

**PART 7**

**REQUIREMENTS RELATING TO**

**TRANSPORT**

739

---

**Page 2**

## **CHAPTER 7.1**

### **GENERAL REQUIREMENTS CONCERNING TRANSPORT OPERATIONS TERRESTRIAL**

#### **7.1.1 Application, general provisions and requirements for transportation, Loading and unloading**

7.1.1.1 This chapter contains common provisions applicable to Road and rail transport of dangerous goods.

7.1.1.2 The recommendations below, unless otherwise Applicable to the carriage of goods of any class. They are the Minimum precautions to be observed for the prevention of accidents, as well as the

As to restrict the effects of accident or emergency. In addition,  
Particular provisions applicable to each class of  
7.1.3 to 7.1.8), and those established by their respective competent authorities, in  
For Class 1 and Class 7 products, and special provisions for products  
Of Subclass 6.1 and 6.2 and to waste, where appropriate.

7.1.1.3 For purposes of this Regulation, the following are considered:

(A) vehicles for road transport:

- I. Cargo vehicles (single and combined);
- ii. Mixed vehicles;
- iii. Tank vehicles;
- iv. Mobile Pumping Unit (UMB); and
- V. For the carriage of dangerous goods

7.

Note 1: Where mixed vehicles are used, the products  
Dangerous goods must be transported in their own compartment (cargo),  
Segregated from the driver and auxiliaries.

740

(B) vehicles for rail transport:

- I. Wagons and tank wagons.

C) transport equipment:

- I. Cargo containers;

Ii. Container-tanks; and

Iii. Portable tanks and Multiple Element Containers

Gas (MEGCs).

Note 2: The transport of dangerous goods in bulk in Equipment called "flexitanque", which consists of a tank Made of flexible material in the form of a pillow and equipped with Valves for loading and unloading, installed within a "Dry Box" container intended for the carriage of general cargo Fractions.

(D) bulk cargo: where the dangerous product is transported without Any container or container being contained by the tank itself Installed in the vehicle or in a tank container.

(D) fractionated cargo: where the dangerous product is transported in Packaging, IBCs, large containers, portable tanks and Containers Multiple Gas Elements (MEGCs) that do not fit into the Definition of CSC container.

7.1.1.4 Except as otherwise provided in this Regulation, no person may Offer or accept dangerous products for carriage unless:

(A) the said products have been properly classified, packaged, Identified (marking, labeling and other applicable symbols) and Described in the tax document for Dangerous product containing or being accompanied by a Declaration issued by the consignor;

(B) there is no hazardous residue of products attached to the outside of the volume; and

C) the other documents and equipment required by this  
Have been provided.

7.1.1.4.1 Information on dangerous products must accompany them.  
To their final destination. Such information must be on the tax document for  
Transportation of hazardous products, according to item 5.4.1.2.1, and shall be passed on to the  
Consignee after delivery of the dangerous goods.

**Notice:** Where electronic documentation is used, this documentation shall  
Be made available whenever requested, at any time until the final destination,  
And shall be reproduced without delay.

7.1.1.5 Hazardous products may not be transported unless  
Vehicles and transport equipment are properly  
Under the conditions of transport provided for in this Regulation.

7.1.1.6 Volumes containing dangerous products shall only be  
Loaded with vehicles and transport equipment capable of withstanding shocks  
And loads normally produced during transport, taking  
Conditions that may occur during the journey. Vehicles and equipment  
Must be designed to avoid loss of contents. When  
Appropriate, vehicles and transport equipment must be fitted with  
Devices which facilitate the handling and packaging of packages containing  
dangerous products.

7.1.1.7 The interior and exterior of vehicles shall be inspected before  
To ensure that there is no damage that could affect its integrity.  
Or of the volumes that will be packed in this unit, also  
Standards established by other competent authorities for each class of risk.

7.1.1.8 The circulation of vehicles and transport equipment is prohibited. Intended for the inland transport of dangerous products which present Contamination from dangerous products on the outside.

742

---

**Page 6**

7.1.1.8.1 The cleaning and decontamination operations for the Services for training, maintenance, repair, Should be carried out by specialized companies or Accredited by Inmetro, which must provide the Certificate of Decontamination, According to the Ordinances of that Institute that regulate the subject. In case of Contamination with radioactive material, the decontamination must be Supervision of a radiological protection professional and taking into account the requirements Competent authority, where applicable.

7.1.1.8.2 Cleaning and decontamination operations do not authorize the Loading of products for human or animal use or consumption in packaging, IBCs, portable tanks and equipment for the transport of products Dangerous in bulk.

7.1.1.9 Vehicles or transport equipment shall be loaded with Incompatible dangerous products, as well as hazardous Other type of goods, are segregated in accordance with the provisions of this Regulation. Specific instructions should also be followed for stowage, Such as the direction of the orientation arrows, the "do not stack"

"Keep dry" or temperature control requirements. When allowed  
Stacking and where possible packaging containing

Dangerous liquids must be stowed under the

Hazardous waste.

7.1.1.10 Volumes containing dangerous products and dangerous articles do not  
Shall be attached to vehicles or transport equipment by  
Able to immobilize them (such as fastening straps, moving  
Adjustable clamps) in such a way that any  
That may change the orientation of the packages or damage them. When  
Dangerous goods are transported together with other articles (for example,  
Heavy machinery or crates), all packages must be tied or  
Vehicles and transport equipment to avoid the release of  
dangerous products. The movement of filling volumes can also be prevented.  
The empty spaces with stowage material or devices of subsection or blocking.

743

When devices such as belts or fastening straps are used, they do not  
Can be tightened to the point of damaging or deforming the volume.

7.1.1.11 All loading volumes containing dangerous products shall be  
Be suitably stowed and anchored together or secured by suitable means  
On the vehicle in such a way as to avoid any displacement, whether of a volume  
To another, either of these in relation to the walls of the vehicles. Volumes can not be  
Stacked, unless they have been designed for this purpose. When different  
Carton models designed to be stacked are transported  
Together, their compatibility for stacking must be taken into account. When

Support devices shall be used to prevent  
 Stacked to damage the bottom ones. IBCs and large packagings shall be  
 Securely attached and fitted to vehicles or  
 So as to prevent lateral, longitudinal or  
 Loading compartment.

7.1.1.12 During loading and unloading operations, the  
 Packaging containing dangerous products must be protected against damage.  
 Special care should be taken when handling volumes during  
 Type of vehicles or transport equipment in which  
 Transported and the method of loading and unloading, so that no  
 Accidental damage resulting from incorrect handling or handling of volumes. The  
 That are leaking or damaged, so that your  
 Content may leak, should not be accepted for transportation. If it is found that  
 A volume is damaged to the point of producing content leakage, this  
 Not be transported, but transferred to a safe place in accordance with the  
 Accordance with the instructions given by the competent authority, or by a  
 Responsible person who has been designated and who is familiar with the  
 Products, the risks involved and the measures to be taken  
 In case of emergency.

**Note 1:** Additional requirements for the transport of packaging and IBCs  
 Instructions on the use of packaging and IBCs (see Chapter 4.1).

744

**Note 2:** Additional guidelines on stowage in vehicles and  
 Can be found in the IMO / ILO / UNECE



Closed Cargo Transport (CTUs) contained in the Supplement to the Code International Maritime Dangerous Goods. You can also consult the Codes Modalities and national practices (such as the Agreement on Exchange and Use of Wagons between Railway Companies (RIV 2000), Annex II - Load Guidelines Published by the International Union of Railways (UIF), or the code of practice ("Code of Practice of Loads on Vehicles"), Department of Transportation.

7.1.1.13 Flex bulk containers must be transported within Transport vehicles with rigid sides extending Less than two-thirds of the height of the container, stacking others.

7.1.1.13.1 Containers for bulk cargoes shall be attached to vehicles or Transport equipment by means capable of immobilizing them, in such a way that During transport, any movement which may Of the packages or damage them. When devices such as bands or Fixing straps, they can not be tightened to the point of damaging or deforming The flexible bulk container.

7.1.1.13.2 Flex bulk containers can not be stacked during transport.

7.1.1.14 Portable tanks may only be transported on vehicles Whose fastening elements are capable of withstanding, when the tanks Maximum permissible load, the forces specified in 6.7.2.2.12, 6.7.3.2.9 or 6.7.4.2.12, as appropriate.

7.1.1.15 Unloaded vehicles and transport equipment containing Residues of the previous content, because they are considered potentially hazardous, Are subject to the same requirements as for laden vehicles.

7.1.1.16 If, during loading and unloading, it is spilled

Any quantity of dangerous products, the work must be stopped

Immediately and only resumed after proper cleaning and

Decontamination of the site. Cleaning and decontamination must be carried out

According to the recommendations of the manufacturer of the product, in places and conditions

Environmental bodies.

7.1.1.17 Smoking is prohibited near packaging, vehicles or equipment,

As well as within vehicles and equipment loaded with hazardous products.

7.1.1.18 It is prohibited to enter vehicles and equipment intended for the

Dangerous products with flame-retardant appliances. In addition,

Apparatus and equipment capable of igniting

Products or their gases or vapors.

7.1.1.19 If there is no risk of change, exempt alcoholic beverages (with

24% alcohol by volume) may be transported in tanks which have contained

Non-exempt alcoholic beverages, provided that measures are taken to avoid

Contamination of the former.

7.1.1.20 During transport operations, consisting of loading,

Unloading, transshipment and transport itself, the volumes should not be

Exposed to the sun and heat for long periods of time, nor thrown or subjected to

To shocks.

7.1.1.21 In places intended for loading, unloading and transshipment, the products must be kept isolated from products or objects of use and / or consumption. Human or animal.

7.1.1.22 Vehicles carrying dangerous products shall be prohibited from being installed or maintained in any compartment, apparatus or equipment heating subject to combustion, gas or electric (stove, stove or similar), as well as the fuel products necessary for its operation, or any containers or devices capable of producing ignition of the products, their

746

---

**Page 9**

Gases or vapors, as well as the installation of an extra  
Unless permitted by transit legislation.

7.1.1.23 The transport of witness samples of dangerous products is prohibited. Packed in the cabin of the vehicles, the dangerous  
In a separate compartment located separate from the cab of the vehicle and  
Must be properly packed with identification required for the product, in addition to being  
Stowed to prevent any leakage. In that compartment, the  
Transportation of the dangerous product together with food, medicine, or  
For human or animal use and / or consumption, or  
Packaging of goods intended for the same purpose, unless they are  
Packed in cargo boxes.

7.1.1.24 It is forbidden to enter a covered or closed body, or a wagon  
Covered or closed, loaded with flammable gases, carrying  
Lighting the flame. In addition, it is not possible to use apparatus and equipment

May ignite the products.

7.1.1.25 During loading, unloading or transshipment operations, volumes shall not be  
Can be exposed to heat, not thrown or subjected to shocks.

7.1.1.26 If, for any reason,  
Handling in public places, volumes with products of different natures must be  
Be separated according to their respective risk symbols. During operations, the  
Should be handled with the utmost care and, if possible, without  
Faces.

747

---

**Page 10**

## **7.1.2 Segregation of hazardous products**

7.1.2.1 Incompatible products for the purpose of transport must be segregated  
Of others during their movement. For the purposes of this Regulation,  
Considered as incompatible substances or articles which, when stowed together,  
Result in undue risk in the event of a spill, spill or any other  
Another accident, creating a risk of explosion, flame

Heat, gas formation, vapors, dangerous compounds or mixtures due to the Alteration of the original physical or chemical characteristics of any of the Products, if put in contact with each other.

7.1.2.2 Provisions on segregation between hazardous products

May vary depending on the extent of risk arising from  
Between such products.

7.1.2.3 The provisions of this Regulation are general in nature. The provisions  
On land transport should be based on the following  
Principles and in the standard ABNT NBR 14619:

(A) the incompatible dangerous products shall be separated from one

In order to effectively reduce the risk of  
Leaks or spills or any other accident;

(B) where dangerous products are transported together, they shall be

The most stringent segregation rules prescribed for  
Concerned;

(C) for volumes in which a risk label is required.

Subsidiary, segregation rules should be applied  
Appropriate to the subsidiary risk if they are more restricted than  
Those prescribed for the primary risk.

7.1.2.4 The joint transport described in item 7.1.2.1 provided that incompatible products, transported in a fractional manner and Packaged, segregated, in vehicles and Transport, in cargo vaults that ensure leaktightness between the products Transported, ensuring the impossibility of damage to persons, goods, Public safety and the environment.

7.1.2.4.1 The consignor is responsible for ensuring that the type of cargo box Selected is appropriate to ensure leaktightness, depending on the characteristics Physicochemical properties of the dangerous products present in the shipment.

7.1.2.4.1.1 Cargo safes containing dangerous products shall bear a label of Risk assessment, as established in Chapter 5.2 and in the ABNT NBR 7500 standard, Corresponding to the risk of each of the dangerous products, with the same Dimensions used in the respective volumes.

7.1.2.5 Overpacking may not contain dangerous products that react Dangerously close to each other.

7.1.2.6 Specifically for substances and articles of Class 1, item 7.1.3 Detailed segregation requirements.

7.1.2.7 The segregation requirements for Class 7 products are Determined by the CNEN resolutions.

### **7.1.3 Special provisions applicable to the transport of explosives**

#### **7.1.3.1 *Segregation of Class 1 products from different groups of compatibility***

**Notice:** The safety of explosive substances and articles would be greater if each type

Be transported separately, but considerations of practicality and economy  
Discard this ideal. In practice, the appropriate balance between security interests  
And other relevant factors imposes a certain degree of mixing in the transport of  
Types of substances and articles.

749

---

**Page 12**

7.1.3.1.1 The "compatibility" of explosives is what determines the extent to which  
Class 1 products may be transported together. Class 1 Products  
Are considered "compatible" if they can be transported together without increasing,  
The probability of an accident or, for a given  
Magnitude of the effects of such an accident.

7.1.3.1.2 Products included in Compatibility Groups A to K and N may be  
Transported in accordance with the following provisions:

(A) volumes that display the same compatibility group letter and  
The same subclass number can be carried together;

(B) products of the same compatibility group but of subclasses  
May be transported together, provided that the whole of the  
Be treated as belonging to the subclass identified by the minor  
number. However, when products of Subclass 1.5 -  
Compatibility D - are transported together with products  
Of Subclass 1.2 - Compatibility Group D - the set should  
Be treated for transport purposes as if it were a Subclass  
1.1 - Compatibility Group D;

(C) volumes displaying letters of different compatibility groups  
Can not, in general, be transported together

(Regardless of the subclass), except in the cases of Groups  
Compatibility C, D, E and S, as explained in 7.1.3.1.3 and  
7.1.3.1.4.

7.1.3.1.3 The transport of products from Compatibility Groups C,  
D and E on the same vehicle or transport equipment, provided that the  
The classification of the whole is determined in accordance with the  
Classification of 2.1.3. The appropriate subclass is determined according to  
7.1.3.1.2, (b). Any combination of articles from Compatibility Groups C, D and  
E should be allocated to Compatibility Group E. Any combination of  
Substances of Compatibility Groups C and D should be allocated to the

750

Compatibility between those listed in 2.1.2.1.1, taking into account the  
Account of the predominant characteristics of the combined cargo.

7.1.3.1.4 Products of Compatibility Group S may be transported with  
Products of any other compatibility groups except A and L.

7.1.3.1.5 Products of Compatibility Group L can not be transported  
With products from no other group. In addition, products of the  
Compatibility L can only be transported with the same product type as the  
Own group.

7.1.3.1.6 Products of Compatibility Group N can not, in general (see  
Item 7.1.3.1.2 (b)), be transported with products from any other group of



Compatibility, except for Group S. However, if they are to be transported Products of Compatibility Groups C, D and E, the products of the Group of Compatibility N should be treated as belonging to the Compatibility D (see also item 7.1.3.1.3).

**7.1.3.2            *Mixed transport of Class 1 products and hazardous  
Other classes in containers, vehicles or wagons***

7.1.3.2.1            Except as expressly provided in this Regulation, the products Of Class 1 may not be transported in containers, vehicles or wagons. Along with dangerous products from other classes.

7.1.3.2.2            The products of Subclass 1.4, compatibility group S, may be Dangerous goods of other classes.

7.1.3.2.3            Demolition explosives (except UN No. 0083 explosives of Demolition, type C) may be carried along with ammonium nitrates and nitrates Inorganic substances of Class 5.1 (UN numbers 1942 and 2067), with metal nitrates (For example, UN 1486) and with alkaline earth metal nitrates (eg UN 1454), provided that the whole is considered as explosives of Class 1 demolition for the purpose of identification, signaling, segregation, stowage and

751

Maximum permissible load.

**Notice:**            Alkali metal nitrates include cesium nitrate (UN 1451), nitrate Lithium (UN 2722), potassium nitrate (UN 1486), rubidium nitrate (UN 1477) and

Sodium nitrate (UN 1498). Earth alkali metal nitrates include (UN 1446), beryllium nitrate (UN 2464), calcium nitrate (UN 1454), nitrate Of magnesium (UN 1474) and strontium nitrate (UN 1507).

7.1.3.2.4 The rescue devices (UN Nos. 3072 and 2990) which Containing Class 1 products as equipment may be carried With the same dangerous products containing such devices.

7.1.3.2.5 The air-bag inflator devices, air-bag or pre-Belt tensioners of Subclass 1.4, Compatibility Group G (No. UN 0503), may be transported together with air-bag inflators or with Airbag modules or with Class 9 seatbelt pretensioners (no. UN 3268).

### **7.1.3.3 *Transport of explosives in containers, road vehicles and Railway wagons***

7.1.3.3.1 For the carriage of substances and explosive articles of Class 1 Vehicles, containers, or railway wagons should Structural condition, and in the specific case of containers, the suitability must be Be evidenced by the presence of the approval plate provided for in the International Conference on Container Safety (CSC), in addition to a Detailed visual form, as follows:

- (A) before loading explosives into a container, road vehicle or other Railway wagon, they should be examined
  - There is no residue from an earlier shipment, check that
  - Are in good structural condition, and that the bottom or floor and the Inner walls do not have protruding parts;

(b) *good structural condition* means that the container, road vehicle

Railway wagon do not present major defects in  
Structural components, such as: the upper and lower  
The upper and lower ends of the ends, the  
And door lintel, floor crosspieces,  
Corners, and angles in the case of containers. Defects  
Important are the sinkings and curvatures that  
Exceed 19 mm in depth, irrespective of the  
Length, cracks or cracks in the structural elements; more  
Of an amendment, or an amendment made incorrectly (for  
Partially covered) on the upper or lower  
Of the ends or in the door linings, or more than  
Two splices on any upper or lower beam, or  
Sill of a door or in the columns of the corners; Hinges of  
Doors or fittings which are hard, twisted or broken, or  
That do not work for some other cause, or lacking; Gaskets  
Or seals that do not seal, or, in the case of containers,  
Any deformation in its general configuration which, by its  
Size, can prevent proper placement of  
Handling, assembly and fixing on a chassis, a  
Vehicle or a wagon or the insertion into the cells of vessels;

(C) furthermore, no deterioration of any

Element of the container, the road vehicle or the wagon  
Railway, regardless of its construction material, such as  
Rusted parts of one side or the other of the metal walls or

Disintegration in the glass fiber elements. However, the  
Normal wear and tear, including minor oxidation (rust),  
Presence of small sags and superficial scratches and  
Damage that does not render the equipment unfit for  
And does not impair its weatherproofness or  
Normal conditions of carriage.

753

---

**Page 16**

7.1.3.3.2 In the case of very fluid powder substances of Subclasses 1.1C, 1.1D, 1.1G, 1.3C and 1.3G, and Fireworks of Subclasses 1.1G, 1.2G and 1.3G, the floor Of the containers shall have a non-metallic surface or coating.

7.1.3.3.3 *Transport of explosives in Mobile Pumping Unit - UMB*

7.1.3.3.3.1 Safety bins for explosives containing volumes

With detonators and / or sets of detonators, as well as containing substances and Explosive articles of compatibility group D, shall be designed to

Ensure effective unbundling in order to prevent any

Detonators and / or sets of detonators with substances and

Explosive articles of compatibility group D. Separation must be ensured

Through a compartment constructed with a thick steel sheet

Sufficient to guide the shock wave to the upper body area, in the case

Of an explosion, with an inner lining of wood, preferably

Naval plywood in order to avoid friction and have exclusive access on the side of the

Bodywork, in order to ensure an effective separation of substances and articles

Explosive, preventing any transmission of detonation. The

Safety for explosives may be single or double. In both cases,  
Equipped with fasteners.

#### 7.1.3.3.3.2 The Transport of Explosives in Mobile Pumping Unit (UMB)

Only if the following conditions are met:

(A) the competent authority shall authorize the transport operation within the Territory;

(B) incompatible packaged explosives shall be segregated in accordance with Safety enclosure for double or

Compartments which meet the requirements of Item 7.1.3.3.3.1, or arranged in safety box (s) (cargo box Explosive), which must be affixed to the sides of the Said transport unit on opposite sides.

(C) no other dangerous product may be carried with explosives Packed in the same explosive or explosive Safety box (explosive charge safe); and

754

(D) packaged explosives shall only be charged to the Mobile Unit (UMB) after loading of the other products

Immediately before commencement of transport.

7.1.3.3.3.3 The Mobile Pumping Units (UMB) charged shall be Be monitored, or if this is not possible, they should be stationed in That offer all the guarantees of safety. The Mobile Units of Empty and contaminated Pumping (UMB) and that do not have packaged explosives In compartments for explosives are exempt from this requirement.

7.1.3.3.3.4 The flexible discharge pipe of the Mobile Pumping Units (UMB), whether permanently or not, as well as the feeder line,

Shall be free from explosive substances which are mixed or sensitized during the transport.

7.1.3.3.3.5 The transport of different Class 1 explosive articles and articles shall be

Be carried out according to criteria of compatibility groups, except when

Placed in safety box (s) (cargo box for explosive) transported (s)

Vehicle with open or closed bodywork, or

Compartment for explosives.

7.1.3.3.3.6 The safety box (explosive charge safe) must have

And be constructed with an AISI 1020 sheet steel

Minimum thickness of 4.8 mm, as well as having a thermal coating with

Thickness of at least 10 mm and an inner lining in plywood

Of a minimum thickness of 6 mm. The thermal coating should be between the shield

In sheet steel and the inner lining of wood.

7.1.3.3.3.7 When using the safety box (explosive charge box)

Transport of substances and articles of Class 1 (explosives) in vehicles

Open or closed body, it should be positioned in an easily accessible place,

Close to the door or cover and affixed so as not to move during transport.

7.1.3.3.3.8 The safety box (s) (explosive charge safe)

(S) shall be located where

755

Dangerous interactions with other hazardous products and sources of ignition in the Vehicle, such as exhaust gases. It is not allowed to place Any material on top of the safety box (explosive charge Compartment for explosives.

#### **7.1.3.4            *General service requirements***

7.1.3.4.1            Any vehicles and transport equipment for carry Class 1 products must, before loading, to be verified by Dispatcher as structural defects or deterioration of any of its components.

7.1.3.4.2            explosives should be transported in road vehicles type trunk or lonada body. The canvas should be waterproof and fire resistant; should be placed in order to fully cover the load without possibility of release.

7.1.3.4.3            The wagons loaded with explosives, should be provided with non-metallic brake shoes and bearings with rolling.

7.1.3.4.4            The wagon that contains explosive products should be separated from locomotive for at least three cars with inert or empty products.

7.1.3.4.5            The doors of the wagons loaded with explosives shall be closed and sealed.

7.1.3.4.6            Road vehicles with explosives, when they move in train, must maintain a minimum distance of 80 meters apart. If, for any reason, the train is forced to stop, it must maintain a minimum distance of 50 meters between parked vehicles.

7.1.3.4.7            During the transport, loading, unloading or transshipment, the

Packages shall not be exposed to sun and heat, not thrown or subjected to shocks.

756

---

**Page 19**

7.1.3.4.8 In the loading, unloading and transshipment, volumes not  
They must be stacked near the pipes discharges of vehicles.

7.1.3.4.9 explosives can not be loaded or unloaded in  
public places in settlements without special permission from the  
competent authorities, unless these operations are justified for reasons  
serious security-related. In such cases, the authorities should be  
immediately informed.

7.1.3.4.10 If, for any reason, have to be made of operations  
handling in public places, volumes with different kinds of products should  
They are separated according to their respective risk labels. During operations,  
volumes should be handled with utmost care.

7.1.3.4.11 During the carriage of Class 1 products, the charts for  
need service should as far as possible, be made away from local  
inhabited or sites with large flow of people. When strictly necessary  
make long stop in the vicinity of such sites, the authorities should be  
notified.

7.1.3.4.12 Before loading of explosives, should be removed from  
vehicles or transportation equipment all waste material easily  
flammable, and all metal objects, non-members of the vehicle and  
transportation equipment, which can produce spark. The vehicles and equipment



transport should be inspected to ensure no residue  
previous load and the absence of inner ear.

7.1.3.4.13 The tow and other easily combustible materials that may be needed  
the vehicle must be taken in the strictly necessary amount, and when  
contaminated with grease, fuel oil, etc., should be discarded  
immediately.

7.1.3.4.14 In the case of stacking, the bottom of which packings are  
the top layer can not exceed the height of the body. In addition, volumes

757

with other products, dangerous or not, they can be placed on packages containing  
explosives. Packages shall be arranged so that they can be  
unloaded at the destination, one by one, without having to redo the load.

#### **7.1.4 Special provisions applicable to gas transport**

7.1.4.1 Aerosol containers transported for recycling or  
disposing, according to the Special Provision 327, they can not be transported in  
enclosed cargo containers should be moved only in vehicles and  
transportation equipment well ventilated.

7.1.4.2 Electrical equipment of road or rail vehicles to  
transporting flammable gases must be protected to avoid spark.

7.1.4.3 Vehicles and transport equipment containing volumes with gas

compressed, liquefied or chemically unstable, must have devices adequate ventilation.

7.1.4.4 Toxic gases can not be loaded or unloaded at local public in settlements without special permission from the authorities competent, unless such operations are justified for serious reasons security-related. In such cases, the authority should be informed.

7.1.4.5 During transport of toxic products of Class 2.3, the stops for want of service should as far as possible, be carried away from inhabited or large influx of local people. If strictly necessary to prolonged stop in the vicinity of such sites, the authorities should be notified.

7.1.4.6 The engine and the exhaust pipes of automobiles road transporting Class 2 gases in tanks or batteries

758

containers must be placed or protected to avoid any risk to the load as a result of heating.

7.1.4.7 When the gas transport offering danger of intoxication, the road or rail vehicle personnel must have the appropriate type masks the transported gas.

7.1.4.8 It is prohibited to enter into covered or closed body, or a wagon covered or locked, loaded with flammable gases, carrying devices lighting the flame. Moreover, one can not use appliances and equipment can cause ignition of the products.

7.1.4.9 During loading, unloading or transshipment, volumes not They can be exposed to heat or thrown or subjected to impact.

7.1.4.10 Containers shall be stowed in vehicles that do not can move, fall or tip over.

7.1.4.11 If, for any reason, have to be made of operations handling in public places, volumes with different kinds of products should be separated according to their risk symbols. During operations, volumes should be handled with utmost care and, if possible, without being facing.

7.1.4.12 The chemically unstable gases can only be transported if taken necessary measures to prevent its destabilization during transport.

### **7.1.5 Special provisions for the transport of self substances reactive substances of Class 4.1 and organic peroxides of Class 5. 2**

7.1.5.1 When grouping together several volumes on vehicles and equipment Closed transport, the total amount of substance, the type and number of packages and how to stack them should be so that they do not cause a risk of explosion.

7.1.5.2 All self-reactive substances and organic peroxides must be transported protected from direct incidence of sunlight and any source of heat, in place of the vehicle or transport equipment properly ventilated / refrigerated.

7.1.5.3 Autoreagentes certain substances, as set out in item 2.4.2.3.4, and certain organic peroxides, as set out in item 2.5.3.4.1, They can only be transported in conditions where there is temperature control. Also, if a self-reactive substance or an organic peroxide usually they do not require temperature control is transported under conditions the temperature can exceed 55 ° C, or the substance that can peroxide require temperature control. The requirements of items 7.1.5.3.1 and 7.1.5.3.2 is apply to the transport of such substances.

#### **7.1.5.3.1 Provisions for temperature control**

7.1.5.3.1.1 "control temperature" is the maximum temperature at which the substance It can be safely carried. During transportation, the temperature in volume vicinity may not exceed 55 ° C, and if this reaches such a temperature, It must be a relatively short period in each 24 hour period (maximum 30 minutes to 2 times during this period). In the event the temperature exceeds the control for too long a period, the temperature reaches the temperature

emergency, we need to adopt emergency procedures. The temperature emergency "is one in which should be performed such procedures.

760

---

**Page 23**

#### 7.1.5.3.1.2 Derivation of control and emergency temperatures

SADT type of container <sup>the</sup>		Emergency temperature control temperature	
simple packaging and IBCs	$\leq 20\text{ }^{\circ}\text{C}$	20 ° C below SADT	10 ° C below SADT
	$20\text{ }^{\circ}\text{C} < \text{SADT} \leq 35\text{ }^{\circ}\text{C}$	15 ° C below SADT	10 ° C below SADT
	$> 35\text{ }^{\circ}\text{C}$	10 ° C below SADT	5 ° C below SADT
portable tanks	$< 50\text{ }^{\circ}\text{C}$	10 ° C below SADT	5 ° C below SADT

**The** *Temperature self-accelerating decomposition of the substance as packaged for transport.*

7.1.5.3.1.3 Control and emergency temperatures are derived with

7.1.5.3.1.2 use of the item table from the decomposition temperature

self-accelerating (SADT), which is defined as the lowest temperature that can decomposition occurs self-accelerating, with the substance in the package used in transport. The SADT shall be determined to decide whether there is need for temperature control during transport. Provisions on the determination of SADT are given in items 2.4.2.3.4 and 2.5.3.4.2 for self-reactive substances and organic peroxides, respectively.

7.1.5.3.1.4 Control and emergency temperatures, where appropriate, are

provided for self-reactive substances currently classified and listed in 2.4.2.3.2.3 item, and organic peroxide formulations currently sorted

set out in section 2.5.3.2.4. The actual transport temperature may be lower than temperature control, but should be chosen so as to avoid dangerous separation phases.

#### 7.1.5.3.2 *General guidelines for Transport under controlled temperature*

7.1.5.3.2.1 Maintenance of the prescribed temperature is an essential factor for safe transport of many self-reactive substances and organic peroxides. In

Overall, there should be:

a) rigorous examination of the vehicle or transport equipment before loading;

761

b) detailed instructions to the carrier about the operation of refrigeration system;

c) procedures to adopt in the event of loss of control;

d) regular monitoring of operating temperatures; and

e) availability of support refrigeration system, or parts spare.

7.1.5.3.2.2 Controls and temperature sensors in the refrigeration system must be easily accessible and all electrical connections must have protection against Weatherproof. The air temperature inside the vehicle or transport equipment

is measured by two independent sensors and their values must be recorded, so that temperature variations are readily detectable. The temperature should be checked and recorded every four interval six hours. When substances are carried with temperature control below + 25 ° C, the vehicle or transport equipment shall be equipped with visual and audible alarms arranged inside the cabin of the vehicle, with power independent power that the refrigeration system and calibrated to firing temperature control or below it.

7.1.5.3.2.3 If, during transport, the actual temperature exceeds the temperature control should be started warning procedure, repair with system cooling or increasing the cooling capacity (for example, by adding liquid or soft solid). There should be also frequent check temperature and preparation for adoption of emergency procedures. If the emergency temperature is reached, should be initiated procedures emergency.

7.1.5.3.2.4 The suitability of a particular temperature control method to transportation needs depends on several factors, which include:

- a) (s) temperature (s) control (s) substance (s) to be transported;
- b) the difference between the temperature control and temperature

762

provided environment;

- c) the effectiveness of the thermal insulation;

d) the duration of the transport; and

e) safety margin forecast for delays.

7.1.5.3.2.5 Suitable procedures to avoid exceeding the temperature control are, in ascending order of effectiveness, the following:

a) adequate thermal insulation, provided that the initial temperature of organic peroxides is sufficiently lower than the control;

b) thermal insulation with a cooling system, provided that:

(I) is used sufficient amount of coolant (for

e.g., liquid nitrogen or solid carbon dioxide)

a margin for reasonable delay;

(Ii) or liquid oxygen or air are used as

soft drinks;

(Iii) the cooling effect is the same even in the case that

most of the coolant has been consumed; and

(Iv) is indicated by a visible sign, placed in

doors of vehicles or transport equipment, which is

necessary to ventilate it before entering it;

c) a single mechanical refrigeration system, provided that, if

of organic peroxides with a flashpoint lower than the sum of

Emergency temperature plus 5 ° C, devices are used

electrical explosion proof in the refrigerated compartment to

prevent the vapors given off from the organic peroxides are

ignite;

d) mechanical system combined with cooling system

cooling, provided that:



- (I) the two systems are independent of each other;
  - (Ii) the requirements are met as set out in paragraphs "b" and "w";
- e) a double mechanical refrigeration system, provided that:
- (I) even though they share the same source of energy, are the two independent systems with each other;
  - (Ii) each of the systems to be able, independently, maintaining adequate temperature control; and
  - (Iii) in the case of organic peroxides with a flash point less than the sum of the emergency temperature plus 5 ° C explosion-proof electrical devices are used in refrigerated compartment, to prevent vapors detached from organic peroxides ignite.

**7.1.6 Special provisions for the transport of substances stabilized by temperature control (other than self substances reagents and organic peroxides)**

7.1.6.1 These provisions apply to the carriage of substances for which are:

- a) the proper shipping name contains the word "Stabilized"; and
- b) the SADT (see item 7.1.5.3.1.3) is equal to or less than 50 ° C

when presented for transport in a volume, or IBC tank.

When chemical inhibition is not used to stabilize a reactive substance which may generate dangerous amounts of heat and gas, or steam under normal conditions of transport, this substance must be transported under controlled temperature conditions. These provisions do not apply to substances stabilized by the addition of chemical inhibitors such that the SADT

764

---

**Page 27**

exceeds 50 ° C.

7.1.6.2 The requirements contained in items 7.1.5.3.1.1 to 7.1.5.3.1.3 and 7.1.5.3.2 apply to substances that meet the criteria of paragraphs "a" and "b" of the item

7.1.6.1.

7.1.6.3 The actual temperature in transportation conditions may be less than temperature control (see section 7.1.5.3.1.1), but should be chosen so avoid dangerous phase separation.

7.1.6.4 When these substances are transported in IBCs or tanks portable, the same provisions should be applied to used "NET SELF-REACTIVE TYPE F, TEMPERATURE CONTROLLED. "For carriage in IBCs, see the special provisions set out in section 4.1.7.2, and the "Additional Requirements" Instruction for IBC520 packaging. For transport in portable tanks, see the additional provisions of item 4.2.1.13. [3219318](#)

7.1.6.5 When a substance whose proper shipping name contains the word "STABILIZED" whose transport does not require normally control temperature, is carried in conditions where the temperature may exceed 55 ° C, it should be used vehicle or transport equipment permitting, if necessary, the temperature control.

**7.1.7 Special provisions for the transport of substances  
Toxic of Division 6.1 and Division 6.2 infectious**

**7.1.7.1 Class 6.1 - Toxic**

**7.1.7.1.1 segregation**

toxic substances (Packing Groups I, II and III) can not be transported in the same vehicle or transport equipment, along with products intended for human or animal consumption or, except in the case of

765

Toxic substances of packing groups II and III, when segregation watertight cargo safes.

**7.1.7.1.2 Decontamination of vehicles and transport equipment**

Vehicle or transportation equipment which have been used for transporting toxic substances (Packing Groups I, II or III) must be inspected for contamination before being replaced in service and, case of contamination, the vehicle or transport equipment shall be

decontaminated before returning to service in place previously licensed by organ competent environmental control and under the Ordinances that Inmetro regulate it.

#### 7.1.7.1.3 *General requirements service*

7.1.7.1.3.1 If, for any reason, have to be made of operations handling in public places, volumes with distinct natures products should be separated according to their risk symbols.

7.1.7.1.3.2 toxic products can not be loaded or unloaded at local public in settlements without special permission from the authorities competent, unless these operations are justified for serious reasons related to safety, in which case the authority should be informed.

7.1.7.1.3.3 During the transport of goods of Class 6.1, stops by need service should as far as possible, be made away from local inhabited or sites with large flow of people. If a stop is needed prolonged near such places, local authorities should be informed.

### **7.1.7.2**            *Division 6.2 - infectious substances*

#### 7.1.7.2.1            *carrier liability*

7.1.7.2.1.1 Carriers and their staff should be aware of rules applicable to the packaging, identification, transportation and documentation for the transport of infectious substances. The carrier shall accept and expedite the transport shipments that meet the current regulations. If the carrier to find any error in the labeling or documentation, must notify immediately the consignor or consignee so that the measures were adopted appropriate corrective.

#### 7.1.7.2.2            *Measures to be taken in case of damage or leakage volume*

Every person responsible for loading volumes containing infectious substances to observe damage or leakage volume should:

- a) avoid handling volumes or handle them as little as possible;
- b) inspect the adjacent volumes for contamination and separating those who may have been contaminated;
- c) inform the competent authority of the leak and possibility of contamination of people along the route; and
- d) notify the incident to the consignor or consignee.

#### 7.1.7.2.3 *Decontamination of vehicles and transport equipment*

Vehicles and transport equipment that have been used to transporting infectious substances must be inspected to determine whether a leak of chemicals. If so, vehicles or equipment transport must be decontaminated before being used again in place previously licensed by the environmental control agency and in accordance with Inmetro Ordinances regulating the issue and should be performed by any

means that neutralizes effectively the infectious substance spilled.

767

---

**Page 30**

*7.1.7.2.4 General requirements service*

7.1.7.2.4.1 In the points of loading, unloading and transshipment, the Sub-Class Products 6.2 should be kept isolated products intended for use or human consumption or animal.

7.1.7.2.4.2 The shipment of infectious substances requires coordinated action between consignor, carrier and recipient to ensure safe transport and delivery timely and in good condition.

7.1.7.2.4.3 Infectious substances can only be issued in case of import, after the recipient to be ascertained, with the health authority, that such substances can legally be imported.

7.1.7.2.4.4 The recipient must have appropriate place to receive and opening packaging. The degree of isolation must be proportional to the level of risk of substances.

7.1.7.2.4.5 The transport of infectious substances may be performed only in Vehicle with a smooth inner surface and rounded corners to facilitate cleaning, which do not allow fluid leaks and when used containers, the vehicle must be equipped with hydraulic tipping equipment that meet current technical standards.

### **7.1.8 Special provisions for the transport of radioactive material**

The special provisions applicable to the transport of radioactive material are established by regulation CNEN.

768

---

**Page 31**

### **7.1.9 Luggage transport and small shipments**

7.1.9.1 In vehicles or passenger trains and road vehicles, passenger specifically, minibuses, buses and trolley luggage accompanied may only contain dangerous goods for personal use (medicinal, of hygiene, cosmetics), in an amount not exceeding one kilogram or one liter per passenger. transport any amount of substances are prohibited from Classes 1 and 7 in these vehicles.

7.1.9.2 unaccompanied baggage shall be considered small expeditions.

### **7.1.10 Maintenance of transport of dangerous goods information**

7.1.10.1 The carrier must keep a copy of the transport documents

the hazardous product transported by a minimum of 3 months and in the case of accident, for 2 years ago.

7.1.10.2 In the case of electronically issued documentation, or kept computerized system, the carrier should be able to play it on paper whenever requested.

769

## **CHAPTER 7.2**

### **SPECIFIC CONCERNING TRANSPORT OPERATIONS MODAL IN ROAD AND RAIL**



## **7.2.1 Application**

7.2.1.1 This Chapter contains provisions applicable to transport operations in each land mode (road and rail). These provisions should be met in addition to those prescribed in Chapter 7.1.

## **7.2.2 Requirements applicable to vehicles and transport equipment land**

7.2.2.1 Tanks, wagons and equipment for the transport of goods dangerous, and all your devices that come into contact with the product (Pumps, valves, and even its lubricants), they can not be attacked by contents or form these harmful or dangerous compounds.

7.2.2.2 If, after unloading a vehicle, container, wagon or equipment has received shipment of dangerous goods, it is found that there was leakage of the contents of the packaging, the vehicle must be cleaned and decontaminated before any new loading. If cleaning can not be performed at the site of unloading the vehicle, container, wagon or transport equipment should be transported with adequate safety, to the place where cleaning It can be made, appropriate measures being taken to prevent the escape of dangerous product that has leaked from the packaging, remaining signed and carrying the sheet of Emergency to be cleaned and decontaminated.

7.2.2.3 Vehicles, containers, rail tank cars and tank containers that have been loaded with dangerous goods in bulk shall, before being loaded again, be properly cleaned and decontaminated, except if the contact between the two products do not give rise to additional risks.

7.2.2.4 Vehicles, containers, rail tank cars and tank containers, unloaded, uncleaned which contain residues of the previous content and so can be considered potentially dangerous, they are subject to the same requirements applicable to loaded vehicles.

7.2.2.5 Vehicles consisting of tanks with multiple compartments, concurrently carrying more than one of the following UN number of products 1170, 1202, 1203, 1223, 3475, or aviation fuel allocated to UN numbers 1268 and 1863; and carrying no other dangerous goods, in addition to the label risk related to the class, can only carry corresponding security panel the product of highest risk, namely the lower flash point.

7.2.2.6 When during the loading and unloading, is poured any amount of dangerous goods, the work should be stopped and resumed only after proper cleaning of the site. Cleaning should be performed as guidance specialized technical or responsible for the product.

### **7.2.3 Service requirements applicable to land transport**

7.2.3.1 If the load comprises several categories of goods, volumes of hazardous products must be separated from other goods, to facilitate access to them in emergencies.

7.2.3.2 It is forbidden to carry any product on a fragile package and not You can employ highly flammable materials in the stowage of containers.

7.2.3.3 All requirements concerning loading, unloading and packaging stevedoring containing dangerous goods in vehicles or wagons are for cargo,

unloading and stowing of such packaging containers and those on vehicles and wagons.

7.2.3.4 Smoking is prohibited during handling, close to the packages, vehicles, parked cars and containers, or within.

771

---

**Page 34**

7.2.3.5 the transport of dangerous goods is prohibited incompatible with each other, as non-hazardous products with hazardous in the same vehicle when possible risk, direct or indirect damage to persons, property or to the environment environment, compliance with the guidelines contained in Chapter 3.4 of this Regulation, except when hazardous or non-hazardous products are placed in small safes of different loads to ensure the impossibility of such damages.

7.2.3.6 The whole loading prohibitions in the same vehicle, are applicable to loading in the same container.

7.2.3.7 Products that easily polymerize can only be transported if measures are taken to prevent their polymerization during carriage.

7.2.3.8 Vehicle and equipment which have transported products capable of contaminate them should be inspected after discharge to ensure no loading waste. Where contamination must be carefully cleaned and decontaminated in places and conditions that meet the determinations established by the competent authority, observing the manufacturer's recommendations of product.

7.2.3.9 Vehicles carrying dangerous goods must bear sets Personal Protective Equipment (PPE) appropriate to the types of products transported for staff involved in the transport and, where necessary in emergency situations, as provided in ISO 9735 and in specific cases transport hydrofluoric acid (ONU 1786, UN 1790), also required by NBR 10271.

772

---

**Page 35**

## **7.2.4 Provisions for road transport vehicles**

7.2.4.1 road transport vehicles loaded with dangerous goods must carry set of equipment for emergency situations composed of at minimum:

a) suitable portable fire extinguishers and capacity enough to combat principle of fire:

(I) in the motor or in any other part of the vehicle (as provided in traffic law);

(Ii) the load, if the first is insufficient or inappropriate.

The extinguishing agents must not release toxic gases into the driving cab or under the influence of heat from a fire .

Moreover, the fire extinguisher for fighting fire in engine, if used in a fire in the cargo should not aggravate it. Gives

Similarly, extinguishers to combat fire of cargo must not aggravate the fire in the engine.

Trailer loaded with hazardous material left in place public, uncoupled and away from the towing vehicle must have at least suitable extinguishing the principle of combat fire in the cargo;

- b) a set of appropriate tools for repairs in situations emergency during the trip;
- c) vehicle by at least two shims of appropriate dimensions to weight of the vehicle and the wheel diameter, and compatible with the transported material, which must be placed in the form Vehicle prevent displacement in either direction possible; and
- d) Four cones signaling pathway for use in situations of emergencies or malfunctions.

773

the vehicle must be switched off during these operations.

7.2.4.3 road vehicles transporting dangerous goods transported the system *piggyback* or *road rayller* and its load, must comply with requirements set forth in this Regulation.

## **7.2.5 Service Requirements for road transport**

7.2.5.1 Packages made of materials sensitive to moisture must be transported in vehicles or chest type lonada body to ensure their characteristics.

7.2.5.2 In the loading, unloading and transshipment, the volumes can not be stacked near the exhaust pipes of vehicles.

## **7.2.6 Provisions for railway vehicles**

7.2.6.1 Any train (composition) loaded with dangerous product should be equipped with suitable portable fire extinguishers located in cabin locomotive to combat start a fire engine or elsewhere composition. The fire extinguishers to combat start a fire in the unit traction if used in principle of fire in the cargo should not aggravate it. Gives Similarly, fire extinguishers to combat the load should not Compounding the fire in the traction drive.

7.2.6.2 If you need to include in a composition, a vehicle monitoring, you must meet the following conditions:

- a) comply with the same safety requirements as the circulation and operating performance, those containing dangerous products;
- b) provide protection for the staff in charge of monitoring;

c) carry first aid and protection equipment

Individual necessary for the crew, as well as  
equipment and services to the emergency devices; and

d) be provided with communication equipment.

7.2.6.3 The cars used by the system *piggyback* or *road rayer* are not required to display risk labels and safety signs, when vehicles by they are transported identified according to the prescriptions Chapter 5.2 of this Regulation.

7.2.6.4 The wagons loaded with explosives or flammable products should be fitted with non-metallic brake shoes and bearings with rolling.

7.2.6.5 The wagons for the carriage of dangerous goods must be equipped with automatic brakes and manual in perfect working order, except For a movement to fault correction to the location where the repair will be carried out.

7.2.6.6 During loading and unloading operations, the wagons must be fully engaged with the manual brake or be properly footwear.

7.2.6.7 Packages shall be distributed in order to standardize the weight of loading along the wagon and on wheelsets.

- 7.2.6.8 The door of the loaded wagons shall be closed and sealed.
- 7.2.6.9 The maneuvers for engaging and disengaging the cars, including cars tank must be carried out with speed of up to 2 km / h, and can not cause mechanical shocks in the structure, rail and wagon cylinders.
- 7.2.6.10 The wagon that contains explosive substances must be separated from locomotive for at least three cars with inert and non-hazardous.

775

---

**Page 38**

## **7.2.7 Service Requirements for rail**

- 7.2.7.1 Vehicles and railway equipment showing any kind of fault can not be used for loading products considered hazardous.
- 7.2.7.2 It can not be carried out any repair malfunctions of the wagons after the start of charging thereof.



776