts a lower or higher temperature as the case.

4.2.1.9.5 The provisions of paragraphs 4.2.1.9.2 to 4.2.1.9.4.1 do not apply to tanks Portable whose content is maintained at a temperature above 50 ° C during the transport (e.g., by heating device). In portable tanks equipped with heating devices, regulators should be used

temperature to ensure that the maximum degree of filling does not exceed 95% of its capacity at any time during transport.

4.2.1.9.5.1 The maximum degree of filling (in%) for solids carried temperatures above its melting point and liquids transported elevated temperature is determined by the following formula:

$$\text{Degree in filling} = 95 \frac{d_R}{d_F}$$

wherein d f d r represent the densities of the liquid at a temperature during Potting and the average maximum temperature of the load during transport, respectively.

4.2.1.9.6 They can not be offered for transport portable tanks:

a) with degree of filling, for liquids which have viscosity less than 2,680 mm 2 / s at 20 ° C or maximum temperature of the substance during transport in the case of a heated substance over 20% and less than 80%, except when these tanks are compartmentalised by partitions or surge in sections maximum capacity of up to 7,500 L;

b) with waste previously potted substances adhered to outside of the shell or the service equipment;

c) Leaking or damage that may affect the integrity of the tank portable or its lifting or securing devices; and

d) whose service equipment has been examined and found to improper operating conditions.

4.2.1.9.7 Openings for lifting forks pockets of portable tanks must remain closed, while it is being filled. This provision does not

apply to portable tanks which according to item 6.7.2.17.4 need not be provided means of closing the locking openings.

4.2.1.10 Additional provisions applicable to Class 3 products to transportation in portable tanks

4.2.1.10.1 Portable tanks for the transport of flammable liquids shall be closed and equipped with relief devices according to the items 6.7.2.8 6.7.2.15.

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4.2.1.11 Additional provisions applicable to the carriage of Class 4 products (Except autorreagentes substances of class 4.1) in portable tanks

(Reserved)

Notice: *For autorreagentes substances of Class 4.1, see the item 4.2.1.13.1.*

4.2.1.12 Additional provisions applicable to the carriage of Class products 5.1 in portable tanks

(Reserved)

4.2.1.13 Additional provisions applicable to the transport of products *from* ***Class 5.2 and autorreagentes substances of Class 4.1 in portable tanks***

4.2.1.13.1 Each substance shall be tested and a report submitted to the competent authority of the country of origin. Should be sent to the competent authority of country of destination a notification containing relevant transport information and report on the results of the tests. The tests shall include the elements

sufficient to:

a) to prove the compatibility of all materials normally in contact with the substance during transport;

b) provide the necessary data from design to relief devices pressure and emergency, taking into account the characteristics of portable tank design.

Any additional requirements necessary for the safe transport of the substance It should be clearly described in the report.

4.2.1.13.2 The following requirements apply to portable tanks intended for transport of organic peroxides, Type F, and autorreagentes substances, type F, with autoacelerável decomposition temperature (SADT) higher than or equal to 55 ° C. In case conflict these requirements prevail over those specified in item 6.7.2. They are due taking into account the emergency autoacelerável on the decomposition of the substance and involvement of tank fire, as described in item 4.2.1.13.8.

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4.2.1.13.3 The additional requirements for transport in portable tanks peroxides autorreagentes organic substances or decomposition temperature with autoacelerável (SADT) of less than 55 ° C shall be specified by the competent authority of the country of source. Notification must be sent to the competent authority of the country of destination.

4.2.1.13.4 The portable tank shall be designed for a minimum test pressure 0.4 MPa (4 bar).

4.2.1.13.5 Portable tanks shall be equipped with temperature sensors.

4.2.1.13.6 Portable tanks shall be equipped with relief devices pressure and emergency relief. Vacuum-relief devices may also be used. The pressure relief devices shall operate at certain pressures based both on the properties of the substance, as with the characteristics of construction of the portable tank. Fusible elements are not allowed in the housing.

4.2.1.13.7 The pressure-relief devices shall consist of valves, type spring, adjusted to avoid significant increase in the tank, the product

from decomposition and vapors released at 50ºC temperature. THE capacity and the discharge start pressure of the relief valves must be determined based on the results of the tests specified in item 4.2.1.13.1. THE beginning discharge pressure may not, however, allow leakage of the liquid (s) Valve (s) in case of overturning the tank.

4.2.1.13.8 The emergency relief devices may be of the spring type or disc break, or combination of both, and should be designed to blurt all decomposition products and vapors given off in the case where the tank is fully engulfed in fire for a period of one hour, as determined by the following formula:

$$q = 70961\, xFxA^{82.0}$$

on what:

q = heat absorption (W)

A = wetted area [m ^{2}]

F = insulation factor

Should be adopted:

F = 1 for non-insulated vessels, or vessels isolated:

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$$F = \frac{U\,923\,(T\quad)}{47032}$$

on what:

K = thermal conductivity of insulating layer [KMW^{-1}]

L = thickness of insulating layer [m]

U = $\frac{K}{L}$ = insulating heat transfer coefficient [KMW^{-2}]

T = substance relief temperature conditions [K]

The discharge start pressure (s) of device (s) for relief emergency must be greater than specified in item 4.2.1.13.7 and determined based the results of the tests referred to in item 4.2.1.13.1. relief devices of Emergency must be dimensioned so that the maximum pressure in the tank never exceeds the tank test pressure.

NOTICE: *An example method to determine the dimensions of the devices Emergency relief is provided in Appendix 5 of the Manual of Tests and Criteria.*

4.2.1.13.9 For insulated portable tanks the capacity and setting of the (s) device (s) of emergency relief must be determined, assuming loss Insulation 1% of the surface area.

4.2.1.13.10 Vacuum-relief devices and spring-loaded valves shall be provided with flame arrester. take into account should be the reduction of the relief capacity resulting from flame arrester.

4.2.1.13.11 Service equipment such as valves and external piping shall be arranged so that no amount of the substance remains therein after filling the portable tank.

4.2.1.13.12 Portable tanks may be insulated or have protection against solar radiation. If autoacelerável decomposition temperature of the substance in portable tank is less than or equal to 55C, or if the portable tank is made of aluminum, it should be completely isolated. The outer surface shall be finished in color white or bright metal.

4.2.1.13.13 The degree of filling shall not exceed 90% at 15 ° C.

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4.2.1.13.14 The marking required in item 6.7.2.20.2 shall include the UN number and the name technician with the approved concentration of the substance in question.

4.2.1.13.15 Organic peroxides and substances specifically autorreagentes Related Instruction Tanks T23 Portable item 4.2.5.2.6, may be transported in portable tanks.

4.2.1.14 Additional provisions applicable to the transport of products Class 6.1 in portable tanks

Reserved.

4.2.1.15 Additional provisions applicable to the carriage of Class Products 6.2 in portable tanks

Reserved.

4.2.1.16 Additional provisions applicable to the carriage of Class 7 products in portable tanks

4.2.1.16.1 Portable tanks used for the transport of radioactive materials not They can be used to carry other products, unless otherwise noted by CNEN.

4.2.1.16.2 The degree of filling for portable tanks shall not exceed 90% or, alternatively, another value established by CNEN.

4.2.1.17 Additional provisions applicable to the carriage of Class 8 products in portable tanks

4.2.1.17.1 The pressure-relief devices of portable tanks used for the carriage of Class 8 products should be inspected to non-superior intervals one year.

4.2.1.18 Additional provisions applicable to the carriage of Class 9 products in portable tanks

Reserved.

4.2.1.19 Additional provisions for the carriage of solid substances transported at temperatures above its melting point

4.2.1.19.1 Solid substances transported or offered for transport temperatures above their melting point, for which is not made for a

portable tank instruction in Column 12 of the Dangerous Goods, or when the portable tank instruction indicated not apply to transport for temperatures above its melting point, may be transported in tanks

portable since solid substances belong to the subclasses 4.1, 4.2, 4.3, 5.1 or 6.1, or the Classes 8 or 9, and do not present distinct subsidiary risks

risks of Class 6.1 or Class 8 and are allocated to packing groups II or

III.

4.2.1.19.2 Unless otherwise provided in the Dangerous Goods List of Chapter 3.2, portable tanks used to transport these solids above their melting points must comply with the provisions of portable tank instruction T4 for solid substances allocated to Group Package III or T7 for solid substances allocated to Packing Group II. a portable tank that provides an equivalent or greater level of safety may be selected in accordance with paragraph 4.2.5.2.5. The maximum degree of filling (in%) is be determined according to the item 4.2.1.9.5 (TP3).

4.2.2 General provisions for use of portable tanks for the transport of non-refrigerated liquefied gases and chemicals under pressure products

4.2.2.1 The following items set out the general requirements applicable to the use of portable tanks for the carriage of liquefied gases and non-refrigerated products Chemical under pressure.

4.2.2.2 Portable tanks shall meet the design requirements, construction, inspection and testing detailed in section 6.7.3. Non-refrigerated liquefied gases and chemicals under pressure shall be carried in portable tanks that are in accordance with the Instruction for Portable tanks T50, described in item 4.2.5.2.6, and special provisions for portable tanks for non-refrigerated liquefied gases specific, indicated in Column 13 of the Dangerous Goods List and described in item 4.2.5.3.

4.2.2.3 During transport, portable tanks shall be adequately protected against damage to the shell and service equipment resulting from impact lateral and longitudinal and overturning. If the shell and service equipment are so constructed as to withstand impact or overturning, this protection is dispensable. Examples of these protections are presented in item 6.7.3.13.5.

4.2.2.4 Certain non-refrigerated liquefied gases are chemically unstable and only They must be accepted for transport to take the necessary measures to prevent decomposition, transformation or polymerization during transport dangerous. For this, Special care must be taken to ensure that portable tanks do not containing non-refrigerated liquefied gases liable to promote these reactions.

4.2.2.5 The shipper, the carrier or its (s) servant or agent (s) (are) present, when requested by the competent authority or body designated by it believed a copy of the certificate specified in item 6.7.3.14.1, unless the substance name transported is disposed on the metal plate described in item 6.7.3.16.2.

4.2.2.6 Empty portable tanks not decontaminated and not degassed They must meet the same requirements as the tanks containing the substance previously carried.

4.2.2.7 Filling

4.2.2.7.1 Prior to filling the consignor shall ensure that the portable tank is suitable for conveying non-refrigerated liquefied gas propellant or product Chemical under pressure to be transported, and that it is not filled with gas non-refrigerated liquefied or chemicals under pressure, which may react dangerously with housing materials, gaskets and service equipment, form dangerous products or significantly weaken these materials.
During filling, the temperature of the liquefied gas or non-refrigerated propellant Chemical pressure must remain within the limits of the temperature range project.

4.2.2.7.2 The maximum mass of non-refrigerated liquefied gas per liter of capacity housing (kg / L) may not exceed the density of the liquefied gas non-cooled to 50 ° C multiplied by 0.95. Also, the housing should not be entirely filled with liquid 60C.

4.2.2.7.3 Portable tanks may not be filled up your gross mass maximum allowed or the maximum load allowed for each gas to be carried.

4.2.2.8 can not be offered for transport portable tanks:

a) in an ullage condition liable to cause a hydraulic force unacceptable due to surge within the tank;

b) that are leaking;

c) that are damaged as to affect the portable tank integrity or its lifting or securing devices; and

d) whose service equipment has been examined and found to improper operating conditions.

4.2.2.9 Openings for lifting forks fitting should remain closed when the tank is full. This provision does not apply to portable tanks that, in accordance with item 6.7.3.13.4, are not required to have the means of closing said openings.

4.2.3 General provisions for use of portable tanks for the transport of refrigerated liquefied gases

4.2.3.1 The following set out the general requirements applicable to the use of portable tanks for the transport of refrigerated liquefied gases.

4.2.3.2 Portable tanks shall meet the design requirements, construction, inspection and testing detailed in section 6.7.4. Refrigerated liquefied gases shall be transported in portable tanks that are in accordance with the Instruction for tanks T75 portable described in item 4.2.5.2.6, and the special provisions for tanks laptops for each substance listed in Column 13 of Product Relationship Hazardous described in item 4.2.5.3.

4.2.3.3 During transport, portable tanks shall be adequately protected against damage to the shell and service equipment resulting from side impact and longitudinal and overturning. If the shell and service equipment are built as to withstand impact or overturning, this protection is not necessary. Examples these protections are presented in item 6.7.4.12.5.

4.2.3.4 The shipper, the carrier or its (s) servant or agent (s) (are) present, when requested by the competent authority or body designated by it believed a copy of the certificate specified in item 6.7.4.13.1, unless the substance name transported is disposed on the metal plate described in item 6.7.4.15.2.

4.2.3.5 Empty portable tanks not decontaminated and should not degassed

meet the same requirements as the tanks containing the substance previously

transported.

4.2.3.6 Filling

4.2.3.6.1 Prior to filling the consignor shall ensure that the portable tank is suitable for transporting refrigerated liquefied gas, and that it is not filled with refrigerated liquefied gases which may react dangerously with the materials of housing, gaskets and service equipment, form dangerous products or considerably weakening these materials. During filling, temperature of refrigerated liquefied gas must remain within the band limits Project temperature.

4.2.3.6.2 To estimate the degree of initial filling must take into account the time waiting necessary for the journey, including any delays that may occur. O grade housing initial filling except the provisions in items 4.2.3.6.3 and 4.2.3.6.4, must be such that, with the exception of helium, if the content undergo temperature rise until the vapor pressure equals the maximum allowable working pressure (PTMA), volume occupied by liquid would not exceed 98%.

4.2.3.6.3 Shells intended for the carriage of helium can be filled up to height setting of the pressure relief valve.

4.2.3.7 Actual holding time

4.2.3.7.1 The actual holding time shall be calculated for each trip, taking as base:

a) the reference waiting time for the refrigerated liquefied gas to be transported (see item 6.7.4.2.8.1), as indicated on the nameplate mentioned in item 6.7.4.15.1;

b) The actual filling density;

c) The actual filling pressure;

d) the lowest pressure at which the (s) device (s) pressure limiting is (are) calibrated (s).

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4.2.3.7.2 The actual holding time shall be marked on the portable tank itself or a metal plate firmly secured to the portable tank according to the item 6.7.4.15.2.

4.2.3.8 They can not be offered for transport portable tanks:

a) in an ullage condition liable to cause a hydraulic force unacceptable due to surge within the tank;

b) that are leaking;

c) that are damaged as to affect the portable tank integrity or its lifting or securing devices;

d) whose service equipment has been examined and found to improper operating conditions.

e) except when the actual holding time for the refrigerated liquefied gas be carried has been determined in accordance with Item 4.2.3.7 and the portable tank is marked in accordance with item 6.7.4.15.2; and

f) unless the duration of transport, taking into account any possible delays do not exceed the actual holding time.

4.2.3.9 Openings for lifting forks fitting should remain closed when the tank is full. This provision does not apply to portable tanks that, in accordance with item 6.7.4.12.4, are not required to have the means of closing said openings.

4.2.4 General provisions concerning the use of Element Gas Containers

Multiple (MEGCs)

4.2.4.1 The following contains general provisions regarding the use of Multiple-Element Gas Containers (MEGCs) for the transport of non-gas chilled.

4.2.4.2 The MEGCs must comply with the requirements relating to design, manufacturing, inspection and test specified in item 6.7.5. Elements of MEGCs shall be subjected to periodic inspections in accordance with the provisions established Instruction P200 Packaging and item 6.2.1.6.

4.2.4.3 During transport, MEGCs shall be adequately protected

against damage to the shell and service equipment resulting from side impact and longitudinal and overturning. If the shell and service equipment are built as to withstand impact or overturning, this protection is not necessary. Examples these protections are presented in item 6.7.5.10.4.

4.2.4.4 The tests and periodic inspections to which MEGCs are submitted They are specified in item 6.7.5.12. MEGCs or their elements can not be filled from the date when they should be being subjected to close inspection periodic, but they may be transported after the expiry of the deadline for completion assay.

4.2.4.5 Filling

4.2.4.5.1 Prior to filling, the shipper must inspect and ensure that MEGCs are appropriate for the gas to be transported and that comply with the provisions applying this Regulation.

4.2.4.5.2 The elements of MEGCs shall be filled according to the pressures service, filling ratios, and the filling rules prescribed in Instruction for P200 package for the specific gas being filled into each element. In no event CGEMs one or a group of elements can be filled as a unit, so that exceed the operating pressure of the lower pressure element.

4.2.4.5.3 The MEGCs can not be filled above their maximum permissible gross mass allowed.

4.2.4.5.4 Isolation valves shall be closed after filling and should remain closed during transport. Toxic gases of Division 2.3 only They can be transported in MEGCs where each of its elements is equipped with an isolation valve.

4.2.4.5.5 A (s) opening (s), filler (are) to be closed (s) with a capsule or cover. The tightness of the closures and equipment shall be verified by the consignor after filling.

4.2.4.5.6 They can not be offered for filling MEGCs:

a) when damaged to such an extent that the integrity of containers under pressure, its structural or service equipment may be committed;

b) unless the pressure receptacles and its structural equipment service have been inspected and found to be in good operating conditions; and

c) unless the certification marks, and periodic tests Potting are legible.

4.2.4.6 They may not be offered for MEGCs filled transport:

a) when presenting leak;

b) when damaged to such an extent that the integrity of containers under pressure, its structural or service equipment may be committed;

c) unless the pressure receptacles and its structural equipment service have been inspected and found to be in good operating conditions; and

d) unless the certification marks, and periodic tests Potting are clearly legible.

4.2.4.7 Empty MEGCs decontaminated and should not desgaseificasdos

meet the same requirements as MEGCs containing the substance previously transported.

4.2.5 Instructions and special transport arrangements in portable tanks

4.2.5.1 General

4.2.5.1.1 The following set of instructions and the special provisions for portable tanks applicable to dangerous goods allowed to be transported in tank portable. Each portable tank instruction is identified by a designation alphanumeric (eg T1). Column 12 of the Dangerous Goods in Chapter 3.2 indicates the portable tank instruction that shall be used for each substance to be transported. When there is not, in Column 12, no instruction for portable tank in relation to a particular hazardous material transport that substance It is not allowed in these tanks. Special provisions for portable tanks in Column 13 of the Dangerous Goods List in Chapter 3.2, are aimed at products specific hazardous. Each Special Provision portable tank is identified by

an alphanumeric designation (e.g., TP1). A list of special provisions portable tank is provided in section 4.2.5.3.

Note : *The gases transported in MEGCs are allowed, they are shown in column "CGEM" of Tables 1 and 2 of the Instruction for P200 Packaging in item 4.1.4.1.*

4.2.5.2 Click for portable tanks

4.2.5.2.1 The instructions for portable tanks are applicable to dangerous goods of Classes 1 to 9 (except Class 7). They provide specific information relating to requirements for portable tanks for specific products. these requirements Additional must be met without prejudice to the general requirements contained in this Chapter and Chapter 6.7.

Notice: *For risk class of products 7 - radioactive materials should be observed*

the Standards of CNEN.

4.2.5.2.2 for goods in Classes 1 to 9 (other than those of Classes 2 and 7), the instructions portable tank indicating the minimum test pressure, the minimum thickness housing (in reference steel), the requirements for the openings at the bottom and pressure relief requirements applicable. Instruction for portable tank T23, the autorreagentes substances of Class 4.1 and organic peroxides of Class 5.2, allowed to be transported in portable tanks are listed along with control temperature and applicable emergency.

4.2.5.2.3 The Portable tank instruction T50 applies to non-liquefied gases chilled. This statement provides the maximum working pressure allowed and requirements for openings at the bottom, the pressure relief and the degree of filling for non-refrigerated liquefied gases to be carried in portable tanks allowed.

4.2.5.2.4 The Portable tank instruction T75 applies to liquefied gases chilled.

4.2.5.2.5 Determination of the Instructions for appropriate portable tanks

When the column 12 set given instruction for tanks Portable for a particular hazardous material may be used other tanks Portable having higher test pressure, the greater thickness of the walls of housing and more stringent requirements for the openings at the bottom and as the devices

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pressure relief. The following guidelines allow the determination of portable tanks suitable for the transport of specific substances:

instruction for portable tanks specified	Click for portable tanks also allowed
T1	T2 to T22
T2	T4 to T22 (except T6)
T3	T4 to T22
T4	T5 to T22 (except T6)
T5	T10, T14, T19, T20, T22

T6	T7 to T22
T7	T8 T22
T8	T9, T10, T13, T14, T19, T20, T21, T22
T9	T10, T13, T14, T19, T20, T21, T22
T10	T14, T19, T20, T22
T11	T12 to T22
T12	T14, T16, T18, T19, T20, T22
T13	T14, T19, T20, T21, T22
T14	T19, T20, T22
T15	T16 to T22
T16	T18, T19, T20, T22
T17	T18 to T22
T18	T19, T20, T22
T19	T20, T22
T20	T22
T21	T22
T22	None
T23	None

4.2.5.2.6 Click for Portable Tanks

The instructions for portable tanks determine the requirements applicable to a portable tank when it is used to carry certain substances. The instructions for portable tanks T1 to T22 indicate the minimum pressure applicable test, the minimum wall thickness (in mm reference steel), and the requirements relating to pressure relief devices and openings in the bottom of

tank.

T1 - T22 **INSTRUCTIONS FOR PORTABLE TANKS** **T1 - T22**

These instructions for portable tanks apply to liquid and solid substances of Class 1 and Classes 3 to 9. The general provisions of item 4.2.1 and item 6.7.2 requirements must be met.

instruction for tanks portable	**Minimum pressure test (Pub)**	**minimal thickness of the walls (in mm reference steel) (See 6.7.2.4)**	**requirements relief pressure [1] (See 6.7.2.8)**	**requirements opening at the bottom [2] (See 6.7.2.6)**
T1	1,5	See **item** 6.7.2.4.2	Normal	See **item** 6.7.2.6.2
T2	1,5	See **item** 6.7.2.4.2	Normal	See **item** 6.7.2.6.3
T3	2.65	See **item** 6.7.2.4.2	Normal	See **item** 6.7.2.6.2
T4	2.65	See **item** 6.7.2.4.2	Normal	See **item** 6.7.2.6.3
T5	2.65	See **item** 6.7.2.4.2	See item 6.7.2.8.3 not allowed	
T6	4	See **item** 6.7.2.4.2	Normal	See **item** 6.7.2.6.2
T7	4	See **item** 6.7.2.4.2	Normal	See **item** 6.7.2.6.3
T8	4	See **item** 6.7.2.4.2	Normal	Non-permitted
T9	4	6 mm	Normal	Non-permitted
T10	4	6 mm	See **item** 6.7.2.8.3	Non-permitted
T11	6	See **item** 6.7.2.4.2	Normal	See **item** 6.7.2.6.3
T12	6	See **item** 6.7.2.4.2	See **item** 6.7.2.8.3	See **item** 6.7.2.6.3
T13	6	6 mm	Normal	Non-permitted
T14	6	6 mm	See **item** 6.7.2.8.3	Non-permitted

1 *When the word "Normal" is indicated, apply all the requirements of item 6.7.2.8, except item 6.7.2.8.3.*

2 *When the "not-allowed" expression is indicated, the lower openings are not permitted when substance to be transported is a liquid (see Section 6.7.2.6.1). When the substance to be transported are a solid at all temperatures encountered under normal conditions of transportation, the lower openings meet the requirements of item 6.7.2.6.2 are allowed.*

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T15	10	See **item** 6.7.2.4.2	Normal	See **item** 6.7.2.6.3
T16	10	See **item** 6.7.2.4.2	See **item** 6.7.2.8.3	See **item** 6.7.2.6.3

T17	10	6 mm	Normal	See **item** 6.7.2.6.3
T18	10	6 mm	See **item** 6.7.2.8.3	See **item** 6.7.2.6.3
T19	10	6 mm	See **item** 6.7.2.8.3	Non-permitted
T20	10	8 mm	See **item** 6.7.2.8.3	Non-permitted
T21	10	10 mm	Normal	Non-permitted
T22	10	10 mm	See **item** 6.7.2.8.3	Non-permitted

T23 INSTRUCTION FOR PORTABLE TANKS T23

This portable tank instruction applies to autorreagentes substances of Class 4.1 and organic peroxides of Class 5.2. The general provisions of item 4.2.1 and item 6.7.2 requirements must be met. Must be met also the specific requirements of paragraph 4.2.1.13 to autorreagentes substances of Class 4.1 and peroxides Organic Division 5.2.

No. UN	Substance	Pressure Minimum test (KPa)	Thickness minimum of walls (Mm steel Ref.)	requirements opening in the back	requirements Relief pressure	limit in filling	Temperature in control	Temperature in emergency
3109	PEROXIDE ORGANIC, TYPE F, LIQUID Hydroperoxide t butyl in up to concentrations 72%, water [3] hydroperoxide cumila in up to concentrations 90% in diluent type THE Peroxide, di-t-butyl, at concentrations up to 32% in diluent type A hydroperoxide isopropilcumila in up to concentrations 72% in diluent type THE	4	see 6.7.2.4.2	To see 6.7.2.6.3	To see 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	To see 4.2.1.13.13		

3 *Since they have been adopted measures to obtain an equivalent safety factor of 65% t-butyl hydroperoxide and 35% water.*

Hydroperoxide p-Menthyl in up to concentrations 72% in diluent type THE hydroperoxide pinanila in up to concentrations 56% in diluent type THE							
3110 PEROXIDE ORGANIC, TYPE F, SOLID Dicumylperoxide [4]	4	To see 6.7.2.4.2	To see 6.7.2.6.3	To see 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	To see 4.2.1.13.13		
3119 PEROXIDE ORGANIC, TYPE F, LIQUID, TEMPERATURE CONTROLLED	4	To see 6.7.2.4.2	To see 6.7.2.6.3	To see 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	To see 4.2.1.13.13	Referring to Fig.	
Perneodecanoato of t-amyl in up to concentrations 47% in diluent type THE						-10 ° C	-5 ° C
Paracetato t-butyl, at concentrations up to 32% in diluent type B						+30 ° C	+35 ° C
Per-2-ethylhexanoate t-butyl in up to concentrations 32% in diluent type B						+15 ° C	+20 ° C
Peroxypivalate of t butyl in up to concentrations 27% in diluent type B						+ 5 ° C	+ 10 ° C
Per-3,5,5-trimethyl-						+ 35 ° C	+ 40ºC

4 *Maximum quantity per portable tank: 2000 kg*

5 *As approved by the competent authority.*

d *Preparation obtained from the distillation of peroxyacetic acid produced from peroxyacetic acid in concentration not exceeding 41% in water, with total assets oxygen (peroxyacetic acid + H_2O_2) ≤ 9.5% meeting the criteria of the "f" of item 2.5.3.3.2. subsidiary risk label "Corrosive" is required.*

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	hexanoate t-butyl, at concentrations up to 32% in diluent type B							
	Peroxide, di (3,5,5-trimethyl-hexanoíla) in up to concentrations 38% in diluent type A or B						0ºC	+ 5 ° C
	Peracetic acid, distilled, type F, stabilized [d]						+ 30 ° C	+35 ° C
3120	PEROXIDE ORGANIC, TYPE F, SOLID, TEMPERATURE CONTROLLED	4	see 6.7.2.4.2	To see 6.7.2.6.3	To see 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	To see 4.2.1.13.13	w	w
3229	NET AUTORREAGENTE, TYPE F	4	see 6.7.2.4.2	To see 6.7.2.6.3	To see 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	To see 4.2.1.13.13		
3230	SOLID AUTORREAGENTE, TYPE F	4	see 6.7.2.4.2	To see 6.7.2.6.3	To see 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	To see 4.2.1.13.13		
3239	NET AUTORREAGENTE, TYPE F, TEMPERATURE CONTROLLED	4	see 6.7.2.4.2	To see 6.7.2.6.3	To see 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	To see 4.2.1.13.13	w	w
3240	SOLID AUTORREAGENTE, TYPE F, TEMPERATURE CONTROLLED	4	see 6.7.2.4.2	To see 6.7.2.6.3	To see 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	To see 4.2.1.13.13	w	w

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T50 **INSTRUCTION FOR PORTABLE TANKS** **T50**

This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (ONU 3500 numbers, 3501, 3502, 3503, 3504 and 3505). The general requirements of item 4.2.2 and item 6.7.3 be met.

No. UN	liquefied gas non-chilled	Maximum pressure Permissible (bar) Little; Non-protected; Protected from the sun; Isolated; respectively [6]	Opening below level of liquid	requirements relief pressure [7] (view item 6.7.3.7)	maximum ratio of filling
1005	anhydrous ammonia	29.0 25.7 22.0 19.7	Allowed	View item 6.7.3.7.3	0.53
1009	Bromotrifluormetano (Gas Refrigerant R 13B1)	38.0 34.0 30.0 27.5	Allowed	Normal	1.13
1010	Butadienes, stabilized	7.5 7.0 7.0 7.0	Allowed	Normal	0.55
1010	Butadienes and hydrocarbon stabilized mixture	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	Normal	See item 4.2.2.7
1011	butane	7.0 7.0 7.0 7.0	Allowed	Normal	0.51
1012	butylene	8.0 7.0 7.0 7.0	Allowed	Normal	0.53
1017	chlorine	19.0 17.0 15.0 13.5	Non-permitted	View item 6.7.3.7.3	1.25

6 *" Small" means tanks with a diameter of housing equal to or less than 1.5 meters; "Unprotected" means tanks diameter housing more than 1.5 meters without insulation or sun protection (see section 6.7.3.2.12); "Protected the sun "means tanks with a diameter of housing more than 1.5 meters with sun protection (see section 6.7.3.2.12); "Isolated" means tanks with a diameter of housing more than 1.5 meters with insulation (see section 6.7.3.2.12); (See definition of "Design reference temperature"* in section *6.7.3.1).*

7 *The word "Normal" in the column "pressure relief requirements" indicates that not require a rupture disk as specified in item 6.7.3.7.3.*

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1018	Chlorodifluoromethane (Gas R22 refrigerant)	26.0 24.0 21.0 19.0	Allowed	Normal	1.03
1020	Chloropentafluoroethane (Gas Refrigerant R 115)	23.0 20.0 18.0 16.0	Allowed	Normal	1.06
1021	1-Chloro-1,2,2,2-tetrafluoroethane (Refrigerant gas R 124)	10.3 9.8 7.9 7.0	Allowed	Normal	1.20
1027	cyclopropane	18.0 16.0 14.5 13.0	Allowed	Normal	0.53
1028	Dichlorodifluoromethane (Gas Refrigerant R12)	16.0 15.0 13.0 11.5	Allowed	Normal	1.15
1029	Dichlorofluoromethane (Gas Refrigerant R21)	7.0 7.0 7.0 7.0	Allowed	Normal	1.23
1030	1,1-difluoroethane (Gas Refrigerant R 152a)	16.0 14.0 12.4 11.0	Allowed	Normal	0.79
1032	Dimethylamine, anhydrous	7.0 7.0 7.0 7.0	Allowed	Normal	0.59
1033	dimethyl ether	15.5 13.8 12.0 10.6	Allowed	Normal	0.58

1036	ethylamine	7.0 7.0 7.0 7.0	Allowed	Normal	0.61
1037	Ethyl chloride	7.0 7.0 7.0 7.0	Allowed	Normal	0.80
1040	ethylene oxide nitrogen, until a pressure total of 1 MPa (10 bar) at 50 ° C.	- - - 10.0	No-allowed	View item 6.7.3.7.3	0.78

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1041	ethylene oxide blend carbon dioxide, more and 9% to 87% of oxide ethylene.	See the definition of maximum pressure allowable working in item 6.7.3.1	Allowed	Normal	See item 4.2.2.7
1055	isobutylene	8.1 7.0 7.0 7.0	Allowed	Normal	0.52
1060	Mixture of methylacetylene and propadiene stabilized	28.0 24.5 22.0 20.0	Allowed	Normal	0.43
1061	anhydrous methylamine	10.8 9.6 7.8 7.0	Allowed	Normal	0.58
1062	Methyl bromide, with no more than 2% chloropicrin	7.0 7.0 7.0 7.0	Non-permitted	View item 6.7.3.7.3	1.51
1063	Methyl chloride (Gas Refrigerant R40)	14.5 12.7 11.3 10.0	Allowed	Normal	0.81
1064	Metilmercaptana	7.0 7.0 7.0 7.0	Non-permitted	View item 6.7.3.7.3	0.78
1067	Dinitrogen tetroxide	7.0 7.0	Non-permitted	View item 6.7.3.7.3	1.30

		7.0 7.0			
1075	Liquefied petroleum gas	See pressure setting Maximum working admissible item. 6.7.3.1	Allowed	Normal	See item 4.2.2.7
1077	Propylene	28.0 24.5 22.0 20.0	Allowed	Normal	0.43
1078	Refrigerant gas, NE	See the definition of maximum pressure allowable working in item 6.7.3.1	Allowed	Normal	See item 4.2.2.7
1079	Sulphur dioxide	11.6 10.3 8.5 7.6	Non-permitted	View item 6.7.3.7.3	1.23

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1082	Trifluorcloroetileno stabilized (Refrigerant gas R 1113).	17.0 15.0 13.1 11.6	Non-permitted	View item 6.7.3.7.3	1.13
1083	trimethylamine anhydrous	7.0 7.0 7.0 7.0	Allowed	Normal	0.56
1085	Vinyl bromide, stabilized	7.0 7.0 7.0 7.0	Allowed	Normal	1.37
1086	vinyl chloride, stabilized	10.6 9.3 8.0 7.0	Allowed	Normal	0.81
1087	methyl vinyl ether, stabilized	7.0 7.0 7.0 7.0	Allowed	Normal	0.67
1581	chloropicrin mixture and methyl bromide more 2% chloropicrin	7.0 7.0 7.0 7.0	Non-permitted	View item 6.7.3.7.3	1.51

1582	chloropicrin mixture and methyl chloride	19.2 16.9 15.1 13.1	Non-permitted	View item 6.7.3.7.3	0.81
1858	Hexafluoropropylene (Gas Refrigerant R 1216)	19.2 16.9 15.1 13.1	Allowed	Normal	1.11
1912	Mixture of methyl chloride and methylene chloride	15.2 13.0 11.6 10.1	Allowed	Normal	0.81
1958	1,2-Dichloro-1,1,2,2-tetrafluoroethane (Gas Refrigerant R 114)	7.0 7.0 7.0 7.0	Allowed	Normal	1.30
1965	Hydrocarbon gaseous mixture liquified, NE	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	Normal	See item 4.2.2.7
1969	isobutane	8.5 7.5 7.0 7.0	Allowed	Normal	0.49

1973	mixture and chlorodifluoromethane chloropentafluoroethane with PE Fixed containing about 49% of chlorodifluoromethane (Gas Refrigerant R 502)	28.3 25.3 22.8 20.3	Allowed	Normal	1.05
1974	Clorodifluorbromometano (Gas Refrigerant R 12B1)	7.4 7.0 7.0 7.0	Allowed	Normal	1.61
1976	Octafluorciclobutano (Gas refrigerant RC 318)	8.8 7.8 7.0 7.0	Allowed	Normal	1.34
1978	Propane	22.5 20.4 18.0 16.5	Allowed	Normal	00:42
1983	1-chloro-2,2,2-trifluoroethane (Gas	7.0 7.0	Allowed	Normal	1.18

	Refrigerant R 133a)	7.0 7.0			
2035	1,1,1-trifluoroethane (Gas Refrigerant R 143a)	31.0 27.5 24.2 21.8	Allowed	Normal	0.76
2424	Octafluorpropano (Gas Refrigerant R 218)	23.1 20.8 18.6 16.6	Allowed	Normal	1.07
2517	1-Chloro-1,1-difluoroethane (Gas Refrigerant R 142b)	8.9 7.8 7.0 7.0	Allowed	Normal	0.99
2602	azeotropic mixture of dichlorodifluoromethane and difluoroethane, with approximately 74% of dichlorodifluoromethane (Gas Refrigerant R 500)	20.0 18.0 16.0 14.5	Allowed	Normal	1.01
3057	Cloruro de trifluoroacetila	14.6 12.9 11.3 9.9	Non-permitted	View item 6.7.3.7.3	1.17
3070	ethylene oxide blend dichlorodifluoromethane, containing to 12.5% ethylene oxide	14.0 12.0 11.0 9.0	Allowed	View item 6.7.3.7.3	1.09
3153	Perfluoro (methyl vinyl ether)	14.3 13.4 11.2 10.2	Allowed	Normal	1.14

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3159	1,1,1,2-Tetrafluoroethane (Gas Refrigerant R134a)	17.7 15.7 13.8 12.1	Allowed	Normal	1.04
3161	flammable liquefied gas NE	All the pressure setting Maximum working admissible in item 6.7.3.1	Allowed	Normal	See item 4.2.2.7
3163	Liquefied gas NE	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	Normal	See item 4.2.2.7
3220	Pentafluoroethane (Gas	34.4	Allowed	Normal	0.87

	Refrigerant R 125)	30.8 27.5 24.5			
3252	Difluoromethane (Refrigerant gas R32)	43.0 39.0 34.4 30.5	Allowed	Normal	0.78
3296	Heptafluoropropane (Gas Refrigerant R 227)	16.0 14.0 12.5 11.0	Allowed	Normal	1.20
3297	ethylene oxide blend clorotetrafluoretano, up to 8.8% ethylene oxide	8.1 7.0 7.0 7.0	Allowed	Normal	1.16
3298	ethylene oxide blend pentafluoroethane, up to 7.9% ethylene oxide	25.9 23.4 20.9 18.6	Allowed	Normal	1.02
3299	ethylene oxide blend tetrafluoroethane, up to 5.6% ethylene oxide	16.7 14.7 12.9 11.2	Allowed	Normal	1.03
3318	Ammonia in aqueous solution, with lower specific gravity 0.880 at 15 ° C, over 50% ammonia	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	View item 6.7.3.7.3	See item 4.2.2.7
3337	Refrigerant gas R 404A	31.0 28.3 25.3 22.5	Allowed	Normal	0.82
3338	Refrigerant gas R 407A	31.3 28.1 25.1 22.4	Allowed	Normal	0.94

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3339	refrigerant R 407B	33.0 29.6 26.5 23.6	Allowed	Normal	0.93
3340	Refrigerant gas R 407C	29.9 26.8 23.9 21.3	Allowed	Normal	0.95

3500	Chemical under pressure, HUH	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	View item 6.7.3.7.3	TP4
3501	chemical under pressure, flammable, NE	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	View item 6.7.3.7.3	TP4
3502	chemical under pressure, toxic, NE	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	View item 6.7.3.7.3	TP4
3503	chemical under pressure, corrosive, NE	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	View item 6.7.3.7.3	TP4
3504	chemical under pressure, flammable, toxic, NE	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	View item 6.7.3.7.3	TP4
3505	chemical under pressure, flammable, corrosive, HUH	See pressure setting Maximum working admissible in item 6.7.3.1	Allowed	View item 6.7.3.7.3	TP4

Note: *For UN 3500 numbers, 3501, 3502, 3503, 3504 and 3505 should be considered the degree of filling instead of the maximum filling ratio.*

T75 INSTRUCTION FOR PORTABLE TANKS T75

This portable tank instruction applies to refrigerated liquefied gases. The general provisions of 4.2.3 and the requirements of paragraph 6.7.4 must be met.

4.2.5.3 Special provisions for portable tanks

Special provisions for portable tanks are associated with certain substances to add or replace requirements set forth in the instructions for portable tanks or in Chapter 6.7. Special provisions for portable tanks, indicated in Column 13 of the Dangerous Goods List in Chapter 3.2, are designated the abbreviation TP (***T*** *ank* ***P*** *rovision* - Provision for tanks). Below is the list of the Special provisions for portable tanks:

TP1 - The degree of filling prescribed in section 4.2.1.9.2 can not be exceeded.

$$\textit{Filling degree} = \left(\frac{97}{(1+\alpha(t_R - t_F))} \right)$$

TP2 - The degree of filling prescribed in item 4.2.1.9.3 can not exceeded.

$$\textit{Filling degree} = \left(\frac{95}{(1+\alpha(t_R - t_F))} \right)$$

TP3 - The maximum degree of filling (in%) for solids transported at temperatures above its melting point and the transported liquid high temperature is be determined according to the item 4.2.1.9.5.

$$\textit{Filling degree} = 95 \frac{d_R}{d_F}$$

TP4 - The degree of filling for portable tanks shall not exceed 90% or, alternatively, any other value approved by the competent authority (see item 4.2.1.16.2).

TP5 - The degree of filling prescribed in item 4.2.3.6 must be met.

TP6 - To prevent the disruption of the tank under any circumstances, including the case of involvement in flames, it must be equipped with pressure relief devices appropriate to their ability and the nature of the substance carried. The device It must also be compatible with the substance.

TP7 - The air vapor space should be eliminated by means of nitrogen or other means.

TP8 - The test pressure for the portable tank may be reduced to 150 kPa (1,5bar) when flash point of the transported substance is greater than 0 ° C.

TP9 - This substance can only be transported in portable tanks with the approval the competent authority.

TP10 - It requires lead coating with a thickness of not less than 5 mm, it should be tested annually, or coating of another material approved by the authority competent.

TP13 - *Reserved.*

TP16 - The tank should be equipped with a special device to prevent under-pressure or pressure under normal conditions of transport. This device must be approved by the competent authority. The requirements for the pressure relief are mentioned in item 6.7.2.8.3 of the product to prevent crystallization in the relief valve pressure.

TP17 - The thermal insulation of the tank inorganic materials can be used not only fuels.

TP18 - The temperature must be kept between 18ºC and 40ºC. Portable tanks containing acid methacrylic solidified can not be reheated during transport.

TP19 - The calculated thickness of the housing should be increased by 3 mm. The thickness of the housing It should be checked by ultrasound, the middle range of the periodic hydraulic tests.

TP20 - This substance can only be carried in insulated tanks on a layer of nitrogen.

TP21 - The shell thickness can not be less than 8 mm. The tanks must be tested hydraulically and internally inspected at intervals not exceeding 2.5 years.

TP22 - Lubricant for joints or other devices must be compatible with oxygen.

TP23 - Transport permitted under special conditions specified by the authorities competent.

TP24 - The portable tank may be equipped with a device placed in the vapor space of housing at maximum load conditions to avoid excessive increase

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pressure due to slow decomposition of the substance carried. This device is avoiding also unacceptable amount of fluid leakage in the event of overturning or foreign matter into the tank. The device must be approved competent authority or body designated by it believed.

TP25 - sulfur trioxide, with a purity not less than 99.95% can be transported in tanks without inhibitor, the temperature is maintained at or above 32.5 ° C.

TP26 - When transported under heating, the heating device should be installed outside the housing. For UN 3176 number, this requirement only applies when the substance react dangerously with water.

TP27 - portable tank with minimum test pressure of 400 kPa (4 bar) can be used if it is shown that a test pressure 400 kPa (4 bar) or less is acceptable for According to the definition test pressure established in section 6.7.2.1.

TP28 - portable tank with minimum test pressure of 265 kPa (2,65bar) can be used if it is shown that a 265 kPa test pressure (2,65bar) or less is acceptable, according to the definition test pressure established in section 6.7.2.1.

TP29 - portable tank with a minimum test pressure of 150 kPa (1,5bar) can be used if it is shown that a test pressure 150 kPa (1,5bar) or less is acceptable, according to the definition test pressure established in section 6.7.2.1.

TP30 - This substance shall be transported in insulated tanks.

TP31 - This substance can only be transported in tanks if solid.

TP32 - For UN 0331 numbers, 0332 and 3375, portable tanks may be used provided that the following conditions are met:

(A) to avoid unnecessary confinement, all portable tanks metal must be equipped with a pressure relief device

spring, rupture disk or fusible element. The discharge pressure or break, as applicable, can not exceed 265 kPa (2.65 bar)

for portable tanks with minimum test pressures greater than 400 kPa

(4 bar);

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(B) only for the number UN 3375, the suitability for transport in tanks shall be demonstrated. An evaluation method is test 8 (d) Test Series 8 (see the "sub-section 18.7, Part 1 of the *Manual of Tests and Criteria* ");

(C) substances can not remain within the portable tanks for time interval that can produce agglutination. Appropriate measures should be taken to prevent the accumulation and deposition of the drug within the Tank (for example, cleaning, etc.).

TP33 - The portable tank instruction assigned for this substance applies to solids granular and dry bulk and solids which are filled and the desenvasados temperatures above its melting point and which are cooled and transported as a solid mass. For transported solids to temperatures above their melting point, see paragraph 4.2.1.19.

TP34 - Portable tanks need not be subjected to the prescribed impact test in item 6.7.4.14.1 when the tank display the words "FORBIDDEN FOR TRANSPORT RAIL "on the nameplate specified in item 6.7.4.15.1 affixed on both sides of outer casing with characters of a minimum height equal to 10 cm.

TP35 - Instruction for portable T14 tanks can be used up to 01 years after the entry into force of this Regulation.

TP36 - fuses elements in the vapor space may be used in portable tanks.

TP37 - Instruction for portable T14 tanks can be used up to 03 years after the entry into force of this Regulation, except that until that date:

(A) for UN numbers 1810, 2474 and 2668, T7 can be applied;
(B) to the 2486 UN number, T8 can be applied; and
(C) for a number UN 1838, T10 can be applied.

TP38 - The portable tank instruction T9 can be used up to 05 years after the entry into force of this Regulation.

TP39 - The Portable tank instruction T4 can be used up to 05 years after the entry into

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force of this Regulation.

TP40 - portable tanks can not be transported when connected to equipment spray application.

TP41 - Internal inspection every 2.5 years may be waived or substituted by other test methods or inspection procedures specified by the authority or competent body it believed, since the portable tank is intended the transport of organometallic substances to which this Special Provision is applicable. However, this inspection is required when the conditions set out in item 6.7.2.19.7 are met.

4.2.6 transitional provisions

Portable tanks and MEGCs manufactured before January 1, 2019 and meet the labeling requirements specified in 6.7.2.20.1, 6.7.3.16.1, 6.7.4.15.1 or 6.7.5.13.1 the 15th edition of the Recommendations on the Transport of Dangerous Goods United Nations - Orange Book, as applicable, may continue to be used provided that meet all other applicable requirements of this Regulation, including, where applicable, the requirements of clause 6.7.2.20.1 (g) for marking the symbol "S" on the plate when housing or compartment is divided by devices cut into larger sections of the wave to 7500 liter capacity. When the housing or casing is already divided by devices cut wave into smaller sections than 7500 liter capacity before 1 January 2019, capacity casting or respectively of the compartment, not

need to carry the symbol "S" until the next periodic inspection or the next test, according to the item 6.7.2.19.5 is performed.

Portable tanks manufactured before January 1, 2021 do not need It is marked with the portable tank instruction as set out in item 6.7.2.20.2, 6.7.3.16.2 and 6.7.4.15.2 until the next periodic inspection and testing.

Portable tanks and MEGCs manufactured before January 1, 2021 not They need to meet the requirements of items 6.7.2.13.1 (f), 6.7.3.9.1 (e), 6.7.4.8.1 (e) and 6.7.5.6.1 (d) concerning the marking of the pressure relief devices.

CHAPTER 4.3

BULK CONTAINERS FOR USE

4.3.1 general provisions

4.3.1.1 The following set out general provisions for the use of containers for transport of bulk solids. Substances should be transported in containers according to the corresponding instruction bulks applicable to such containers, identified by an alphanumeric code including the letters "BK" in Column 12 of the Dangerous Goods List, with the following meaning:

BK1: the transport in containers covered bulks is allowed;

BK2: the transport in closed containers for bulk cargo is allowed;

BK3: the transport in flexible bulk containers is permitted.

The container for bulk materials used must be in accordance with in Chapter 6.8.

4.3.1.2 Except as provided in item 4.3.1.3, the bulk containers They can only be used when indicated a container code Bulk

for a substance in Column 12 of the Dangerous Goods List of Chapter 3.2.

4.3.1.3 When not indicated a code for bulk containers in Column 12 of the Dangerous Goods List, the competent authority may issue a provisional authorization of transport. Such authorization shall be included in the documentation shipping and contain at least the information normally included in the statement for transport in bulk containers and the conditions under which the substance shall be transported.

4.3.1.4 It is forbidden to transport in bulk containers of substances may become liquid when at temperatures similar to those that may occur during transport.

4.3.1.5 The bulk containers should be sealed and remain closed so that there is no leakage of contents in normal conditions of carriage, including the effects arising from vibrations or temperature changes, humidity or pressure.

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4.3.1.6 The bulk solids transported must be filled and distributed in bulk containers to minimize any movement can result in damage to the container or leakage of hazardous products.

4.3.1.7 When there ventilating devices installed, they must be kept clean and operating properly.

4.3.1.8 Solid substances carried in bulk should not react so dangerous with the container material for bulk, gaskets, equipment, including the covers and tarpaulins, or with protective coatings are in contact with the contents or decrease its resistance significantly. The bulk containers must be made or adapted so that products can not penetrate between the wood floor coverings or come into Contact with parts of the container that may be affected by substances or their residues.

4.3.1.9 Before being filled and released for transport, the consignor must assegurar-

that each container for bulk was inspected and cleaned, so that no residue which remains inside or outside the container can:

- Cause a hazardous reaction with the substance to be transported;

- Damaging the structural integrity of the container; or

- Affect the ability of the container to retain the dangerous goods.

4.3.1.10 During transport, no dangerous residue can adhere to surfaces outside of bulk containers.

4.3.1.11 If there are several closing systems mounted in series, the system that is closest to the substance will be transported should be the first to be closed before filling.

4.3.1.12 Containers for empty bulk which have contained a substance dangerous are subject to the same requirements of these Regulations apply to bulk containers full, unless they have been taken appropriate measures to eliminate any risk.

4.3.1.13 When bulk containers are used for bulk transport Substances susceptible of causing a cloud of explosive powder or unhook flammable vapors (eg, certain wastes), measures should be taken

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adequate to eliminate sources of ignition and prevent dangerous electrostatic discharge during the filling, transport and discharge of the substance.

4.3.1.14 Substances, for example wastes, which may react dangerously with other substances belonging to different hazard classes and products not subject to this Regulation which is likely to react dangerously with each other, can not be mixed in the same container for bulk cargo. Are considered dangerous reactions:

a) combustion and / or detachment of intense heat;

b) emission of flammable and / or toxic gases;

c) formation of corrosive liquids; or

d) formation of unstable substances.

4.3.1.15 Before being filled, the container for bulk cargo should be examined visually by the consignor to ensure that its structure is capable of service, its interior walls, ceiling and funds are exempted from bulges or damage and that the liners or substance retaining equipment not is torn, tears or any damage that may compromise their ability retention. It is considered that the structure is in service conditions when the container does not present significant defects in its structural components, such as upper and lower brackets, the upper and lower supports, sills and headwaters of the doors, the bottom beams, anchors and hardware corners. Are considered significant defects:

a) bends, cracks or breaks in the structure or in the brackets with potential to affect the integrity of the container;

b) more than one amendment, or the existence of an improper splice (for example, as a partial coverage) on the upper crosspieces or lower or the door headboards;

c) more than two splices in any of the stirrups, top or bottom;

d) any amendment in a doorway or at anchor a corner;

e) hinges and fittings of the doors are locked, twisted or broken, or missing, or are dead;

f) seals and faulty locks;

g) any distortion of the overall configuration that is large enough to

enough to prevent proper alignment of equipment handling, chassis or vehicle mounting and fixation;

h) any damage to lifting devices or equipment handling; or

i) any damage to service or operational equipment.

4.3.1.16 Before a flexible bulk container to be filled, it should be

visually examined in order to ensure that it is structurally able to service, all components and parts, including body tissue, handles loading, closing devices are free from protrusions or damage and that liners are free of tears, breaks or other damage.

4.3.1.16.1 For flexible bulk containers, the permissible period of use for transportation of dangerous goods shall be two years from their date of manufacture.

4.3.1.16.2 ventilation devices should be installed if a dangerous accumulation of gases can develop within the flexible container for bulk cargo. Ventilation should be designed so that the penetration of foreign substances is prevented under conditions normal transport.

4.3.2 Additional provisions applicable to bulk containers for products of subclasses 4.2, 4.3, 5.1, 6.2 and Classes 7:08

4.3.2.1 Bulk containers for products of Class 4.2

They can only be used for closed containers bulk cargo (code BK2). The total mass carried in a container for bulk cargo should be such that a spontaneous ignition temperature is above 55 ° C.

4.3.2.2 Bulk containers for products of Class 4.3

They can only be used for closed containers bulk cargo (code BK2) and flexible containers for bulk cargoes (BK3 code). These products should be transported in containers waterproof.

4.3.2.3 Bulk containers for products of Class 5.1

The bulk containers shall be manufactured or adapted so that the products can not come into contact with wood or any other material incompatible.

4.3.2.4 Bulk containers for products of Class 6.2

4.3.2.4.1 Bulk containers for animal materials transport of Division 6.2

transport is permitted bulk of animal materials containing substances infective (UN numbers 2814, 2900 and 3373), provided the following conditions:

a) the containers covered bulks (BK1) are permitted, provided that They are not filled to its maximum capacity in order to prevent substances come into contact with the cover. They are also allowed the containers closed bulks (BK2);

b) the containers closed or covered bulks, as well as their openings must be airtight according to the design or by adding a suitable coating;

c) the animal material shall be thoroughly treated with a disinfectant appropriate before being packaged for transportation;

d) the containers covered bulks must have a coating Further the top, backed with an absorbent material treated with an appropriate disinfectant;

e) the containers closed bulks or may not be covered reused until they have been thoroughly cleaned and disinfected.

Notice: *Apply also the requirements established by the competent authority health care.*

4.3.2.4.2 Bulk containers for the transport of waste of Division 6.2 (ONU 3291 number)

a) only containers allowed for closed bulks (BK2);

b) the containers closed bulks, and their openings, shall

be watertight in project function. They must have an inner surface non-porous and should be free of cracks or other characteristics that could damage the inside of the packaging, impede disinfection or allow the accidental release of waste;

c) UN 3291 number of waste must be transported within closed containers for bulk, in plastic bags sealed type UN and sealed, tested and approved for the transport of substances solid packing group II and marked in accordance with the item 6.1.3.1. These plastic bags must be approved in test resistance to tear and impact according to standard ISO 7765-1: 1988 " *Plastics film and sheeting - Determination of impact resistance by the free-falling dart method - Part 1: Staircase methods "* and ISO 6383-2: 1983 " *Plastics - Film and sheeting - Determination of tear resistance - Part 2: Elmendorf method* . "Each of the plastic bags must have a impact resistance of at least 165 g and a resistance to tear strength of at least 480 g in both the perpendicular plane as the parallel relative to the length of the bag. The maximum net mass each plastic bag shall be 30 kg;

d) individual items of more than 30 kg such as soiled mattresses may be transported without plastic bag, as long as permitted by authority competent;

e) 3291 UN number of waste containing liquids only They can be transported in plastic bags that have the material absorbing amount sufficient to absorb the entire liquid without it leaking into the container for bulk cargo;

f) UN 3291 number of waste containing sharp objects They can only be transported in UN type rigid packaging tested and approved to meet the requirements of the Instructions for Packaging P621, IBC620 or LP621;

g) Rigid packagings specified in the Instructions Packaging P621, IBC620 or LP621 may also be used. These should be properly secured to prevent damage during normal transport. Wastes transported in rigid containers and bags

plastics within a closed container for bulk cargo should
be adequately separated from each other, e.g., through
rigid barriers or dividers, wire mesh or any other means
to avoid damage to the packaging under normal conditions of transport;

h) waste of UN 3291 number, packed in plastic bags, not
They must be compressed into a container for bulk cargo closed to the point
of the bags lose their tightness;

i) after each trip, the containers must be closed bulks
inspected to detect any leak or spill. At the
If a leak or spill UN number of waste 3291
the container closed to bulk, this can not be reused until
has been adequately cleaned and, if necessary, disinfected or
decontaminated with an appropriate agent. No other product can
be transported along with waste of UN 3291 number, except for
medical or veterinary wastes. Any other waste
transported within the same container for bulk cargo are closed
be inspected in order to detect any possible
contamination.

4.3.2.5 Bulk containers for Class 7 products

Additional provisions and other controls relating to containers
bulk cargo for overland transport of radioactive materials are laid down in the rules
CNEN.

4.3.2.6 Bulk containers for Class 8 products

They can only be used for closed containers bulk cargo (code
BK2). These products must be transported in containers waterproof.

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