



WITHDRAWAL

October 2017

Packaging, handling, offering for transport and transport of Explosives (Class 1)

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RETRAIT

Octobre 2017

Emballage, manutention, demande de transport et transport d'Explosifs (classe 1)

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October/octobre 2012
CORRIGENDUM No. 1
RECTIFICATIF N^o 1

ICS 55.020

CORRIGENDUM

January 2013

Packaging, handling, offering for transport and transport of Explosives (Class 1)

7. Use of highway and portable tanks

7.6 Equivalent and substitute specifications

Change par. 7.6.2 to read:

7.6.2 A highway tank listed in Table 7.1, Column 4, that is in compliance with the edition of 49 CFR or CSA 620 in force at the date of its certification may be used instead of the tank listed in Table 7.1, Column 2, of the same item number if

- a) the certification date of the tank is before the applicable date given in Table 7.1, Column 5; and
- b) the tank complies with the requirements of section A.5 in Annex A of CSA B620-09.

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RECTIFICATIF

Janvier 2013

Emballage, manutention, demande de transport et transport d'Explosifs (classe 1)

Utilisation des citernes routières et mobiles

Spécifications équivalentes et de remplacement

Modifier l'al.7.6.2 comme suit :

Une citerne routière figurant au tableau 7.1, colonne 4, qui est conforme à l'édition du Règlement 49 CFR ou de CSA B620 en vigueur à la date de son homologation peut être utilisée au lieu de la citerne figurant au tableau 7.1, colonne 2, du même numéro d'objet si

- a) la date d'homologation de la citerne est antérieure à la date applicable figurant au tableau 7.1, colonne 5; et
- b) la citerne est conforme aux exigences de l'article A.5 de l'annexe A de CSA B620-09.

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CGSB-43.151-2012

Supersedes CAN/CGSB-43.151-97

Packaging, handling, offering for transport and transport of Explosives (Class 1)

ICS 55.020

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**PACKAGING, HANDLING, OFFERING FOR
TRANSPORT AND TRANSPORT OF EXPLOSIVES
(CLASS 1)**

**CETTE NORME DE L'ONGC EST DISPONIBLE EN VERSIONS
FRANÇAISE ET ANGLAISE.**

Prepared by the
Canadian General Standards Board **CGSB**

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¹ General interest

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Introduction

This is the fourth edition of CGSB-43.151, Packaging, handling, offering for transport and transport of Explosives (Class 1). It supersedes the previous edition published in 1997, Packing of Explosives (Class 1) for Transportation.

The standard was updated in order to maintain consistency with and to incorporate language from other CGSB and Transport Canada documents that pertain to the Transport Canada *Transportation of Dangerous Goods Regulations* (TDG Regulations). This was done in order to facilitate compatibility with the other TDG standards referenced in the TDG Regulations.

This standard is intended for incorporation by reference into the TDG Regulations. Where there are differences between the requirements of the TDG Regulations and this standard, the TDG Regulations prevail, unless specified otherwise, to the extent of the difference. Until the Regulations are amended to adopt this edition of the standard, an earlier edition may be the one legally in effect in Canada.

This standard takes into account the UN Recommendations on the Transport of Dangerous Goods — Model Regulations, seventeenth revised edition.

The standard contains requirements for

- containers for handling, offering for transport and transport of Explosives, Class 1;
- the selection and use of containers for the handling, offering for transport and transport of explosives, in Canada;
- explosives packing instructions; and
- the use of Intermediate Bulk Containers (IBCs) for the transport of explosives.

The CGSB Committee on Packing of Explosives for Transport is comprised of members having responsibility and expertise in design, manufacturing, testing, use and regulation of containers for handling, offering for transport and transport of Explosives, Class 1. The Committee considers this standard, developed by consensus, to be practical, current with respect to technology and industry practices, useful and acceptable to all interested parties.

It is the intent of the CGSB Committee to maintain this standard in a manner that provides the maximum degree of harmonization with the UN Recommendations while meeting the needs of Canada.

This standard was prepared by the CGSB Committee on Packing of Explosives for Transport and has been formally approved by the Committee.

Packaging, handling, offering for transport and transport of Explosives (Class 1)

1 Scope

1.1 Organization and content

This standard prescribes containers for handling, offering for transport and transport of Explosives, Class 1. This standard consists of three parts and four annexes.

Part 1 specifies general requirements for the selection and use of containers including application, packaging provisions, re-use of packagings and special cases including display fireworks.

Part 2 specifies detailed requirements for the selection and use of containers pertaining to UN standardized means of containment including the table of explosives (Table 6.1).

Part 3 pertains to the use of Highway and Portable Tanks.

Annex A consists of explosives packing instructions.

Annex B pertains to the design and use of intermediate bulk containers (IBCs) for the transport of explosives.

Annex C contains a glossary that describes types of explosive articles and substances listed in the table of explosives (Table 6.1) as per the UN Recommendations.

Annex D contains a reference table to link the descriptions of Appendix C to the UN numbers of the table of explosives (Table 6.1).

1.2 Explosives regulations

The Natural Resources of Canada *Explosives Regulations* may set out additional requirements regarding the design, construction, qualification, selection and use of containers for explosives.

1.3 Minimum requirements

This standard sets out certain minimum requirements regarding the selection and use of containers. It is essential to exercise competent technical and engineering judgment in conjunction with this standard.

1.4 Additional requirements

1.4.1 The *Transportation of Dangerous Goods Act, 1992* (TDG Act) and the *Transportation of Dangerous Goods Regulations* (TDG Regulations) may set out for additional requirements regarding the design, construction, qualification, selection, and use, or testing of containers. Where there is an inconsistency between the requirements of this standard and those of the TDG Act or TDG Regulations, the TDG Act or TDG Regulations prevail to the extent of the inconsistency.

1.4.2 Safety — The testing and evaluation of a product against this standard may require the use of materials and/or equipment that could be hazardous. This standard does not purport to address all the safety aspects associated with its use. Anyone using this standard has the responsibility to consult the appropriate authorities and to establish appropriate health and safety practices in conjunction with any applicable regulatory requirements prior to its use. CGSB neither assumes nor accepts any responsibility for any injury or damage that may occur during or as the result of tests, wherever performed.

1.4.3 Interpretation — In this standard the words “must” and “shall” are imperative. The words “may” and “should” are permissive. Notes in this standard are not requirements and are used to provide guidance or to add information.

1.4.4 Quantities and dimensions used in this standard are given in metric units.

1.4.5 This standard is intended for conformity assessment.

2 Normative references

The following documents contain provisions that, through reference in this text, constitute provisions of this CGSB standard. The referenced documents may be obtained from the sources noted below.

An undated reference is to the latest edition or revision of the reference or document in question, unless otherwise specified by the authority applying this standard. A dated reference is to the specified revision or edition of the reference or document in question. However, parties to agreements based on this CGSB standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below.

2.1 Canadian General Standards Board (CGSB)

CGSB-43.126-2008 — *Reconditioning, Remanufacturing and Repair of Drums for the Transportation of Dangerous Goods*

CAN/CGSB-43.146-2002 — *Design, Manufacture and Use of Intermediate Bulk Containers (IBC) for the Transportation of Dangerous Goods.*

2.1.1 Source

The above may be obtained from the Canadian General Standards Board, Sales Centre, Gatineau, Canada K1A 1G6. Telephone 819-956-0425 or 1-800-665-2472. Fax 819-956-5740. E-mail ncr.ongc-cgsb@tpsgc-pwgsc.gc.ca. Web site www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html.

2.2 Canadian Standards Association (CSA)

CSA B620-09 — *Highway tanks and TC portable tanks for the transportation of dangerous goods*

CSA B621-09 — *Selection and use of highway tanks, TC portable tanks, and other large containers for the transportation of dangerous goods, Classes 3, 4, 5, 6.1, 8, and 9*

CSA B625-08 — *Portable tanks for the transport of dangerous goods.*

2.2.1 Source

The above may be obtained from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Mississauga, Ontario L4W 5N6 Canada. Telephone 416-747-4000 or 1-800-463-6727. Fax 416-747-2473. E-mail sales@csa.ca. Web site csa.ca.

2.3 Natural Resources Canada (NRCan)

Explosives Act (R.C.S., 1985, c. E-17), including amendments

Explosives Regulations (C.R.C., c. 599), including amendments

Guidelines for the Pumping of Water-based Explosives, 2003. ISBN 0-660-19110-5. Catalogue Number M37-53/2003E.

2.3.1 Source

The above may be obtained from Natural Resources Canada, Minerals and Metals Sector, 580 Booth Street, Ottawa, Ontario K1A 0E4. Telephone 613-943-8236 (Publishing Program) or 613-947-6580. Teletype 613-996-4397. Fax 613-947-4198 (Publishing Program) or 613-952-7501 (General Inquiry). The above may also be obtained from the Publishing and Depository Services, Public Works and Government Services Canada, Ottawa, Canada K1A 0S5. Telephone 613-941-5995 or 1-800-635-7943. Fax 613-954-5779 or 1-800-565-7757. E-mail publications@tpsgc-pwgsc.gc.ca. Web site publications.gc.ca.

2.4 Transport Canada (TC)

Transportation of Dangerous Goods Act, 1992 (S.C. 1992, c. 34), including amendments

Transportation of Dangerous Good Regulations (SOR/2001-286), including amendments

TP 14850 — *Small Containers for Transport of Dangerous Goods, Classes 3, 4, 5, 6.1, 8, and 9, a Transport Canada Standard*.

2.4.1 Source

The above may be obtained from Transport Canada Web site tc.gc.ca/tdg. The above may also be obtained from the Publishing and Depository Services, Public Works and Government Services Canada, Ottawa, Canada K1A 0S5. Telephone 613-941-5995 or 1-800-635-7943. Fax 613-954-5779 or 1-800-565-7757. E-mail publications@tpsgc-pwgsc.gc.ca. Web site publications.gc.ca. The Transport Canada publication TP 14850 may be downloaded from Transport Canada Transact on-line shop at shop.tc.gc.ca.

2.5 United Nations (UN)

UN Recommendations on the Transport of Dangerous Goods — Model Regulations, seventeenth revised edition.

2.5.1 Source

The above may be obtained from distributors of United Nations Publications or from the United Nations Publications Customer Service, c/o National Book Network, 15200 NBN Way, PO Box 190, Blue Ridge Summit, PA 17214, U.S.A. Telephone 1-888-254-4286. Fax 1-800-338-4550. E-mail unpublications@nbnbooks.com. Web site unece.org/trans/danger/publi/unrec/rev17/17files_e.html.

3 Terms and Definitions

In addition to the definitions, terms and abbreviations given in the *Transportation of Dangerous Goods Act and Regulations*, the following definitions and abbreviations apply in this standard. For a glossary of substances, articles and related expressions, refer to Annex C.

3.1

Body

The receptacle of an IBC, other than a composite IBC. The receptacle includes the openings and their closures but not the liner or service equipment.

3.2

Closure

A device that closes an opening in a container.

3.3

Combination packaging

A container consisting of one or more inner packagings contained in an outer packaging for transport.

3.4

Compatible material

A material that does not react physically or chemically with the dangerous goods in a way that under normal conditions of handling or transport would cause a condition or release of dangerous goods that could endanger public safety, including corrosion, environmental stress cracking, solvation, fusion or chemical or physical reaction with the dangerous goods.

3.5

Competent authority

The competent authority for explosives packaging in Canada is the Director for the purposes of compliance with this standard.

3.6

Composite IBC

An IBC that is an integrated single unit consisting of a rigid outer casing, a plastic or rubber inner receptacle, service equipment and structural equipment. A rigid inner receptacle of a composite IBC retains its general shape when empty without closures in place and without benefit of the outer casing. Any other inner receptacle of a composite IBC is a flexible inner receptacle.

3.7

Composite packaging

A packaging consisting of an outer packaging and an inner receptacle so constructed that the inner receptacle and the outer packaging form an integral packaging. Once assembled, it remains an integrated single unit; it is filled, stored, shipped and emptied as such.

3.8

Container

A means of containment as defined in the *Transportation of Dangerous Goods Act*.

3.9

Director

The Director, Regulatory Affairs Branch, Transportation of Dangerous Goods Directorate, Transport Canada, Tower C, Place de Ville, 330 Sparks Street, Ottawa, Ontario K1A 0N5.

3.10

DOT

U.S. Department of Transportation.

3.11

Explosive

Anything that is made, manufactured or used to produce an explosion or a detonation or pyrotechnic effect, and includes anything prescribed to be a dangerous goods, Class 1, Explosives, by the TDG Regulations, but does not include gases, organic peroxides or any thing prescribed not to be an explosive by the TDG Regulations.

3.12

Explosive article

An article that contains one or more explosive substances.

3.13**Explosive substance**

A liquid or solid substance, or a mixture of solid and liquid substances, that is capable, by chemical reaction, of producing a gas at a temperature, pressure and speed that might cause damage to the surrounding structures and infrastructure. It includes a pyrotechnic substance even if the pyrotechnic substance does not produce a gas.

3.14**Flexible IBC**

An IBC consisting of a body made of film, woven fabric or any other flexible material or combination thereof, service equipment, handling devices and, if necessary, an inner coating or liner.

3.15**Highway tank**

A tank intended for the transport of dangerous goods by road, consisting of a tank wall fitted with service equipment and structural equipment necessary for the transport or handling of such dangerous goods, and that

- a) is permanently attached to or forms a part of a truck or trailer; and
- b) is loaded or unloaded without being removed from the vehicle.

3.16**IBC**

See Intermediate Bulk Container.

3.17**Inner packaging**

A container in direct contact with its contents, for which an outer packaging is required for transport.

3.18**Inner receptacle**

The portion of a composite packaging or composite IBC that is in direct contact with its contents.

3.19**Intermediate bulk container (IBC)**

A rigid or flexible portable container that has a capacity equal to or less than 3000 L and is designed for mechanical handling, other than a bag, box, barrel, composite packaging, combination packaging, drum or jerrican, as defined in Transport Canada Publication TP 14850.

3.20**Intermediate packaging**

A packaging placed between inner packagings, or articles, and an outer packaging.

3.21**Liner**

A tube or bag inserted into a container but not forming an integral part of the container, including the closures of its openings.

3.22**Maximum allowable working pressure (MAWP)**

The MAWP marked on the nameplate of the highway or portable tank in accordance with the applicable safety standard governing its design, manufacture and marking.

3.23**Maximum permissible gross mass**

The sum of the mass of a container and the maximum permissible load.

3.24

Maximum permissible load

The maximum net mass of the substances for which a container is designed to be used.

3.25

Metal IBC

An IBC consisting of a metal body, service equipment and structural equipment.

3.26

MC

Motor Carrier. MC was used as the prefix of the pre-September 1995 cargo tanks in 49 CFR. When the 400 series (406, 407 and 412) replaced the 300 series (306, 307 and 312) cargo tanks in September 1995, the prefix was changed to DOT.

3.27

Natural Resources Canada (NRCan)

The Explosives Regulatory Division of Natural Resources Canada.

3.28

Outer packaging

A container that is not in direct contact with the dangerous goods, which contains one or more inner packaging or an inner receptacle.

3.29

Package

The complete product of the packing operation, consisting of the packaging and its contents prepared for transport.

3.30

Packaging

A receptacle and any other components or materials necessary for the receptacle to perform its containment function.

3.31

Phlegmatized

Means that a substance (or "phlegmatizer") has been added to an explosive to enhance its safety in handling and transport. The phlegmatizer renders the explosive insensitive, or less sensitive, to the following actions: heat, shock, impact, percussion or friction. Typical phlegmatizing agents include, but are not limited to: wax, paper, water, polymers (such as chlorofluoropolymers), alcohol and oils (such as petroleum jelly and paraffin).

3.32

Portable tank

A tank intended for the transport of dangerous goods by different modes of transport, consisting of a tank wall fitted with service equipment and structural equipment necessary for the transport or handling of such dangerous goods, and that

- a) is designed to be loaded into, onto, or temporarily attached to a transport vehicle or ship;
- b) is equipped with skids, mountings or accessories to facilitate mechanical handling;
- c) enables the dangerous good to be loaded and unloaded without the removal of structural equipment and without the tank being loaded onto or attached to a transport vehicle;
- d) is capable of being lifted when full, unless otherwise specified in this standard; and
- e) is not a highway tank, a rail tank car tank, a non-metallic tank, or an intermediate bulk container (IBC).

3.33**Receptacle**

A containment vessel for receiving and holding substances, including its openings and their closures.

3.34**Release**

Includes discharge, emission, explosion or other escape of dangerous goods, or any component or compound evolving from dangerous goods.

3.35**Rigid plastic IBC**

An IBC consisting of a rigid plastic body, service equipment and structural equipment.

3.36**Service equipment**

Devices attached to and forming part of an IBC or a highway or portable tank that are necessary for loading, unloading, venting, pressure relief, vacuum relief, internal heating, sampling and measuring. Such devices include pressure-relief devices, valves, piping, gaskets and closures.

3.37**Structural equipment**

The reinforcing, fastening, handling, protecting or stabilizing members of the body of a highway tank, a portable tank or a metal, rigid plastic, composite, fibreboard or wooden IBC, including the pallet base for a composite, fibreboard or wooden IBC.

3.38**TC**

Transport Canada.

3.39**TDG Act**

Transportation of Dangerous Goods Act, 1992.

3.40**TDG Regulations**

Transportation of Dangerous Goods Regulations (including amendments).

PART I

SELECTION AND USE

4 General requirements

4.1 Application

This section provides general requirements for the handling, offering for transport and transport of dangerous goods included in Class 1, Explosives that are neither prohibited from transport nor exempted by the TDG Regulations.

4.2 General packaging provisions for dangerous goods included in Class 1, Explosives

4.2.1 A person must not handle, offer for transport or transport explosives in a container unless the container is designed, manufactured, loaded, unloaded, secured, closed and maintained so that during transport, including handling, no condition or release of explosives from the container that could endanger public safety occurs or may reasonably be expected to occur.

4.2.2 Except as specified in section 5, special cases, a person must not handle, offer for transport or transport explosives in a container unless

- a) the requirements for selection and use set out in this part specify that the container is permitted to contain the explosives;
- b) the container is selected and used as prescribed in the explosives packing instructions of Annex A listed in Column VI of Table 6.1 for the appropriate explosives described in Columns I to IV of the same table;
- c) the container is used as set out in section 6 for UN standardized containers or section 7 for highway and portable tanks; and
- d) all requirements set out by a specific provision listed in Column V of Table 6.1 for the appropriate explosives described in Columns I to IV of the same table are met.

4.2.3 A person must not handle, offer for transport, transport or import dangerous goods, Class 1, Explosives, unless

- a) the explosives are in a container that will protect the explosives, prevent their release and cause no increase in the risk of unintended ignition or initiation when subjected to normal conditions of transport including foreseeable changes in temperature, humidity and pressure;
- b) filled containers can withstand any loading imposed on them by foreseeable stacking forces to which they will be subject during transport so that the risk presented by the explosives is not increased, the containment function of the container is not compromised and the containers are not distorted in a way or to an extent which would reduce their strength or cause instability of the stacks;
- c) the closure of a container containing explosives that are liquid ensures a double barrier against leakage;
- d) the closure of a metal drum or metal jerrican includes a gasket made of compatible material;
- e) closures incorporating screw-threads are of a design that prevents the ingress of explosive substances into the screw-threads;
- f) containers used for water soluble substances are water resistant;

- g) a container used for phlegmatized, wetted or diluted explosives has closures that are closed so as to prevent the percentage of liquid (water, solvent or other phlegmatizer) from falling below the prescribed limits during transport;
- h) a container that includes a double envelope filled with a fluid that may freeze during transport has a sufficient quantity of an anti-freeze agent added to the fluid to prevent freezing. The anti-freeze must not create a fire hazard;
- i) nails, staples and any closures made of metal without protective covering do not penetrate the inside of the outer packaging unless the inner packaging protects the explosives against contact with the metal;
- j) inner packagings that are fragile or that could be punctured, such as those made of glass, porcelain, stoneware or brittle plastic materials, are secured within the outer packaging with cushioning material;
- k) the fitting of cushioning materials and inner packagings and the placing of explosive substances or articles in the container is accomplished in a manner that prevents the explosive substances or articles from becoming loose in the outer packaging under normal conditions of transport;
- l) the metallic components of articles and inner packagings are prevented from making contact with metallic containers where the risk of sparking exists;
- m) articles containing explosive substances not enclosed in an outer casing are separated from each other in order to prevent friction and impact. Padding, trays, partitioning in the inner or outer packaging, mouldings or receptacles may be used for this purpose;
- n) containers in contact with the explosive are made of compatible materials that are in addition impermeable to the explosives contained in the package so that neither interaction between the explosives and the packaging materials, nor leakage of the explosive can occur;
- o) the ingress of explosive substances into the recesses of a seamed metal container is prevented;
- p) plastic containers are prevented from accumulating sufficient static electricity that a discharge could cause the packaged explosive substances or articles to initiate, ignite or function;
- q) inner and outer packagings used for the explosive substances can withstand any difference in internal and external pressures arising from changes in temperature and other normal conditions of transport, without rupture, leakage or explosion;
- r) metal containers used for explosives that are loose solids, or articles or inner packagings leaving some explosive substance exposed, are fitted with a liner or are internally coated;
- s) containers used for powdery or granular explosives are siftproof or are provided with a liner that prevents the explosive to ingress between the liner and the outer packaging;
- t) the container is not equipped with a gate valve; and
- u) electro-explosive devices are adequately protected against electro-magnetic radiation, stray currents and static electricity.

4.3 Reuse of packagings other than IBCs or highway or portable tanks

4.3.1 A person must not reuse a container, other than an IBC or a highway or portable tank, to handle, offer for transport or transport explosives in a container unless it has been approved for reuse by the Chief Inspector of Explosives, or as permitted by a Regulation pursuant to the *Explosives Act*, or unless

- a) the explosives are fireworks UN 0333, UN 0334, UN 0335, UN 0336 or UN 0337;

- b) the repackaging does not change the classification of the package from the original;
- c) the fireworks are arranged in the packaging so that there is minimal movement of the items in transport;
- d) the packaging is closed for transport in the same way and by the same means as the original packaging;
- e) the gross mass of the reused package is equal to or less than the gross mass of the original package; and
- f) the packaging shows no damage, contamination or signs of reduced strength compared to the design type.

4.3.2 Packagings, other than an IBC or a highway or portable tank, that show contamination by an explosive substance must not be reused unless it has been approved for reuse by the Chief Inspector of Explosives, or as permitted by a Regulation pursuant to the Explosives Act.

4.4 Reuse of IBCs

IBCs must be reused in accordance with the requirements set out in Annex B.

5 Special cases

5.1 Explosives packing instruction EP 01

Explosives packing instruction EP 01 may be used for any explosive provided the packaging method has been approved by the competent authority regardless of whether the packaging method complies with the explosives packing instruction assignment in Table 6.1.

5.2 Display fireworks

A person must not handle, offer for transport or transport Class 1, Explosives in the form of set pieces unless

- a) the loading, transport and unloading of the explosives is under the control and direct supervision of a person holding a valid certification as a Display Supervisor issued by the Minister of Natural Resources Canada under the *Explosives Act*;
- b) the set pieces are secured to the container so that no significant movement in transport of the set pieces could occur; and
- c) the container containing the set pieces does not contain electrical or other equipment that is capable of igniting the set pieces by any means including electro-magnetic radiation, stray currents, static electricity, sparks or heat.

PART II

SELECTION AND USE

6 Detailed requirements — Use of UN standardized means of containment

6.1 Specific requirements for UN standardized means of containment

Unless otherwise permitted by one of the special cases of section 5 of this standard, a person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a UN standardized container unless

- a) the container is selected and used as prescribed in the explosives packing instructions of Appendix A listed in Column VI of Table 6.1 for each explosive listed in Columns I and II of the same table;
- b) the container associated to the UN packaging code listed in the packing instruction is a UN standardized container that meets the requirements applicable to this type of container and is marked accordingly;
- c) all the requirements pertaining to the inner packagings and arrangements, the intermediate packagings and arrangements, the outer packagings and arrangements and the additional requirements set out in the explosives packing instructions are satisfied;
- d) the UN standardized container associated to the packaging code is rated for the packing group I or packing group II levels and is marked with a “Y” or “X” in the UN marking;
- e) the filled container has a gross mass equal to or less than its marked maximum gross mass or, as the case may be, the liquid, gel or emulsion explosives have a relative density equal to or less than the container’s marked maximum relative density;
- f) the container is filled within its prescribed period of use. The maximum prescribed period of use for plastic drums, plastic jerricans, plastic inner receptacles of composite IBCs and rigid plastic IBCs is 60 months from the date of manufacture marked on the container; and
- g) where an IBC is used to transport liquid, gel or emulsion explosives, the design and use of the IBC meet the requirements of Annex B.

6.2 Filling a container with explosives

A person must not fill a container with explosives unless

- a) the person has shown through testing or user experience that the container, its inner packaging or its inner receptacle is made of compatible material;
- b) the person has inspected the container to ensure that it is free from corrosion, contamination or other damage. Any container that shows signs of reduced strength as compared with the design type must not be used or must be reconditioned so that it is able to withstand the design type tests. Reconditioning and repair of plastic or metal drums must be done in accordance with CGSB-43.126. Repair and refurbishing of IBCs must be done in accordance with CAN/CGSB-43.146;
- c) the person fills, assembles and closes the container as instructed in the container information provided by the container manufacturer or the subsequent distributor so that it is filled, closed and assembled in the same fashion as the registered design type; and
- d) after filling and closing the container and prior to offering for transport, a person verifies that no explosive has adhered to the outside of the container.

6.3 Before offering a container of explosives for transport

A person who offers for transport a container containing explosives must

- make a determination that the container is in proper condition and the explosives are safe for transport; and
- ensure that action is taken to remedy any release or condition that could endanger public safety, including action relating to a condition or release that requires repair or replacement of the container or removal of the explosives.

6.4 Before transporting a container of explosives

A person who will be transporting a container of explosives must

- make a determination that the container is in proper condition and the explosives are safe for transport; and
- ensure that action is taken to remedy any release or condition that could endanger public safety, including action relating to a condition or release that requires repair or replacement of the container or removal of the explosives.

Table 6.1 — Table of explosives

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0004	AMMONIUM PICRATE, dry or wetted with less than 10% water, by mass	1.1D	—	—	EP 12	PP26
0005	CARTRIDGES FOR WEAPONS with bursting charge	1.1F	—	—	EP 30	—
0006	CARTRIDGES FOR WEAPONS with bursting charge	1.1E	—	—	EP 30	PP67
0007	CARTRIDGES FOR WEAPONS with bursting charge	1.2F	—	—	EP 30	—
0009	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	1.2G	—	—	EP 30	PP67
0010	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	1.3G	—	—	EP 30	PP67
0012	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	1.4S	—	—	EP 30	—
0014	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK or CARTRIDGES FOR TOOLS, BLANK	1.4S	—	—	EP 30	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0015	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	1.2G	—	—	EP 30	PP67
0016	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	1.3G	—	—	EP 30	PP67
0018	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	1.2G	6.1, 8	—	EP 30	PP67
0019	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	1.3G	6.1, 8	—	EP 30	PP67
0020	AMMUNITION, TOXIC with burster, expelling charge or propelling charge	1.2K	6.1	—	EP 01	—
0021	AMMUNITION, TOXIC with burster, expelling charge or propelling charge	1.3K	6.1	—	EP 01	—
0027	BLACK POWDER (GUNPOWDER), granular or as a meal	1.1D	—	—	EP 13	PP50
0028	BLACK POWDER (GUNPOWDER), COMPRESSED or BLACK POWDER (GUNPOWDER), IN PELLETS	1.1D	—	—	EP 13	PP51
0029	DETONATORS, NON-ELECTRIC for blasting	1.1B	—	—	EP 31	PP68
0030	DETONATORS, ELECTRIC for blasting	1.1B	—	—	EP 31	—
0033	BOMBS with bursting charge	1.1F	—	—	EP 30	—
0034	BOMBS with bursting charge	1.1D	—	—	EP 30	PP67
0035	BOMBS with bursting charge	1.2D	—	—	EP 30	PP67
0037	BOMBS, PHOTO-FLASH	1.1F	—	—	EP 30	—
0038	BOMBS, PHOTO-FLASH	1.1D	—	—	EP 30	PP67
0039	BOMBS, PHOTO-FLASH	1.2G	—	—	EP 30	PP67
0042	BOOSTERS without detonator	1.1D	—	—	EP 32(a) or (b)	—
0043	BURSTERS, explosive	1.1D	—	—	EP 33	PP69
0044	PRIMERS, CAP TYPE	1.4S	—	—	EP 33	—
0048	CHARGES, DEMOLITION	1.1D	—	—	EP 30	PP67
0049	CARTRIDGES, FLASH	1.1G	—	—	EP 35	—
0050	CARTRIDGES, FLASH	1.3G	—	—	EP 35	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0054	CARTRIDGES, SIGNAL	1.3G	—	—	EP 35	—
0055	CASES, CARTRIDGE, EMPTY, WITH PRIMER	1.4S	—	—	EP 36	—
0056	CHARGES, DEPTH	1.1D	—	—	EP 30	PP67
0059	CHARGES, SHAPED, without detonator	1.1D	—	—	EP 37	PP70
0060	CHARGES, SUPPLEMENTARY, EXPLOSIVE	1.1D	—	—	EP 32(a) or (b)	—
0065	CORD, DETONATING, flexible	1.1D	—	—	EP 39	PP71 PP72
0066	CORD, IGNITER	1.4G	—	—	EP 40	—
0070	CUTTERS, CABLE, EXPLOSIVE	1.4S	—	—	EP 34	—
0072	CYCLOTRIMETHYLENETRINITRAMINE (CYCLONITE; HEXOGEN; RDX), WETTED with not less than 15% water, by mass	1.1D	—	266	EP 12(a)	PP45
0073	DETONATORS FOR AMMUNITION	1.1B	—	—	EP 33	—
0074	DIAZODINITROPHENOL, WETTED with not less than 40% water, or a mixture of alcohol and water, by mass	1.1A	—	266	EP 10(a) or (b)	—
0075	DIETHYLENEGLYCOL DINITRATE, DESENSITIZED with not less than 25% non-volatile, water-insoluble phlegmatizer, by mass	1.1D	—	266	EP 15	PP53 PP54 PP57 PP58
0076	DINITROPHENOL, dry or wetted with less than 15% water, by mass	1.1D	6.1	—	EP 12(a), (b) or (c)	PP26
0077	DINITROPHENOLATES, alkali metals, dry or wetted with less than 15% water, by mass	1.3C	6.1	—	EP 14(a) or (b)	PP26
0078	DINITRORESORCINOL, dry or wetted with less than 15% water, by mass	1.1D	—	—	EP 12(a), (b) or (c)	PP26
0079	HEXANITRODIPHENYLAMINE (DIPICRYLAMINE; HEXYL)	1.1D	—	—	EP 12(b) or (c)	—
0081	EXPLOSIVE, BLASTING, TYPE A	1.1D	—	—	EP 16	PP63 PP66
0082	EXPLOSIVE, BLASTING, TYPE B	1.1D	—	—	EP 16	PP61 PP62 PP65

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0083	EXPLOSIVE, BLASTING, TYPE C	1.1D	—	267	EP 16	—
0084	EXPLOSIVE, BLASTING, TYPE D	1.1D	—	—	EP 16	—
0092	FLARES, SURFACE	1.3G	—	—	EP 35	—
0093	FLARES, AERIAL	1.3G	—	—	EP 35	—
0094	FLASH POWDER	1.1G	—	—	EP 13	PP49
0099	FRACTURING DEVICES, EXPLOSIVE without detonator, for oil wells	1.1D	—	—	EP 34	—
0101	FUSE, NON-DETONATING	1.3G	—	—	EP 40	PP74 PP75
0102	CORD (FUSE), DETONATING, metal clad	1.2D	—	—	EP 39	PP71
0103	FUSE, IGNITER, tubular, metal clad	1.4G	—	—	EP 40	—
0104	CORD (FUSE), DETONATING, MILD EFFECT, metal clad	1.4D	—	—	EP 39	PP71
0105	FUSE, SAFETY	1.4S	—	—	EP 40	PP73
0106	FUZES, DETONATING	1.1B	—	—	EP 41	—
0107	FUZES, DETONATING	1.2B	—	—	EP 41	—
0110	GRENADES, PRACTICE, hand or rifle	1.4S	—	—	EP 41	—
0113	GUANYL NITROSAMINO GUANYLIDENE HYDRAZINE, WETTED with not less than 30% water, by mass	1.1A	—	266	EP 10(a) or (b)	—
0114	GUANYL NITROSAMINO GUANYL TETRAZENE (TETRAZENE), WETTED with not less than 30% water, or a mixture of alcohol and water, by mass	1.1A	—	266	EP 10(a) or (b)	—
0118	HEXOLITE (HEXOTOL), dry or wetted with less than 15% water by mass	1.1D	—	—	EP 12	—
0121	IGNITERS	1.1G	—	—	EP 42	—
0124	JET PERFORATING GUNS, CHARGED, oil well, without detonator	1.1D	—	—	EP 01	—
0129	LEAD AZIDE, WETTED with not less than 20% water, or a mixture of alcohol and water, by mass	1.1A	—	266	EP 10(a) or (b)	PP42

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0130	LEAD STYPHNATE (LEAD TRINITRORESORCINATE), WETTED with not less than 20% water, or a mixture of alcohol and water, by mass	1.1A	—	266	EP 10(a) or (b)	PP42
0131	LIGHTERS, FUSE	1.4S	—	—	EP 42	—
0132	DEFLAGRATING METAL SALTS OF AROMATIC NITRODERIVATIVES, N.O.S.	1.3C	—	—	EP 14(a) or (b)	PP26
0133	MANNITOL HEXANITRATE (NITROMANNITE), WETTED with not less than 40% water, or a mixture of alcohol and water, by mass	1.1D	—	266	EP 12(a)	—
0135	MERCURY FULMINATE, WETTED with not less than 20% water, or a mixture of alcohol and water, by mass	1.1A	—	266	EP 10(a) or (b)	PP42
0136	MINES with bursting charge	1.1F	—	—	EP 30	—
0137	MINES with bursting charge	1.1D	—	—	EP 30	PP67
0138	MINES with bursting charge	1.2D	—	—	EP 30	PP67
0143	NITROGLYCERIN, DESENSITIZED with not less than 40% non-volatile water-insoluble phlegmatizer, by mass	1.1D	6.1	266	EP 15	PP53 PP54 PP57 PP58
0144	NITROGLYCERIN SOLUTION IN ALCOHOL with more than 1% but not more than 10% nitroglycerin	1.1D	—	—	EP 15	PP45 PP55 PP56 PP59 PP60
0146	NITROSTARCH, dry or wetted with less than 20% water, by mass	1.1D	—	—	EP 12	—
0147	NITRO UREA	1.1D	—	—	EP 12(b)	—
0150	PENTAERYTHRITE TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN), WETTED with not less than 25% water, by mass, or PENTAERYTHRITE TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN), DESENSITIZED with not less than 15% phlegmatizer, by mass	1.1D	—	266	EP 12(a) or (b)	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0151	PENTOLITE, dry or wetted with less than 15% water, by mass	1.1D	—	—	EP 12	—
0153	TRINITROANILINE (PICRAMIDE)	1.1D	—	—	EP 12(b) or (c)	—
0154	TRINITROPHENOL (PICRIC ACID), dry or wetted with less than 30% water, by mass	1.1D	—	—	EP 12(a), (b) or (c)	PP26
0155	TRINITROCHLOROBENZENE (PICRYL CHLORIDE)	1.1D	—	—	EP 12(b) or (c)	—
0159	POWDER CAKE (POWDER PASTE), WETTED with not less than 25% water, by mass	1.3C	—	266	EP 11	PP43
0160	POWDER, SMOKELESS	1.1C	—	—	EP 14(b)	PP50 PP52
0161	POWDER, SMOKELESS	1.3C	—	—	EP 14(b)	PP50 PP52
0167	PROJECTILES with bursting charge	1.1F	—	—	EP 30	—
0168	PROJECTILES with bursting charge	1.1D	—	—	EP 30	PP67
0169	PROJECTILES with bursting charge	1.2D	—	—	EP 30	PP67
0171	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge	1.2G	—	—	EP 30	PP67
0173	RELEASE DEVICES, EXPLOSIVE	1.4S	—	—	EP 34	—
0174	RIVETS, EXPLOSIVE	1.4S	—	—	EP 34	—
0180	ROCKETS with bursting charge	1.1F	—	—	EP 30	—
0181	ROCKETS with bursting charge	1.1E	—	—	EP 30	PP67
0182	ROCKETS with bursting charge	1.2E	—	—	EP 30	PP67
0183	ROCKETS with inert head	1.3C	—	—	EP 30	PP67
0186	ROCKET MOTORS	1.3C	—	—	EP 30	PP67
0190	SAMPLES, EXPLOSIVE, other than initiating explosive	—	—	16	EP 01	—
0191	SIGNAL DEVICES, HAND	1.4G	—	—	EP 35	—
0192	SIGNALS, RAILWAY TRACK, EXPLOSIVE	1.1G	—	—	EP 35	—
0193	SIGNALS, RAILWAY TRACK, EXPLOSIVE	1.4S	—	—	EP 35	—
0194	SIGNALS, DISTRESS, ship	1.1G	—	—	EP 35	—
0195	SIGNALS, DISTRESS, ship	1.3G	—	—	EP 35	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0196	SIGNALS, SMOKE	1.1G	—	—	EP 35	—
0197	SIGNALS, SMOKE	1.4G	—	—	EP 35	—
0204	SOUNDING DEVICES, EXPLOSIVE	1.2F	—	—	EP 34	—
0207	TETRANITROANILINE	1.1D	—	—	EP 12(b) or (c)	—
0208	TRINITROPHENYLMETHYLNITRAMINE (TETRYL)	1.1D	—	—	EP 12(b) or (c)	—
0209	TRINITROTOLUENE (TNT), dry or wetted with less than 30% water, by mass	1.1D	—	—	EP 12	PP46
0212	TRACERS FOR AMMUNITION	1.3G	—	—	EP 33	PP69
0213	TRINITROANISOLE	1.1D	—	—	EP 12(b) or (c)	—
0214	TRINITROBENZENE, dry or wetted with less than 30% water, by mass	1.1D	—	—	EP 12	—
0215	TRINITROBENZOIC ACID, dry or wetted with less than 30% water, by mass	1.1D	—	—	EP 12	—
0216	TRINITRO-m-CRESOL	1.1D	—	—	EP 12(b) or (c)	PP26
0217	TRINITRONAPHTHALENE	1.1D	—	—	EP 12(b) or (c)	—
0218	TRINITROPHENETOLE	1.1D	—	—	EP 12(b) or (c)	—
0219	TRINITRORESORCINOL (STYPHNIC ACID), dry or wetted with less than 20% water, or a mixture of alcohol and water, by mass	1.1D	—	—	EP 12(a), (b) or (c)	PP26
0220	UREA NITRATE, dry or wetted with less than 20% water, by mass	1.1D	—	—	EP 12	—
0221	WARHEADS, TORPEDO with bursting charge	1.1D	—	—	EP 30	PP67
0222	AMMONIUM NITRATE with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance	1.1D	—	—	EP 12(b) or (c)	PP47
0224	BARIUM AZIDE, dry or wetted with less than 50% water by mass	1.1A	6.1	—	EP 10(a) or (b)	PP42

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0225	BOOSTERS WITH DETONATOR	1.1B	—	—	EP 33	PP69
0226	CYCLOTETRAMETHYLENETETRANITRAMINE (HMX; OCTOGEN), WETTED with not less than 15% water, by mass	1.1D	—	266	EP 12(a)	PP45
0234	SODIUM DINITRO-o-CRESOLATE, dry or wetted with less than 15% water, by mass	1.3C	—	—	EP 14(a) or (b)	PP26
0235	SODIUM PICRAMATE, dry or wetted with less than 20% water, by mass	1.3C	—	—	EP 14(a) or (b)	PP26
0236	ZIRCONIUM PICRAMATE, dry or wetted with less than 20% water, by mass	1.3C	—	—	EP 14(a) or (b)	PP26
0237	CHARGES, SHAPED, FLEXIBLE, LINEAR	1.4D	—	—	EP 38	—
0238	ROCKETS, LINE-THROWING	1.2G	—	—	EP 30	—
0240	ROCKETS, LINE-THROWING	1.3G	—	—	EP 30	—
0241	EXPLOSIVE, BLASTING, TYPE E	1.1D	—	—	EP 16	PP61 PP62 PP65
0242	CHARGES, PROPELLING, FOR CANNON	1.3C	—	—	EP 30	—
0243	AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1.2H	—	—	EP 30	PP67
0244	AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1.3H	—	—	EP 30	PP67
0245	AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1.2H	—	—	EP 30	PP67
0246	AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1.3H	—	—	EP 30	PP67
0247	AMMUNITION, INCENDIARY, liquid or gel, with burster, expelling charge or propelling charge	1.3J	—	—	EP 01	—
0248	CONTRIVANCES, WATER-ACTIVATED, with burster, expelling charge or propelling charge	1.2L	—	—	EP 44	PP77

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0249	CONTRIVANCES, WATER-ACTIVATED, with burster, expelling charge or propelling charge	1.3L	—	—	EP 44	PP77
0250	ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge	1.3L	—	—	EP 01	—
0254	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge	1.3G	—	—	EP 30	PP67
0255	DETONATORS, ELECTRIC for blasting	1.4B	—	—	EP 31	—
0257	FUZES, DETONATING	1.4B	—	—	EP 41	—
0266	OCTOLITE (OCTOL), dry or wetted with less than 15% water, by mass	1.1D	—	—	EP 12	—
0267	DETONATORS, NON-ELECTRIC for blasting	1.4B	—	—	EP 31	PP68
0268	BOOSTERS WITH DETONATOR	1.2B	—	—	EP 33	PP69
0271	CHARGES, PROPELLING	1.1C	—	—	EP 43	PP76
0272	CHARGES, PROPELLING	1.3C	—	—	EP 43	PP76
0275	CARTRIDGES, POWER DEVICE	1.3C	—	—	EP 34	—
0276	CARTRIDGES, POWER DEVICE	1.4C	—	—	EP 34	—
0277	CARTRIDGES, OIL WELL	1.3C	—	—	EP 34	—
0278	CARTRIDGES, OIL WELL	1.4C	—	—	EP 34	—
0279	CHARGES, PROPELLING, FOR CANNON	1.1C	—	—	EP 30	—
0280	ROCKET MOTORS	1.1C	—	—	EP 30	PP67
0281	ROCKET MOTORS	1.2C	—	—	EP 30	PP67
0282	NITROGUANIDINE (PICRITE), dry or wetted with less than 20% water, by mass	1.1D	—	—	EP 12	—
0283	BOOSTERS without detonator	1.2D	—	—	EP 32(a) or (b)	—
0284	GRENADES, hand or rifle, with bursting charge	1.1D	—	—	EP 41	—
0285	GRENADES, hand or rifle, with bursting charge	1.2D	—	—	EP 41	—
0286	WARHEADS, ROCKET with bursting charge	1.1D	—	—	EP 30	PP67

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0287	WARHEADS, ROCKET with bursting charge	1.2D	—	—	EP 30	PP67
0288	CHARGES, SHAPED, FLEXIBLE, LINEAR	1.1D	—	—	EP 38	—
0289	CORD, DETONATING, flexible	1.4D	—	—	EP 39	PP71 PP72
0290	CORD (FUSE), DETONATING, metal clad	1.1D	—	—	EP 39	PP71
0291	BOMBS with bursting charge	1.2F	—	—	EP 30	—
0292	GRENADES, hand or rifle, with bursting charge	1.1F	—	—	EP 41	—
0293	GRENADES, hand or rifle, with bursting charge	1.2F	—	—	EP 41	—
0294	MINES with bursting charge	1.2F	—	—	EP 30	—
0295	ROCKETS with bursting charge	1.2F	—	—	EP 30	—
0296	SOUNDING DEVICES, EXPLOSIVE	1.1F	—	—	EP 34	—
0297	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge	1.4G	—	—	EP 30	PP67
0299	BOMBS, PHOTO-FLASH	1.3G	—	—	EP 30	PP67
0300	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	1.4G	—	—	EP 30	PP67
0301	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	1.4G	6.1, 8	—	EP 30	PP67
0303	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	1.4G	—	—	EP 30	PP67
0305	FLASH POWDER	1.3G	—	—	EP 13	PP49
0306	TRACERS FOR AMMUNITION	1.4G	—	—	EP 33	PP69
0312	CARTRIDGES, SIGNAL	1.4G	—	—	EP 35	—
0313	SIGNALS, SMOKE	1.2G	—	—	EP 35	—
0314	IGNITERS	1.2G	—	—	EP 42	—
0315	IGNITERS	1.3G	—	—	EP 42	—
0316	FUZES, IGNITING	1.3G	—	—	EP 41	—
0317	FUZES, IGNITING	1.4G	—	—	EP 41	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0318	GRENADERS, PRACTICE, hand or rifle	1.3G	—	—	EP 41	—
0319	PRIMERS, TUBULAR	1.3G	—	—	EP 33	—
0320	PRIMERS, TUBULAR	1.4G	—	—	EP 33	—
0321	CARTRIDGES FOR WEAPONS with bursting charge	1.2E	—	—	EP 30	PP67
0322	ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge	1.2L	—	—	EP 01	—
0323	CARTRIDGES, POWER DEVICE	1.4S	—	—	EP 34	—
0324	PROJECTILES with bursting charge	1.2F	—	—	EP 30	—
0325	IGNITERS	1.4G	—	—	EP 42	—
0326	CARTRIDGES FOR WEAPONS, BLANK	1.1C	—	—	EP 30	—
0327	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	1.3C	—	—	EP 30	—
0328	CARTRIDGES FOR WEAPONS, INERT PROJECTILE	1.2C	—	—	EP 30	PP67
0329	TORPEDOES with bursting charge	1.1E	—	—	EP 30	PP67
0330	TORPEDOES with bursting charge	1.1F	—	—	EP 30	—
0331	EXPLOSIVE, BLASTING, TYPE B	1.5D	—	—	EP 16 EP 17	PP61 PP62 PP64 PP65
0332	EXPLOSIVE, BLASTING, TYPE E	1.5D	—	—	EP 16 EP 17	PP61 PP62 PP65
0333	FIREWORKS	1.1G	—	—	EP 35	—
0334	FIREWORKS	1.2G	—	—	EP 35	—
0335	FIREWORKS	1.3G	—	—	EP 35	—
0336	FIREWORKS	1.4G	—	—	EP 35	—
0337	FIREWORKS	1.4S	—	—	EP 35	—
0338	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK	1.4C	—	—	EP 30	—
0339	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	1.4C	—	—	EP 30	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0340	NITROCELLULOSE, dry or wetted with less than 25% water (or alcohol), by mass	1.1D	—	—	EP 12(a) or (b)	—
0341	NITROCELLULOSE, unmodified or plasticized with less than 18% plasticizing substance, by mass	1.1D	—	—	EP 12(b)	—
0342	NITROCELLULOSE, WETTED with not less than 25% alcohol, by mass	1.3C	—	—	EP 14(a)	PP43
0343	NITROCELLULOSE, PLASTICIZED with not less than 18% plasticizing substance, by mass	1.3C	—	—	EP 11	—
0344	PROJECTILES with bursting charge	1.4D	—	—	EP 30	PP67
0345	PROJECTILES, inert with tracer	1.4S	—	—	EP 30	PP67
0346	PROJECTILES with burster or expelling charge	1.2D	—	—	EP 30	PP67
0347	PROJECTILES with burster or expelling charge	1.4D	—	—	EP 30	PP67
0348	CARTRIDGES FOR WEAPONS with bursting charge	1.4F	—	—	EP 30	—
0349	ARTICLES, EXPLOSIVE, N.O.S.	1.4S	—	—	EP 01	—
0350	ARTICLES, EXPLOSIVE, N.O.S.	1.4B	—	—	EP 01	—
0351	ARTICLES, EXPLOSIVE, N.O.S.	1.4C	—	—	EP 01	—
0352	ARTICLES, EXPLOSIVE, N.O.S.	1.4D	—	—	EP 01	—
0353	ARTICLES, EXPLOSIVE, N.O.S.	1.4G	—	—	EP 01	—
0354	ARTICLES, EXPLOSIVE, N.O.S.	1.1L	—	—	EP 01	—
0355	ARTICLES, EXPLOSIVE, N.O.S.	1.2L	—	—	EP 01	—
0356	ARTICLES, EXPLOSIVE, N.O.S.	1.3L	—	—	EP 01	—
0357	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1L	—	—	EP 01	—
0358	SUBSTANCES, EXPLOSIVE, N.O.S.	1.2L	—	—	EP 01	—
0359	SUBSTANCES, EXPLOSIVE, N.O.S.	1.3L	—	—	EP 01	—
0360	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	1.1B	—	—	EP 31	—
0361	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	1.4B	—	—	EP 31	—
0362	AMMUNITION, PRACTICE	1.4G	—	—	EP 30	PP67
0363	AMMUNITION, PROOF	1.4G	—	—	EP 30	PP67
0364	DETONATORS FOR AMMUNITION	1.2B	—	—	EP 33	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0365	DETONATORS FOR AMMUNITION	1.4B	—	—	EP 33	—
0366	DETONATORS FOR AMMUNITION	1.4S	—	—	EP 33	—
0367	FUZES, DETONATING	1.4S	—	—	EP 41	—
0368	FUZES, IGNITING	1.4S	—	—	EP 41	—
0369	WARHEADS, ROCKET with bursting charge	1.1F	—	—	EP 30	—
0370	WARHEADS, ROCKET with burster or expelling charge	1.4D	—	—	EP 30	PP67
0371	WARHEADS, ROCKET with burster or expelling charge	1.4F	—	—	EP 30	—
0372	GRENADES, PRACTICE, hand or rifle	1.2G	—	—	EP 41	—
0373	SIGNAL DEVICES, HAND	1.4S	—	—	EP 35	—
0374	SOUNDING DEVICES, EXPLOSIVE	1.1D	—	—	EP 34	—
0375	SOUNDING DEVICES, EXPLOSIVE	1.2D	—	—	EP 34	—
0376	PRIMERS, TUBULAR	1.4S	—	—	EP 33	—
0377	PRIMERS, CAP TYPE	1.1B	—	—	EP 33	—
0378	PRIMERS, CAP TYPE	1.4B	—	—	EP 33	—
0379	CASES, CARTRIDGE, EMPTY, WITH PRIMER	1.4C	—	—	EP 36	—
0380	ARTICLES, PYROPHORIC	1.2L	—	—	EP 01	—
0381	CARTRIDGES, POWER DEVICE	1.2C	—	—	EP 34	—
0382	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1.2B	—	—	EP 01	—
0383	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1.4B	—	—	EP 01	—
0384	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1.4S	—	—	EP 01	—
0385	5-NITROBENZOTRIAZOL	1.1D	—	—	EP 12(b) or (c)	—
0386	TRINITROBENZENESULPHONIC ACID	1.1D	—	—	EP 12(b) or (c)	PP26
0387	TRINITROFLUORENONE	1.1D	—	—	EP 12(b) or (c)	—
0388	TRINITROTOLUENE (TNT) AND TRINITROBENZENE MIXTURE or TRINITROTOLUENE (TNT) AND HEXANITROSTILBENE MIXTURE	1.1D	—	—	EP 12(b) or (c)	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0389	TRINITROTOLUENE (TNT) MIXTURE CONTAINING TRINITROBENZENE AND HEXANITROSTILBENE	1.1D	—	—	EP 12(b) or (c)	—
0390	TRITONAL	1.1D	—	—	EP 12(b) or (c)	—
0391	CYCLOTRIMETHYLENETRINITRAMINE (CYCLONITE; HEXOGEN; RDX) AND CYCLOTETRAMETHYLENETETRANITRAMINE (HMX; OCTOGEN) MIXTURE, WETTED with not less than 15% water, by mass or CYCLOTRIMETHYLENETRINITRAMINE (CYCLONITE; HEXOGEN; RDX) AND CYCLOTETRAMETHYLENETETRANITRAMINE (HMX; OCTOGEN) MIXTURE, DESENSITIZED with not less than 10% phlegmatizer, by mass	1.1D	—	266	EP 12(b) or (c)	—
0392	HEXANITROSTILBENE	1.1D	—	—	EP 12(b) or (c)	—
0393	HEXOTONAL	1.1D	—	—	EP 12(b)	—
0394	TRINITRORESORCINOL (STYPHNIC ACID), WETTED with not less than 20% water, or a mixture of alcohol and water, by mass	1.1D	—	—	EP 12(a)	PP26
0395	ROCKET MOTORS, LIQUID FUELLED	1.2J	—	—	EP 01	—
0396	ROCKET MOTORS, LIQUID FUELLED	1.3J	—	—	EP 01	—
0397	ROCKETS, LIQUID FUELLED with bursting charge	1.1J	—	—	EP 01	—
0398	ROCKETS, LIQUID FUELLED with bursting charge	1.2J	—	—	EP 01	—
0399	BOMBS WITH FLAMMABLE LIQUID with bursting charge	1.1J	—	—	EP 01	—
0400	BOMBS WITH FLAMMABLE LIQUID with bursting charge	1.2J	—	—	EP 01	—
0401	DIPICRYL SULPHIDE, dry or wetted with less than 10% water, by mass	1.1D	—	—	EP 12	—
0402	AMMONIUM PERCHLORATE	1.1D	—	—	EP 12(b) or (c)	—
0403	FLARES, AERIAL	1.4G	—	—	EP 35	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0404	FLARES, AERIAL	1.4S	—	—	EP 35	—
0405	CARTRIDGES, SIGNAL	1.4S	—	—	EP 35	—
0406	DINITROSOBENZENE	1.3C	—	—	EP 14(b)	—
0407	TETRAZOL-1-ACETIC ACID	1.4C	—	—	EP 14(b)	—
0408	FUZES, DETONATING with protective features	1.1D	—	—	EP 41	—
0409	FUZES, DETONATING with protective features	1.2D	—	—	EP 41	—
0410	FUZES, DETONATING with protective features	1.4D	—	—	EP 41	—
0411	PENTAERYTHRITOL TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN) with not less than 7% wax, by mass	1.1D	—	131	EP 12(b) or (c)	—
0412	CARTRIDGES FOR WEAPONS with bursting charge	1.4E	—	—	EP 30	PP67
0413	CARTRIDGES FOR WEAPONS, BLANK	1.2C	—	—	EP 30	—
0414	CHARGES, PROPELLING, FOR CANNON	1.2C	—	—	EP 30	—
0415	CHARGES, PROPELLING	1.2C	—	—	EP 43	PP76
0417	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	1.3C	—	—	EP 30	—
0418	FLARES, SURFACE	1.1G	—	—	EP 35	—
0419	FLARES, SURFACE	1.2G	—	—	EP 35	—
0420	FLARES, AERIAL	1.1G	—	—	EP 35	—
0421	FLARES, AERIAL	1.2G	—	—	EP 35	—
0424	PROJECTILES, inert with tracer	1.3G	—	—	EP 30	PP67
0425	PROJECTILES, inert with tracer	1.4G	—	—	EP 30	PP67
0426	PROJECTILES with burster or expelling charge	1.2F	—	—	EP 30	—
0427	PROJECTILES with burster or expelling charge	1.4F	—	—	EP 30	—
0428	ARTICLES, PYROTECHNIC, for technical purposes	1.1G	—	—	EP 35	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0429	ARTICLES, PYROTECHNIC, for technical purposes	1.2G	—	—	EP 35	—
0430	ARTICLES, PYROTECHNIC, for technical purposes	1.3G	—	—	EP 35	—
0431	ARTICLES, PYROTECHNIC, for technical purposes	1.4G	—	—	EP 35	—
0432	ARTICLES, PYROTECHNIC, for technical purposes	1.4S	—	—	EP 35	—
0433	POWDER CAKE (POWDER PASTE), WETTED with not less than 17% alcohol, by mass	1.1C	—	266	EP 11	—
0434	PROJECTILES with burster or expelling charge	1.2G	—	—	EP 30	PP67
0435	PROJECTILES with burster or expelling charge	1.4G	—	—	EP 30	PP67
0436	ROCKETS with expelling charge	1.2C	—	—	EP 30	PP67
0437	ROCKETS with expelling charge	1.3C	—	—	EP 30	PP67
0438	ROCKETS with expelling charge	1.4C	—	—	EP 30	PP67
0439	CHARGES, SHAPED, without detonator	1.2D	—	—	EP 37	PP70
0440	CHARGES, SHAPED, without detonator	1.4D	—	—	EP 37	PP70
0441	CHARGES, SHAPED, without detonator	1.4S	—	—	EP 37	PP70
0442	CHARGES, EXPLOSIVE, COMMERCIAL, without detonator	1.1D	—	—	EP 37	—
0443	CHARGES, EXPLOSIVE, COMMERCIAL, without detonator	1.2D	—	—	EP 37	—
0444	CHARGES, EXPLOSIVE, COMMERCIAL, without detonator	1.4D	—	—	EP 37	—
0445	CHARGES, EXPLOSIVE, COMMERCIAL, without detonator	1.4S	—	—	EP 37	—
0446	CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER	1.4C	—	—	EP 36	—
0447	CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER	1.3C	—	—	EP 36	—
0448	5-MERCAPTOTETRAZOL-1-ACETIC ACID	1.4C	—	—	EP 14(b)	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0449	TORPEDOES, LIQUID FUELLED with or without bursting charge	1.1J	—	—	EP 01	—
0450	TORPEDOES, LIQUID FUELLED with inert head	1.3J	—	—	EP 01	—
0451	TORPEDOES with bursting charge	1.1D	—	—	EP 30	PP67
0452	GRENADES, PRACTICE, hand or rifle	1.4G	—	—	EP 41	—
0453	ROCKETS, LINE-THROWING	1.4G	—	—	EP 30	—
0454	IGNITERS	1.4S	—	—	EP 42	—
0455	DETONATORS, NON-ELECTRIC for blasting	1.4S	—	—	EP 31	PP68
0456	DETONATORS, ELECTRIC for blasting	1.4S	—	—	EP 31	—
0457	CHARGES, BURSTING, PLASTICS BONDED	1.1D	—	—	EP 30	—
0458	CHARGES, BURSTING, PLASTICS BONDED	1.2D	—	—	EP 30	—
0459	CHARGES, BURSTING, PLASTICS BONDED	1.4D	—	—	EP 30	—
0460	CHARGES, BURSTING, PLASTICS BONDED	1.4S	—	—	EP 30	—
0461	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1.1B	—	—	EP 01	—
0462	ARTICLES, EXPLOSIVE, N.O.S.	1.1C	—	—	EP 01	—
0463	ARTICLES, EXPLOSIVE, N.O.S.	1.1D	—	—	EP 01	—
0464	ARTICLES, EXPLOSIVE, N.O.S.	1.1E	—	—	EP 01	—
0465	ARTICLES, EXPLOSIVE, N.O.S.	1.1F	—	—	EP 01	—
0466	ARTICLES, EXPLOSIVE, N.O.S.	1.2C	—	—	EP 01	—
0467	ARTICLES, EXPLOSIVE, N.O.S.	1.2D	—	—	EP 01	—
0468	ARTICLES, EXPLOSIVE, N.O.S.	1.2E	—	—	EP 01	—
0469	ARTICLES, EXPLOSIVE, N.O.S.	1.2F	—	—	EP 01	—
0470	ARTICLES, EXPLOSIVE, N.O.S.	1.3C	—	—	EP 01	—
0471	ARTICLES, EXPLOSIVE, N.O.S.	1.4E	—	—	EP 01	—
0472	ARTICLES, EXPLOSIVE, N.O.S.	1.4F	—	—	EP 01	—
0473	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1A	—	—	EP 01	—
0474	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1C	—	—	EP 01	—
0475	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1D	—	—	EP 01	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0476	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1G	—	—	EP 01	—
0477	SUBSTANCES, EXPLOSIVE, N.O.S.	1.3C	—	—	EP 01	—
0478	SUBSTANCES, EXPLOSIVE, N.O.S.	1.3G	—	—	EP 01	—
0479	SUBSTANCES, EXPLOSIVE, N.O.S.	1.4C	—	—	EP 01	—
0480	SUBSTANCES, EXPLOSIVE, N.O.S.	1.4D	—	—	EP 01	—
0481	SUBSTANCES, EXPLOSIVE, N.O.S.	1.4S	—	—	EP 01	—
0482	SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE (SUBSTANCES, EVI), N.O.S.	1.5D	—	—	EP 01	—
0483	CYCLOTRIMETHYLENETRINITRAMINE (CYCLONITE; HEXOGEN; RDX), DESENSITIZED	1.1D	—	—	EP 12(b) or (c)	—
0484	CYCLOTETRAMETHYLENETETRA-NITRAMINE (OCTOGEN; HMX), DESENSITIZED	1.1D	—	—	EP 12(b) or (c)	—
0485	SUBSTANCES, EXPLOSIVE, N.O.S.	1.4G	—	—	EP 01	—
0486	ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI)	1.6N	—	—	EP 01	—
0487	SIGNALS, SMOKE	1.3G	—	—	EP 35	—
0488	AMMUNITION, PRACTICE	1.3G	—	—	EP 30	PP67
0489	DINITROGLYCOURIL (DINGU)	1.1D	—	—	EP 12(b) or (c)	—
0490	NITROTRIAZOLONE (NTO)	1.1D	—	—	EP 12(b) or (c)	—
0491	CHARGES, PROPELLING	1.4C	—	—	EP 43	PP76
0492	SIGNALS, RAILWAY TRACK, EXPLOSIVE	1.3G	—	—	EP 35	—
0493	SIGNALS, RAILWAY TRACK, EXPLOSIVE	1.4G	—	—	EP 35	—
0494	JET PERFORATING GUNS, CHARGED, oil well, without detonator	1.4D	—	—	EP 01	—
0495	PROPELLANT, LIQUID	1.3C	—	224	EP 15	PP53 PP54 PP57 PP58
0496	OCTONAL	1.1D	—	—	EP 12(b) or (c)	—

Substance or article		Risk		Special provision	Packaging	
UN number	Shipping name and description				Packing instruction	Packing provision
I	II	III	IV	V	VI	VII
0497	PROPELLANT, LIQUID	1.1C	—	224	EP 15	PP53 PP54 PP57 PP58
0498	PROPELLANT, SOLID	1.1C	—	—	EP 14(b)	—
0499	PROPELLANT, SOLID	1.3C	—	—	EP 14(b)	—
0500	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting	1.4S	—	—	EP 31	—
0501	PROPELLANT, SOLID	1.4C	—	—	EP 14(b)	—
0502	ROCKETS with inert head	1.2C	—	—	EP 30	PP67
0503	AIR BAG INFLATORS, or AIR BAG MODULES, or SEAT-BELT PRETENSIONERS	1.4G	—	—	EP 35	—
0504	1H-TETRAZOLE	1.1D	—	—	EP 12(c)	PP48
0505	SIGNALS, DISTRESS, ship	1.4G	—	—	EP 35	—
0506	SIGNALS, DISTRESS, ship	1.4S	—	—	EP 35	—
0507	SIGNALS, SMOKE	1.4S	—	—	EP 35	—
0508	1-HYDROXYBENZOTRIAZOLE, ANHYDROUS, dry or wetted with less than 20% water, by mass	1.3C	—	—	EP 14(b)	PP48 PP50
0509	POWDER, SMOKELESS	1.4C	—	—	EP 14(b)	PP48

Notes to the Table of explosives

The abbreviation “N.O.S.” denotes “not otherwise specified.”

One or more alternative shipping names may be shown in brackets following a proper shipping name, e.g.; CYCLOTTRIMETHYLENETRINITRAMINE (CYCLONITE; HEXOGEN; RDX).

Special provisions to the Table of explosives

- 16 Samples of new or existing explosive substances or articles may be transported as directed by the competent authority for purposes such as testing, classification, research and development, quality control, or as a commercial sample. Explosive samples which are not wetted or desensitized shall be limited to a total of 10 kg as specified by the competent authority. Explosive samples which are wetted or desensitized shall be limited to a total of 25 kg.
- 131 The phlegmatized substance shall be significantly less sensitive than dry PETN.
- 224 The substances shall be transported in the liquid state unless it can be demonstrated by testing that the sensitivity of the substance in its solid state is no greater than in its liquid state. The substances shall be prepared so that they remain in the liquid state at temperatures above -15°C.

- 266 This substance must not be transported unless specifically authorized by the competent authority if it contains less alcohol, water, water-alcohol mixture or phlegmatizer than specified in Column II.
- 267 EXPLOSIVES, BLASTING, TYPE C containing chlorates must be segregated from explosives containing ammonium nitrate or other ammonium salts.

WITHDRAWN

PART III

HIGHWAY AND PORTABLE TANKS

7 Use of highway and portable tanks

7.1 General requirements for highway and portable tanks

A person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a highway or portable tank unless the tank is

- a) watertight and constructed so that neither rain nor road spray can come into contact with the explosives;
- b) dustproof, siftproof, and constructed so that the explosives are securely retained in the highway or portable tank under normal conditions of transport;
- c) constructed of impermeable, non-absorbent materials that will not be corroded by the lading;
- d) designed to facilitate cleaning and decontamination;
- e) leakproof and designed for the transport of liquids where the explosives are liquid;
- f) capable of withstanding any internal pressure likely to be encountered under normal conditions of transport, without any permanent deformation or leaks.
- g) appropriate for the temperature of the material being transported; and
- h) one of the following:
 - 1) resistant to deterioration by the explosives being transported;
 - 2) passivated or otherwise treated to reduce the rate of deterioration so that any minimum thickness requirement is maintained during transport; or
 - 3) lined with a nonporous continuous material that is resistant to deterioration by the explosives being transported and that has thermal expansion and elasticity characteristics compatible with those of the material of construction of the highway or portable tanks.

7.2 Specific requirements for highway and portable tanks

Unless otherwise permitted by one of the special cases of section 5 of this standard, a person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a highway or portable tank unless

- a) the explosives packing instruction 17 (EP 17) of Annex A is assigned to the explosives in Column VI of Table 6.1 and all the applicable requirements of EP 17 are met;
- b) all the applicable additional requirements set out in EP 17 and in this section are met;
- c) where a TC specification tank is required by this standard, the tank complies with the applicable requirements of CSA B620-09, unless otherwise specified in this standard; and
- d) where a UN portable tank is required by this standard, the tank complies with the applicable requirements of CSA B625-08, unless otherwise specified in this standard.

7.3 Portable tank insulation and protection

A person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a portable tank unless the tank is

- a) completely contained within the length and width of the vehicle into or on which it is loaded or to which it is attached; and
- b) insulated with non-combustible inorganic material if the portable tank is fitted with thermal insulation.

7.4 MAWP and pressure-relief valve settings for highway tanks

A person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a highway tank unless the MAWP and the set-to-discharge pressure of each safety relief device of the highway tank are

- a) greater than or equal to the total pressure of the product vapour and any padding at the top of the tank at the loading temperature or 46°C, whichever is the greater temperature;
- b) greater than or equal to the minimum MAWP prescribed by the specification for the tank; and
- c) less than or equal to 241.3 kPa (35 psi).

7.5 Pressure-relief devices for portable tanks

A person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a portable tank unless the tank is fitted with a pressure-relief device that may be of a reclosing spring-loaded type, a frangible disc or a fusible element. The set-to-discharge pressure or burst pressure, as applicable, must be equal to or less than 265 kPa (38.43 psi).

7.6 Equivalent and substitute specifications

7.6.1 TC and DOT tank equivalency — Where explosives packing instruction EP 17 of this standard requires the use of a highway tank of a specification included in CSA B620-09, a highway tank constructed and certified in accordance with 49 CFR and listed in Table 7.1, Column 3, may be used instead of the tank in Table 7.1, Column 2, of the same item number.

7.6.2 A highway tank listed in Table 6.1, Column IV, that is in compliance with the edition of 49 CFR or CSA 620 in force at the date of its certification may be used instead of the tank listed in Table 7.1, Column 2, of the same item number if

- a) the certification date of the tank is before the applicable date given in Table 7.1, Column 5; and
- b) the tank complies with the requirements of section A.5 in Annex A of CSA B620-09.

7.6.3 Tanks manufactured or assembled in Canada — Despite 7.6.1, a person who offers explosives for transport in a highway tank that was manufactured or assembled in Canada after August 31, 2008, must use a highway tank constructed and certified in accordance with the edition of CSA B620 in force at the date of its certification.

7.7 Inspection and testing of highway tanks

A person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a highway tank unless the tank, irrespective of its date of construction or certification, has been inspected and tested

- a) if it conforms to a TC specification, in accordance with

- 1) section 7 of CSA B620-09 where the inspection or test is performed in Canada; and
 - 2) either section 7 of CSA B620-09 or Part 180 of 49 CFR for the corresponding MC or DOT specification listed in Table 7.1, Column 3, of this standard, where the inspection or test is performed in the US, provided that the types of inspections and tests and the intervals prescribed in section 7 of B620-09 are satisfied; and
- b) if it conforms to an MC or DOT specification, in accordance with:
- 1) section 7 of CSA B620-09 for the corresponding TC specification listed in Table 7.1, Column 2, of this standard, where the inspection or test is performed in Canada; and
 - 2) either Part 180 of 49 CFR or section 7 of CSA B620-09 for the corresponding TC specification listed in Table 7.1, Column 2, of this standard, where the inspection or test is performed in the US, provided that the types of inspections and tests and the intervals prescribed in section 7 of CSA B620-09 are satisfied.

NOTE: Prior to inspection and test, the highway tanks shall be decontaminated as set out in par. 7.1.3 of CSA B620-09. An inspection or test performed in accordance with CSA B620-03 prior to the enforcement date of CSA B621-09 shall be deemed equivalent to the corresponding test or inspection in CSA B620-09, provided that the intervals specified in section 7 of CSA B620-09 have not been exceeded.

Table 7.1

1	2	3	4	5
Item	Prescribed specification	49 CFR DOT or MC equivalent	CSA B620-87 or 49 CFR MC substitute specification	Date limit for the certification of TC or MC specification
1	TC 406	DOT 406	TC 306	15 August 2002
			MC 306	01 September 1995
2	TC 407	DOT 407	TC 307	15 August 2002
			MC 307	01 September 1995
3	TC 412	DOT 412	TC 312	15 August 2002
			MC 312	01 September 1995

7.8 Repair and modification of highway tanks

A person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a highway tank unless the tank, irrespective of its date of construction or certification, has been repaired or modified

- a) if it conforms to a TC specification, in accordance with section 7 of CSA B620-09 where the repair or modification is performed in Canada or either Part 180 of 49 CFR or section 7 of CSA B620-09 where the repair or modification is performed in the USA;
- b) if it conforms to an MC or DOT specification, in accordance with:
 - 1) section 7 of CSA B620-09 for the corresponding TC specification listed in Table 7.1, Column 2, of this standard, where the repair or modification is performed in Canada; and
 - 2) either Part 180 of 49 CFR or section 7 of CSA B620-09 for the corresponding TC specification listed in Table 7.1, Column 2, of this standard, where the repair or modification is performed in the USA.

7.8.1 A modification or repair performed in accordance with a previous edition of CSA B620 prior to the enforcement date of CSA B620-09 shall be deemed equivalent to a modification or repair done in accordance with CSA B620-09.

NOTE : Prior to modification and repairs, the highway tanks shall be decontaminated as set out in par. 7.1.3 of CSA B620.

7.9 Inspection, testing, modification and repair of portable tanks

A person must not handle, offer for transport or transport dangerous goods included in Class 1, Explosives in a portable tank unless the tank has been inspected, tested, modified, repaired and marked in accordance with the requirements of section 8 of CSA B625-08 with regards to the initial inspection, the intermediate 2.5-year periodic inspection and test and the 5-year periodic inspection and test.

NOTE: The UN portable tank must have been decontaminated prior to inspection, testing, modification and repairs.

7.10 Loading and unloading highway and portable tanks

A person must not load or unload dangerous goods included in Class 1, Explosives in a highway or portable tank unless the following requirements are met:

- a) The tank is free of any visible defect that could affect its integrity during loading, unloading, or transport.
- b) All flexible hoses and their couplings have been inspected visually to ensure mechanical fitness, integrity and compatibility with lading. A hose assembly shall not be used to load or unload a highway tank if it is determined to have any of the conditions identified in par. 7.2.10.4 of CSA B620-09. Despite the requirement of par. 7.2.10.4(a) of CSA B620-09, a hose on a highway tank may continue to be used if the reinforcement is exposed as long as there is no evidence of wear, deterioration or other damage in the exposed reinforcement.

7.11 Pre-loading requirements

In addition to the requirements in 7.10, a person must not load a highway or portable tank with dangerous goods included in Class 1, Explosives unless all the following requirements are met:

- a) The tank has been inspected, tested, retested and is marked as required for its specification (see 7.7 and 7.9). A person must not load dangerous goods included in Class 1, Explosives in a highway or portable tank if it is due for periodic inspection and testing as required by 7.7 or 7.9 respectively.
- b) If the tank is a highway tank, and a component such as piping, a valve or a fitting has been restored or replaced since the last time the tank was loaded or unloaded, that component has been tested for leaks at 80% of MAWP.
- c) The tank is free of any residues or foreign materials that could react with the intended lading or otherwise create a hazard.

7.12 Loading requirements

A person must not load dangerous goods included in Class 1, Explosives in a highway or portable tank unless

- a) the loading operation is attended by a person responsible for monitoring the loading and interrupting the loading in case of an anomaly;
- b) the loading limits for the tank are respected, including the rate of filling, the gross vehicle weight, the maximum product load, and the MAWP and vacuum limits;
- c) the quantity of explosives to be transferred is controlled; and
- d) in case the container is a highway tank, the outage left in the tank is
 - 1) equal to or greater than 2% of its volumetric capacity, and

- 2) sufficient to prevent the tank from becoming liquid-full should the temperature of the contents rise to 55°C;
- e) in case the container is a portable tank, the outage left in the tank is
- 1) sufficient to prevent the tank from becoming more than 97% liquid-full should the temperature of the contents rise to 50°C;
 - 2) such that the maximum degree of filling determined by the following equation is not exceeded:
- Degree of filling = $97 / (1 + \alpha(t_r - t_l))$
- where:
- t_r = the maximum mean bulk temperature during transport, °C
- t_l = the temperature of the liquid during loading, °C
- α = the mean coefficient of cubical expansion of the liquid between t_r and t_l
- For liquids transported under ambient conditions, α shall be calculated using the following equation:
- $\alpha = (d_{15} - d_{50}) / 35d_{50}$
- where:
- d_{15} and d_{50} are the densities of the liquid at 15°C and 50°C respectively, unit mass per unit volume; and
- 3) such that the gross mass of the filled tank is equal to or less than the maximum permissible gross mass (MPGM) specified on its metal identification plate; and
 - 4) sufficient to allow a degree of filling that, under normal conditions of transport (including handling), could cause a condition or release of dangerous goods that could endanger public safety including leakage or permanent distortion of the portable tank as a result of an expansion of the explosives.

7.13 Post-loading requirements

After loading a highway or portable tank, a person must ensure that

- a) immediately after the tank has been loaded
 - 1) all hatches, valves up to and including the outermost valve, and other openings in the tank are closed, secured and, as applicable, locked; and
 - 2) the exterior surfaces are clean and free of residue or spills of explosives;
- b) the closing and securement of valves and openings in item a)
 - 1) does not interfere with the normal functioning of any safety relief devices; and
- c) prior to transport, a portable tank is secured to the transport vehicle in the manner the tank was designed for and that will keep the tank secure in normal conditions of transport.

7.14 Pre-unloading requirements

Prior to unloading a highway or portable tank, a person must

- a) inspect the unloading connections to ensure that the lading will be discharged into the proper receiving line and tank;
- b) take precautions to isolate from each other substances that can react violently together, if such substances are to be unloaded simultaneously at the same location; and
- c) verify that the space available in the receiving container is sufficient to accommodate the quantity of explosives to be unloaded.

7.15 Unloading requirements

A person must not unload dangerous goods included in Class 1, Explosives from a highway or portable tank unless

- a) the unloading operation is attended by a person responsible for monitoring the unloading and interrupting the unloading in case of an anomaly;
- b) the loading and unloading limits for the delivering and receiving container, including the rate of filling, the gross vehicle weight, the maximum product load, and the MAWP and vacuum limits are not exceeded; and
- c) the flow and total quantity of explosives that is unloaded can be controlled.

7.16 Post-unloading requirements

After unloading a highway or portable tank, a person must ensure that

- a) immediately after the tank has been unloaded
 - 1) all hatches, valves up to and including the outermost valve, and other openings in the tank are closed, secured and, as applicable, locked; and
 - 2) the exterior surfaces are clean and free of residue or spills of explosives; and
- b) the closing and securement of valves and openings in item a)
 - 1) does not interfere with the normal functioning of any safety relief devices.

The requirements in item a) do not apply if the tank is cleaned and decontaminated immediately after unloading.

7.17 Highway and portable tanks that are due for a periodic test or inspection

A person may transport a highway or portable tank that has become due for a periodic test or inspection required by 7.7 or 7.9 as applicable since it was last loaded but a person must not re-load the highway or portable tank until the required test and or inspection have been successfully completed.

ANNEX A (NORMATIVE)**EXPLOSIVES PACKING INSTRUCTIONS (EP)**

A1. Explosives packing instructions EP 01 requires approval by the competent authority. Explosives packing instructions EP 10 to EP 29 shall only be used for explosive substances and explosives packing instructions EP 30 to EP 44 shall only be used for explosive articles.

A2. The term “receptacles” used in the inner and intermediate packaging columns of this section shall include boxes, bottles, cans, drums, jars and tubes, including any means of closure.

A3. “Reels” mean devices made of plastic, wood, fibreboard, metal or other suitable material having a central spindle. Articles and substances can be wound onto the spindle. Each end of the spindle may have sidewalls to retain the articles or substances.

A4. “Trays” mean sheets of metal, plastic, wood, fibreboard or other suitable material that are placed into the inner, intermediate or outer packaging and achieve a close fit. The surface of the tray may be shaped so that packagings or articles can be inserted, held securely and remain separated from each other.

A5. Some UN numbers cover substances that may be transported dry or wetted. Where appropriate, the heading of the packaging method indicates whether it is suitable for dry, powder or wetted substance.

A6. The numbers under “special provisions” are the special provisions listed following the table of explosives (Table 6.1).

A7. The containers associated to the UN packaging code listed in the explosives packing instructions (EP), except for EP 17, must be UN standardized containers that meet the requirements applicable to this type of container as set out in TP 14850 or the UN Recommendations and the Regulations of the country of origin, as the case may be, and are marked as such. The following Table A1 — Selected packaging codes for UN standardized small containers, provides a short description for each packaging code listed in the EP.

Table A1 — Selected packaging codes for UN standardized small containers

Type	Material	Category	Packaging code
1. Drums	A. Steel	Non-removable head	1A1
		Removable head	1A2
	B. Aluminum	Non-removable head	1B1
		Removable head	1B2
	D. Plywood	—	1D
	G. Fibreboard	—	1G
	H. Plastic	Non-removable head	1H1
		Removable head	1H2
	N. Metal, other than steel or aluminum	Non-removable head	1N1
		Removable head	1N2
3. Jerricans	A. Steel	Removable head	3A2
	B. Aluminum	Removable head	3B2
	H. Plastic	Removable head	3H2
4. Boxes	A. Steel	—	4A
	B. Aluminum	—	4B
	C. Natural wood	Ordinary	4C1
	—	With siftproof walls	4C2
	D. Plywood	—	4D
	F. Reconstituted wood	—	4F
	G. Fibreboard	—	4G
	H. Plastic	Expanded	4H1
	—	Solid	4H2
	N. Metal, other than steel or aluminum	—	4N
5. Bags	H. Woven plastic	Without inner liner or coating	5H1
	—	Siftproof	5H2
	—	Water resistant	5H3
	H. Plastics film	—	5H4
	L. Textile	Siftproof	5L2
	—	Water resistant	5L3
	M. Paper	Multiwall, water resistant	5M2
6. Composite packagings	H. Plastic inner receptacle	In solid plastic box	6HH2

A8. The containers associated to the UN packaging code listed in the EP 17 must be UN standardized IBCs that meet the requirements applicable to this type of container as set out in CAN/CGSB-43.146 or the UN Recommendations and the Regulations of the country of origin, as the case may be, and are marked accordingly. The following Table A2 — Selected packaging codes for UN standardized IBCs, provides a short description for each IBC code listed in the EP.

Table A2 — Selected packaging codes for UN standardized IBCs

1	2	3	4
	Type of IBC	Design characteristics	Code
Flexible (13)	Plastic (H)	Woven plastic without coating or liner	13H1
		Woven plastic, coated	13H2
		Woven plastic with liner	13H3
		Woven plastic, coated and with liner	13H4
		Plastic film	13H5
	Textile (L)	Without coating or liner	13L1
		Coated	13L2
		With liner	13L3
		Coated with liner	13L4
	Paper (M)	Multiwall	13M1
		Multiwall, water-resistant	13M2
Rigid ^a (11, 21 and 31)	For solids, loaded by gravity (11 ^a)	Fitted with structural equipment	11H1
		Free-standing	11A, 11B, 11N, 11H2 With liners: 11C, 11D, 11F, 11G
	For solids, loaded or discharged under pressure (21 ^a)	Fitted with structural equipment	21H1
		Free-standing	21A, 21B, 21N, 21H2
	For liquids (31 ^a)	Fitted with structural equipment	31H1
		Free-standing	31A, 31B, 31N, 31H2

1	2	3	4
	Type of IBC	Design characteristics	Code
Composite with plastic inner receptacle (11HZ and 31HZ where Z is the placeholder for the material code of the outer frame)	11HZ ^a	For solids, loaded or discharged by gravity, with rigid plastic inner receptacle	Such as: 11HA1 and 11HH1
		For solids, loaded or discharged by gravity, with flexible plastic inner receptacle	Such as: 11HA2 and 11HH2
	31HZ ^a	For liquids, with rigid plastic inner receptacle	Such as: 31HA1 and 31HH1
		For liquids, with flexible plastic inner receptacle	Such as: 31HA2 and 31HH2

^a The single capital letter following the rigid IBC numerical codes or the letter “Z” following the letter “H” in composite IBC with plastic inner receptacle codes stands for the capital letter as specified in the following list that represents the material of construction of either the body of the rigid IBC or the outer frame body of a composite IBC:

A — Steel

B — Aluminum

C — Natural wood

D — Plywood

F — Reconstituted wood

G — Fibreboard

H — Plastic or rubber

L — Textile

M — Paper

N — Metal other than steel or aluminum.

Explosives packing instructions (EP)

EP 01		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
<p>As approved by the competent authority. The competent authority for explosives packaging in Canada has designated the Director for the purposes of compliance with this packing method. The shipping document for explosives packaged in accordance with this method shall include the following words, as appropriate:</p> <p>“Packaging approved by the competent authority of Canada.”</p>		
<p>Division, Compatibility group and UN number:</p> <p>1.1A: UN 0473</p> <p>1.1B: UN 0461</p> <p>1.1C: UN 0462, 0474</p> <p>1.1D: UN 0124, 0463, 0475</p> <p>1.1E: UN 0464</p> <p>1.1F: UN 0465</p> <p>1.1G: UN 0476</p> <p>1.1J: UN 0397, 0399, 0449</p> <p>1.1L: UN 0354, 0357</p> <p>1.2B: UN 0382</p> <p>1.2C: UN 0466</p> <p>1.2D: UN 0467</p> <p>1.2E: UN 0468</p> <p>1.2F: UN 0469</p> <p>1.2J: UN 0395, 0398, 0400</p> <p>1.2K: UN 0020</p> <p>1.2L: UN 0322, 0355, 0358, 0380</p> <p>1.3C: UN 0470, 0477</p> <p>1.3G: UN 0478</p> <p>1.3J: UN 0247, 0396, 0450</p> <p>1.3K: UN 0021</p> <p>1.3L: UN 0250, 0356, 0359</p> <p>1.4B: UN 0350, 0383</p> <p>1.4C: UN 0351, 0479</p> <p>1.4D: UN 0352, 0480, 0494</p> <p>1.4E: UN 0471</p> <p>1.4F: UN 0472</p> <p>1.4G: UN 0353, 0485</p> <p>1.4S: UN 0349, 0384, 0481</p> <p>1.5D: UN 0482</p> <p>1.6N: UN 0486</p> <p>Other: UN 0190</p> <p>Special provisions:</p> <p>16: UN 0190</p>		

EP 10(a)		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: <ul style="list-style-type: none"> – plastics – textile, plastic-coated or plastic-lined – rubber – textile, rubberized – textile 	Bags: <ul style="list-style-type: none"> – plastics – textile, plastic-coated or plastic-lined – rubber – textile, rubberized Receptacles: <ul style="list-style-type: none"> – plastics – metal 	Drums: 1A2, 1H2 and 1N2
Division, Compatibility group and UN number: 1.1A: UN 0074, 0113, 0114, 0129, 0130, 0135, 0224		
Additional requirements: <ol style="list-style-type: none"> 1. Intermediate packagings shall be filled with water-saturated material such as an antifreeze solution or wetted cushioning. 2. Outer packagings shall be filled with water-saturated material such as an antifreeze solution or wetted cushioning. Outer packagings shall be constructed and sealed to prevent evaporation of the wetting solution, except when UN 0224 is being carried dry. 		

EP 10(b)		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Receptacles: <ul style="list-style-type: none"> – metal – wood – rubber, conductive – plastics, conductive Bags: <ul style="list-style-type: none"> – rubber, conductive – plastics, conductive 	Dividing partitions: <ul style="list-style-type: none"> – metal – wood – plastics – fibreboard 	Boxes: 4C2, 4D and 4F
Division, Compatibility group and UN number: 1.1A: UN 0074, 0113, 0114, 0129, 0130, 0135, 0224		
Special packing provision: PP42: The following conditions shall be met: <ol style="list-style-type: none"> a) each inner packaging must not contain more than 50 g of explosive substance (quantity corresponding to dry substance); b) compartments between dividing partitions must not contain more than one inner packaging, firmly fitted; and c) the outer packaging must not contain more than 25 compartments. 		

EP 11		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – paper, waterproofed – plastics – textile, rubberized Sheets: – plastics – textile, rubberized	Not necessary	Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2 Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2
Division, Compatibility group and UN number: 1.1C: UN 0433 1.3C: UN 0159, 0343 Special packing provision: PP43: For UN 0159, inner packagings are not required when metal (1A2, 1B2 or 1N2) or plastic (1H2) drums are used as outer packagings.		

EP 12(a) (Solid wetted 1.1D)		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – paper, multiwall, water-resistant – plastics – textile – textile, rubberized – woven plastics Receptacles: – metal – plastics	Bags: – plastics – textile, plastic-coated or plastic-lined Receptacles: – metal – plastics	Boxes: 4A, 4B, 4N, 4C1, 4D, 4F, 4G, 4H1 and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1D: UN 0004, 0072, 0076, 0078, 0118, 0133, 0146, 0150, 0151, 0154, 0209, 0214, 0215, 0219, 0220, 0226, 0266, 0282, 0340, 0391, 0394, 0401 Special provisions: 266: UN 0072, 0133, 0150, 0226, 0391 <i>Additional requirement:</i> <i>Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging.</i> Special packing provisions: PP26: For UN 0004, 0076, 0078, 0154, 0219 and 394, packagings must be lead-free. PP45: For UN 0072 and UN 0226, intermediate packagings are not required.		

EP 12(b) (Solid dry, other than powder 1.1D)		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – paper, kraft – paper, multiwall, water-resistant – plastics – textile – textile, rubberized – woven plastics	Bags (for UN 0150 only): – plastics – textile, plastic-coated or plastic-lined	Bags: 5H2, 5H3, 5H4, 5L2, 5L3 and 5M2 Boxes: 4A, 4B, 4N, 4C1, 4D, 4F, 4G, 4H1 and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1D: UN 0004, 0076, 0078, 0079, 0118, 0146, 0147, 0150, 0151, 0153, 0154, 0155, 0207, 0208, 0209, 0213, 0214, 0215, 0216, 0217, 0218, 0219, 0220, 0222, 0223, 0266, 0282, 0340, 0341, 0385, 0386, 0387, 0388, 0389, 0390, 0391, 0392, 0393, 0401, 0402, 0411, 0483, 0484, 0489, 0490, 0496 Special packing provisions: PP26: For UN 0004, 0076, 0078, 0154, 0216, 0219, 0386, packagings must be lead-free. PP46: For UN 0209, siftproof bags (5H2) are recommended for flake or prilled TNT in the dry state and the maximum net mass is 30 kg per bag. PP47: For UN 0222, inner packagings are not required when the outer packaging is a bag.		

EP 12(c) (For solid dry powder 1.1D)		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – paper, multiwall, water-resistant – plastics – woven plastics Receptacles: – fibreboard – metal – plastics – wood	Bags: – paper, multiwall, water-resistant with inner lining – plastics Receptacles: – metal – plastics	Boxes: 4A, 4B, 4N, 4C1, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1D: UN 0004, 0076, 0078, 0079, 0118, 0146, 0151, 0153, 0154, 0155, 0207, 0208, 0209, 0213, 0214, 0215, 0216, 0217, 0218, 0219, 0220, 0222, 0223, 0266, 0282, 0385, 0386, 0387, 0388, 0389, 0390, 0392, 0401, 0402, 0411, 0483, 0484, 0489, 0490, 0496 <i>Additional requirements:</i> 1. Intermediate packagings are not required if drums are used as the outer packaging. 2. These packages shall be siftproof. Special packing provisions: PP26: For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead-free. PP46: For UN 0209, siftproof bags (5H2) are recommended for flake or prilled TNT in the dry state and the maximum net mass is 30 kg per bag. PP48: For UN 0504, metal packagings must not be used.		

EP 13		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
<p>Bags:</p> <ul style="list-style-type: none"> – paper – plastics – textile, rubberized <p>Receptacles:</p> <ul style="list-style-type: none"> – fibreboard – metal – plastics – wood <p>Sheets:</p> <ul style="list-style-type: none"> – paper, kraft – paper, waxed 	Not necessary	<p>Boxes:</p> <p>4A, 4B, 4N, 4C1, 4D, 4F, 4G, 4H1 and 4H2</p> <p>Drums:</p> <p>1A1, 1B1, 1N1, 1A2, 1B2, 1N2, 1D, 1G, 1H1 and 1H2</p>
<p>Division, Compatibility group and UN number:</p> <p>1.1D: UN 0027, 0028</p> <p>1.1G: UN 0094</p> <p>1.3G: UN 0305</p> <p><i>Additional requirement:</i></p> <p><i>Packagings must be siftproof.</i></p> <p>Special packing provisions:</p> <p>PP49: For UN 0094 and 0305, each inner packaging must not contain more than 50 g of explosive substance.</p> <p>PP50: For UN 0027, inner packagings are not necessary when drums are used as the outer packaging.</p> <p>PP51: For UN 0028, paper kraft or waxed paper sheets may be used as inner packagings.</p>		

EP 14(a) (Solid wetted)		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – plastics – textile – woven plastics Receptacles: – metal – plastics – wood	Bags: – plastics – textile, plastic-coated or plastic-lined Receptacles: – metal – plastics Dividing partitions: – wood	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A1, 1B1, 1N1, 1A2, 1B2, 1N2, 1D, 1G, 1H1 and 1H2
Division, Compatibility group and UN number: 1.3C: UN 0077, 0234, 0235, 0236, 0342 <i>Additional requirement:</i> <i>Intermediate packagings are not required if leakproof drums are used as the outer packaging.</i> Special packing provisions: PP26: For UN 0077, 0132, 0234, 0235 and 0236, packagings must be lead-free. PP43: For UN 0342, inner packagings are not required when metal (1A1, 1B1, 1N1, 1A2, 1B2 or 1N2) or plastic (1H1 or 1H2) drums are used as outer packagings.		

EP 14(b) (Solid dry)		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – paper, kraft – plastics – textile, siftproof – woven plastics, siftproof Receptacles: – fibreboard – metal – paper – plastics – woven plastics, siftproof	Not necessary	Boxes: 4C1, 4C2, 4D, 4F and 4G Drums: 1A1, 1B1, 1N1, 1A2, 1B2, 1N2, 1D, 1G, 1H1 and 1H2
Division, Compatibility group and UN number: 1.1C: UN 0160, 0498 1.3C: UN 0077, 0132, 0161, 0234, 0235, 0236, 0406, 0499, 0508 1.4C: UN 0407, 0448, 0509 Special packing provisions: PP26: For UN 0077, 0132, 0234, 0235 and 0236, packagings must be lead-free. PP48: For UN 0508 and 0509, metal packagings must not be used. PP50: For UN 0160, 0161 and 0508, inner packagings are not necessary if drums are used as the outer packaging. PP52: For UN 0160 and UN 0161, when metal drums (1A2, 1B2 or 1N2) are used as the outer packaging, metal packagings must be so constructed that the risk of explosion, by reason of increase internal pressure from internal or external causes is prevented.		

EP 15		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Receptacles: – plastics – wood	Bags: – plastics in metal receptacles Drums: – metal Receptacles: – wood	Boxes: 4C1, 4D and 4F Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
<p>Division, Compatibility group and UN number: 1.1C: UN 0497 1.1D: UN 0075, 0143, 0144 1.3C: UN 0495</p> <p>Special provision: 266: UN 0075 and 0143</p> <p>Special packing provisions: PP45: For UN 0144, absorbent cushioning material shall be inserted and intermediate packagings are not required. PP53: For UN 0075, 0143, 0495 and 0497, when boxes are used as the outer packaging, inner packagings shall have taped screw cap closures and be not more than 5 L capacity each. Inner packagings shall be surrounded with non-combustible absorbent cushioning materials. The amount of absorbent cushioning material shall be sufficient to absorb the liquid contents. Metal receptacles shall be cushioned from each other. Net mass of propellant is a limited to 30 kg for each package when outer packagings are boxes. PP54: For UN 0075, 0143, 0495 and 0497, when drums are used as the outer packaging and when intermediate packagings are drums, they shall be surrounded with non-combustible cushioning material in a quantity sufficient to absorb the liquid contents. A composite packaging consisting of a plastic inner receptacle in a metal drum (6HA1 or 6HB1) may be used instead of the inner and intermediate packagings. The net volume of propellant in each package shall not exceed 120 L. PP55: For UN 0144, absorbent cushioning material shall be inserted. PP56: For UN 0144, metal receptacles may be used as inner packagings. PP57: For UN 0075, 0143, 0495 and 0497, bags shall be used as intermediate packagings when boxes are used as outer packagings. PP58: For UN 0075, 0143, 0495 and 0497, drums shall be used as intermediate packagings when drums are used as outer packagings. PP59: For UN 0144, fibreboard boxes (4G) may be used as outer packagings. PP60: For UN 0144, aluminum drums, removable head (1B2) and metal, other than steel or aluminum, removable head (1N2) shall not be used.</p>		

EP 16		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
<p>Bags:</p> <ul style="list-style-type: none"> – paper, water- and oil-resistant – plastics – textile, plastic-coated or lined – woven plastics, siftproof <p>Receptacles:</p> <ul style="list-style-type: none"> – fibreboard, water-resistant – metal – plastics – wood, siftproof <p>Sheets:</p> <ul style="list-style-type: none"> – paper, water-resistant – paper, waxed – plastics 	Not necessary	<p>Bags:</p> <p>5H1, 5H2, 5H3, 5H4, 5L2, 5L3 and 5M2</p> <p>Boxes:</p> <p>4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2</p> <p>Drums:</p> <p>1A1, 1B1, 1N1, 1A2, 1B2, 1N2, 1D, 1G, 1H1 and 1H2</p> <p>Jerricans:</p> <p>3A2 and 3H2</p>
<p>Division, Compatibility group and UN number:</p> <p>1.1D: UN 0081, 0082, 0083, 0084, 0241</p> <p>1.5D: UN 0331, 0332</p> <p>Special packing provisions:</p> <p>PP61: For UN 0082, 0241, 0331 and 0332, inner packagings are not required if leakproof drums are used as the outer packaging.</p> <p>PP62: For UN 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a material impervious to liquid.</p> <p>PP63: For UN 0081, inner packagings are not required when contained in rigid plastic which is impervious to nitric esters.</p> <p>PP64: For UN 0331, inner packagings are not required when bags (5H2, 5H3 or 5H4) are used as outer packagings.</p> <p>PP65: For UN 0082, 0241, 0331 and 0332, bags (5H2 or 5H3) may be used as outer packagings.</p> <p>PP66: For UN 0081, bags shall not be used as outer packagings.</p>		

EP 17		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Not necessary	Not necessary	IBCs: <ul style="list-style-type: none"> – metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B, 31N) – flexible (13H2, 13H3, 13H4, 13L2, 13L3, 13L4, 13M2) – rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1, 31H2) – composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1, 31HZ2) Highway Tanks UN Portable Tanks
<p>Division, Compatibility group and UN number: 1.5D: UN 0331, 0332</p> <p>Special provisions: none</p> <p><i>Additional requirements:</i></p> <ol style="list-style-type: none"> 1. IBCs for solids UN code 11, 13 and 21 shall be used for solids only. 2. UN 0331 and 0332 explosives may be transported <ol style="list-style-type: none"> a) in a highway tank that conforms to the requirements for specification TC 423 in accordance with CSA B620; b) in a highway tank that conforms to the requirements for specification TC 407 or TC 412 having a marked MAWP equal to or less than 241 kPa (35 psi), manufactured before January 1, 2017; c) until January 1, 2017, in a highway tank that is part of a Mobile Process Unit (MPU) designed to transport, manufacture and load explosives into boreholes in conformance with an explosives licence or certificate issued for the MPU under the Explosives Act and Regulations and conforms to the requirements for specification TC 406; or d) in a highway tank that was loaded in the United States of America (US) in accordance with the requirements of 49 CFR. 3. UN 0331 and 0332 explosives may be transported in a UN portable tank if the tank has stainless steel shell and heads and has a minimum test pressure that is equal to or more than 150 kPa (21.75 psi) but that is equal to or less than 600 kPa (87 psi). <p>NOTE: A pumping system, if installed on a MPU in conformance with an explosives licence or certificate issued for the MPU under the <i>Explosives Act and Regulations</i>, must comply with the safety requirements set out in the Natural Resources Canada (NRCAN) publication <i>Guidelines for Pumping of Water Based Explosives</i> and be approved by the Explosives Regulatory Division of NRCAN. Pumping systems are not permitted on transport tanks that are not licenced as MPUs.</p>		

EP 30		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Not necessary	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
<p>Division, Compatibility group and UN number:</p> <p>1.1C: UN 0279, 0280, 0326</p> <p>1.1D: UN 0034, 0038, 0048, 0056, 0137, 0168, 0221, 0286, 0451, 0457</p> <p>1.1E: UN 0006, 0181, 0329</p> <p>1.1F: UN 0005, 0033, 0037, 0136, 0167, 0180, 0330, 0369</p> <p>1.2C: UN 0281, 0328, 0413, 0414, 0436</p> <p>1.2D: UN 0035, 0138, 0169, 0287, 0346, 0458</p> <p>1.2E: UN 0182, 0321</p> <p>1.2F: UN 0007, 0291, 0294, 0295, 0324, 0426</p> <p>1.2G: UN 0009, 0015, 0018, 0039, 0171, 0238, 0434</p> <p>1.2H: UN 0243, 0245</p> <p>1.3C: UN 0183, 0186, 0242, 0327, 0417, 0437</p> <p>1.3G: UN 0010, 0016, 0019, 0240, 0254, 0299, 0424, 0488</p> <p>1.3H: UN 0244, 0246</p> <p>1.4C: UN 0338, 0339, 0438</p> <p>1.4D: UN 0344, 0347, 0370, 0459</p> <p>1.4E: UN 0412</p> <p>1.4F: UN 0348, 0371, 0427</p> <p>1.4G: UN 0297, 0300, 0301, 0303, 0362, 0363, 0425, 0435, 0453</p> <p>1.4S: UN 0012, 0014, 0345, 0460</p> <p>Special packing provision:</p> <p>PP67: The following applies to UN 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.</p> <p>NOTE: Large and robust explosives articles, 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 unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems shall be protected against stimuli encountered during normal conditions of transport. A negative result in Test Series 4 of the Test Manual of the UN Recommendations on an unpackaged article indicates that the article can be considered for transport unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.</p>		

EP 31		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – paper – plastics Receptacles: – fibreboard – metal – plastics – wood Reels	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1B: UN 0029, 0030, 0360 1.4B: UN 0255, 0267, 0361 1.4S: UN 0455, 0456, 0500 Special packing provision: PP68: For UN 0029, 0267 and 0455, bags and reels shall not be used as inner packagings.		

EP 32(a)		
Articles consisting of closed metal, plastics or fibreboard casings that contain a detonating explosive, or consisting of plastics-bonded detonating explosives.		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Not necessary	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2
Division, Compatibility group and UN number: 1.1D: UN 0042, 0060 1.2D: UN 0283		

EP 32(b)		
Articles without closed casings.		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Receptacles: – fibreboard – metal – plastics Sheets: – paper – plastics	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2
Division, Compatibility group and UN number: 1.1D: UN 0042, 0060 1.2D: UN 0283		

EP 33		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Receptacles: – fibreboard – metal – plastics – wood Trays, fitted with dividing partitions: – fibreboard – plastics – wood	Receptacles: – fibreboard – metal – plastics – wood	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2
Division, Compatibility group and UN number: 1.1B: UN 0073, 0225, 0377 1.1D: UN 0043 1.2B: UN 0268, 0364 1.3G: UN 0212, 0319 1.4B: UN 0365, 0378 1.4G: UN 0306, 0320 1.4S: UN 0044, 0366, 0376 <i>Additional requirement :</i> <i>Receptacles are only required as intermediate packagings when the inner packagings are trays.</i> Special packing provision: PP69: For UN 0043, 0212, 0225, 0268 and 0306, trays shall not be used as inner packagings.		

EP 34		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
<p>Bags:</p> <ul style="list-style-type: none"> – water-resistant <p>Receptacles:</p> <ul style="list-style-type: none"> – fibreboard – metal – plastics – wood <p>Sheets:</p> <ul style="list-style-type: none"> – fibreboard, corrugated <p>Tubes:</p> <ul style="list-style-type: none"> – fibreboard 	Not necessary	<p>Boxes:</p> <p>4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2</p> <p>Drums:</p> <p>1A2, 1B2, 1N2, 1D, 1G and 1H2</p>
<p>Division, Compatibility group and UN number:</p> <p>1.1D: UN 0099, 0374</p> <p>1.1F: UN 0296</p> <p>1.2C: UN 0381</p> <p>1.2D: UN 0375</p> <p>1.2F: UN 0204</p> <p>1.3C: UN 0275, 0277</p> <p>1.4C: UN 0276, 0278</p> <p>1.4S: UN 0070, 0173, 0174, 0323</p>		

EP 35		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – paper – plastics Receptacles: – fibreboard – metal – plastics – wood Sheets: – paper – plastics	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1G: UN 0049, 0192, 0194, 0196, 0333, 0418, 0420, 0428 1.2G: UN 0313, 0334, 0419, 0421, 0429 1.3G: UN 0050, 0054, 0092, 0093, 0195, 0335, 0430, 0487, 0492 1.4G: UN 0191, 0197, 0312, 0336, 0403, 0431, 0493 1.4S: UN 0193, 0337, 0373, 0404, 0405, 0432		

EP 36		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – plastics – textile Boxes: – fibreboard – plastics – wood Dividing partitions in the outer packagings	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.3C: UN 0447 1.4C: UN 0379, 0446 1.4S: UN 0055		

EP 37		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – plastics Boxes: – fibreboard – wood Tubes: – fibreboard – metal – plastics Dividing partitions in the outer packagings	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1D: UN 0059, 0442 1.2D: UN 0439, 0443 1.4D: UN 0440, 0444 1.4S: UN 0441, 0445 Special packing provision: PP70: For UN 0059, 0439, 0440 and 0441, when the shaped charges are packed singly, the conical cavity shall face downwards and the package marked "THIS SIDE UP". When the shaped charges are packed in pairs, the conical cavities shall face inwards to minimize the jetting effect in the event of accidental initiation.		

EP 38		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – plastics	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1D: UN 0288 1.4D: UN 0237 Additional requirement: If the ends of the articles are sealed, inner packagings are not necessary.		

EP 39		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – plastics Receptacles: – fibreboard – metal – plastics – wood Reels Sheets: – paper – plastics	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1D: UN 0065, 0290 1.2D: UN 0102 1.4D: UN 0104, 0289 Special packing provisions: PP71: For UN 0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord shall be sealed, for example, by a plug firmly fixed so that the explosive cannot escape. The ends of flexible detonating cord shall be fastened securely. PP72: For UN 0065 and 0289, inner packagings are not required when they are in coils.		

EP 40		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – plastics Receptacles: – wood Reels Sheets: – paper, kraft – plastics	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.3G: UN 0101 1.4G: UN 0066, 0103 1.4S: UN 0105 Special packing provisions: PP73: For UN 0105, no inner packagings are required if the ends are sealed. PP74: For UN 0101, the packaging shall be siftproof except when the fuse is covered by a paper tube and both ends of the tube are covered with removable caps. PP75: For UN 0101, steel, aluminum and metal, other than steel or aluminum, boxes or drums (4A, 4B, 4N, 1A2, 1B2 and 1N2) shall not be used.		

EP 41		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Receptacles: <ul style="list-style-type: none"> – fibreboard – metal – plastics – wood Trays, fitted with dividing partitions: <ul style="list-style-type: none"> – plastics – wood Dividing partitions in the outer packagings	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1B: UN 0106 1.1D: UN 0284, 0408 1.1F: UN 0292 1.2B: UN 0107 1.2D: UN 0285, 0409 1.2F: UN 0293 1.2G: UN 0372 1.3G: UN 0316, 0318 1.4B: UN 0257 1.4D: UN 0410 1.4G: UN 0317, 0452 1.4S: UN 0110, 0367, 0368		

EP 42		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Bags: – paper – plastics Receptacles: – fibreboard – metal – plastics – wood Sheets: – paper Trays, fitted with dividing partitions: – plastics	Not necessary	Boxes: 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2 Drums: 1A2, 1B2, 1N2, 1D, 1G and 1H2
Division, Compatibility group and UN number: 1.1G: UN 0121 1.2G: UN 0314 1.3G: UN 0315 1.4G: UN 0325 1.4S: UN 0131, 0454		

EP 43		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
<p>Bags:</p> <ul style="list-style-type: none"> – paper, kraft – plastics – textile – textile, rubberized <p>Receptacles:</p> <ul style="list-style-type: none"> – fibreboard – metal – plastics – wood <p>Trays, fitted with dividing partitions:</p> <ul style="list-style-type: none"> – plastics – wood 	Not necessary	<p>Boxes:</p> <p>4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G and 4H2</p> <p>Drums:</p> <p>1A2, 1B2, 1N2, 1D, 1G and 1H2</p>
<p>Division, Compatibility group and UN number:</p> <p>1.1C: UN 0271</p> <p>1.2C: UN 0415</p> <p>1.3C: UN 0272</p> <p>1.4C: UN 0491</p> <p>Additional requirement:</p> <p>Instead of the above inner and outer packagings, a composite packaging consisting of plastic inner receptacle in a solid plastic box (6HH2) may be used.</p> <p>Special packing provision:</p> <p>PP76: For UN 0271, 0272, 0415 and 0491, when metal packagings are used, metal packagings shall be so constructed that the risk of explosion by reason of increase in internal pressure from internal or external causes is prevented.</p>		

EP 44		
Inner packagings and arrangements	Intermediate packagings and arrangements	Outer packagings and arrangements
Receptacles: <ul style="list-style-type: none"> – fibreboard – metal – plastics – wood Dividing partitions in the outer packagings	Not necessary	Boxes: 4A, 4B, 4N, 4C1 with a metal liner, 4D with a metal liner, 4F with a metal liner, 4H1 and 4H2
Division, Compatibility group and UN number: 1.2L: UN 0248 1.3L: UN 0249 Special packing provision: PP 77: For UN 0248 and 0249, packagings shall be protected against the ingress of water. When water-activated contrivances are transported unpackaged, they shall be provided with at least two independent protective features that prevent the ingress of water.		

ANNEX B (NORMATIVE)

INTERMEDIATE BULK CONTAINERS (IBCs) FOR THE TRANSPORT OF EXPLOSIVES

B1. DESIGN

B1.1 Both transport and mine handling conditions shall be considered in the design of IBCs that are to be used for the transport of explosives. The manufacturer shall notify the purchaser (i.e. the user of the container) of the preparation required to ensure that the IBC is filled and closed as tested.

B1.2 IBCs used for the transport of explosives shall be UN standardized IBCs.

B1.3 IBCs shall not be modified and must remain in compliance with their registered design types. The IBCs must be repaired and refurbished in accordance with Appendix C of the CAN/CGSB-43.146 standard.

B1.4 Any service equipment of the IBC shall be designed and manufactured to prevent

- the migration of explosive material into its mechanism (e.g. threaded fittings);
- the release of components, such as bolts, into the lading. Threaded fittings are prohibited unless approved by the Chief Inspector of Explosives.

B1.5 The construction material of IBC components in contact with the lading, including gaskets, shall be compatible with the lading and shall not be made of brass or bronze.

B1.6 Any component of a metal manhole cover in contact with the lading shall be constructed of stainless steel or aluminum. The manhole cover shall be lockable.

B1.7 The IBC shall have a pressure-relief device.

B1.8 The discharge lines shall have a non-threaded type secondary closure such as a quick-disconnect dust cap. The dust cap shall be lockable and shall not be made of brass or bronze.

B1.9 The discharge valves and discharge pipe shall be designed to withstand the mine handling environment.

B1.10 Gate valves are prohibited.

B1.11 The plastic inner receptacle of a composite IBC shall be protected from damage by fully enclosing the sides of the inner receptacle with rigid outer side plates mounted on the outer frame.

B2. USE**B2.1 IBCs for use with liquid or gel explosives (Code 31 IBCs)**

B2.1.1 IBCs of the following codes shall be used for the transport of liquid, gel or emulsion explosives unless otherwise limited by the TDG Regulations or this standard:

- Metallic IBCs: 31A, 31B, 31N
- Rigid plastic IBCs: 31H1, 31H2

- Composite IBCs with a rigid plastic inner receptacle and a metal or plastic outer casing: 31HZ1, where 'Z' is replaced with the capital letter representing the material of construction of the outer casing. H stands for plastic, A is for steel, B for aluminum and N for other metals.

B2.1.2 Periodic Leak Test and Inspection of IBCs — A person shall not load liquid, gel or emulsion explosives in an IBC unless the IBC has been leak tested, inspected and marked in accordance with Annex C of the CAN/CGSB-43.146 standard within the previous 30 months by a facility registered with Transport Canada for that purpose. If the end of the 30-month period occurs on a date after the IBC was filled with explosives, the IBC may remain in transport until it had been emptied.

B2.1.2.1 The date of manufacture of the IBC is the date of the first inspection and leak test. For composite IBCs, the date of manufacture on the outer casing is the date from which the first leak test and inspection period is determined.

B2.1.3 IBC Decontamination — The leak test and inspection shall be conducted on an IBC that has been decontaminated. The person responsible for the decontamination must either hold a valid licence or certificate issued by the Minister of Natural Resources Canada under the *Explosives Act* for the manufacture of the explosive that contaminates the IBC or has been approved for that purpose by NRCAN; and

- a) the person performing the decontamination of the IBC must mark each IBC with a numbered tag to indicate that it has been decontaminated; and
- b) the person performing the decontamination, if it is not the registered Leak Test and Inspection Facility itself, must supply the registered Leak Test and Facility with a decontamination document. This document must include:
 - 1) the name and address of the IBCs owner;
 - 2) the serial or identification number of the IBCs and the numbers of the tags marking the IBCs as decontaminated;
 - 3) the name, address and licence, certificate or NRCAN approval number of the facility that has done the decontamination;
 - 4) the date of the decontamination;
 - 5) a statement, signed by either a representative of the IBCs owner or a representative of the person that has decontaminated the IBCs, declaring the IBCs free of residue that could create a hazard during any work on the IBCs, including hot work or impact; and
 - 6) the name, title and name of the company of the person who has signed the statement referred to in 5).

B2.2 IBCs for use with solid explosives — When permitted by the packing instructions, UN standardized IBCs of any code may be used for the transport of solid explosives unless otherwise limited by the TDG Regulations or this standard.

B2.3 Filling

B2.3.1 Before being filled and offered for transport, every IBC shall be visually inspected. IBCs showing signs of reduced strength as compared with the tested design type shall be taken out of service. IBCs displaying the following conditions shall be taken out of service or shall be repaired or refurbished in accordance with CAN/CGSB-43.146:

- Corrosion, contamination or other damage
- Service equipment that is not functioning properly
- Exposed iron or steel (e.g. as a result of corrosion or a damaged coating).

B2.3.2 IBCs shall not be filled with explosive material having a specific gravity greater than that of the material to which the design type was tested.

B2.4 Conditions of transport

B2.4.1 No residue from explosives shall adhere to the outside of the IBC during transport.

B2.4.2 IBCs shall be loaded or secured to prevent damage to the IBCs or to the transport unit itself under normal conditions of transport.

B2.4.3 IBCs designed and tested for stacking shall not be stacked more than two high.

ANNEX C (INFORMATIVE)

GLOSSARY OF SUBSTANCES, ARTICLES AND RELATED EXPRESSIONS

NOTE: The descriptions in this glossary are for information only and are not to be used for hazard classification.

Air bag inflators, pyrotechnic or **Air bag modules, pyrotechnic** or **Seat-belt pretensioners, pyrotechnic**
Articles that contain pyrotechnic substances and that are used as life-saving vehicle airbags or seat belts.

Ammunition

A generic term related mainly to articles of military application consisting of all kind of bombs, grenades, rockets, mines, projectiles and other similar devices or contrivances.

Ammunition, illuminating, with or without burster, expelling charge or propelling charge

Ammunition designed to produce a single source of intense light for lighting up an area. The term includes illuminating cartridges, grenades and projectiles; and illuminating and target identification bombs. The term excludes the following articles, which are listed separately: **Cartridges, signal**; **Signal devices, hand**; **Signals, distress**; **Flares, aerial**; and **Flares, surface**.

Ammunition, incendiary

Ammunition containing an incendiary substance that may be a solid, liquid or gel including white phosphorus. Except when the composition is an explosive *per se*, it also contains one or more of the following: a propelling charge with a primer and an igniter charge; a fuse with a burster or an expelling charge. The term includes

- **Ammunition, incendiary**, liquid or gel, with burster, expelling charge or propelling charge;
- **Ammunition, incendiary**, with or without burster, expelling charge or propelling charge;
- **Ammunition, incendiary, white phosphorus**, with burster, expelling charge or propelling charge.

Ammunition, practice

Ammunition without a main bursting charge, containing a burster or an expelling charge. Normally it also contains a fuse and a propelling charge. The term excludes the following articles that are listed separately: **Grenades, practice**.

Ammunition, proof

Ammunition containing pyrotechnic substances, used to test the performance or strength of new ammunition, weapon components or assemblies.

Ammunition, smoke

Ammunition containing a smoke producing substance such as chlorosulphonic acid mixture, titanium tetrachloride or white phosphorus; or smoke producing pyrotechnic composition based on hexachloroethane or red phosphorus. Except when the substance is an explosive *per se*, the ammunition also contains one or more of the following: a propelling charge with primer and igniter charge; a fuse with a burster or an expelling charge. The term includes **Grenades, smoke** but excludes **Signals, smoke**, which are listed separately. The term includes

- **Ammunition, smoke**, with or without burster, expelling charge or propelling charge;
- **Ammunition, smoke, white phosphorus**, with burster, expelling charge or propelling charge.

Ammunition, tear-producing, with burster, expelling charge or propelling charge

Ammunition containing a tear producing substance. It also contains one or more of the following: a pyrotechnic substance; a propelling charge with a primer and an igniter charge; a fuse with a burster; or an expelling charge.

Ammunition, toxic, with burster, expelling charge or propelling charge

Ammunition containing a toxic agent. It also contains one or more of the following: a pyrotechnic substance; a propelling charge with primer and igniter charge; a fuse with burster; or expelling charge.

Articles, explosive, extremely insensitive (Articles, EEI)

Articles that contain only extremely insensitive detonating substances and that demonstrate a negligible probability of accidental initiation or propagation (under normal conditions of transport) and which have passed Test Series 7 of the UN Recommendations on the Transportation of Dangerous Goods.

Articles, pyrophoric

Articles that contain a pyrophoric substance (capable of spontaneous ignition when exposed to air) and an explosive substance or component. The term excludes articles containing white phosphorus.

Articles, pyrotechnic, for technical purposes

Articles that contain pyrotechnic substances and that are used for technical purposes such as heat generation, gas generation, theatrical effects, etc. The term excludes the following articles that are listed separately: all ammunition; **Cartridges, signal; Cutters, cable, explosive; Fireworks; Flares, aerial; Flares, surface; Release devices, explosive; Rivets, explosive; Signal devices, hand; Signals, distress; Signals, railway track, explosive; Signals, smoke.**

Black powder (Gunpowder)

A substance consisting of an intimate mixture of charcoal or other carbon and either potassium nitrate or sodium nitrate, with or without sulphur. It may be meal, granular, compressed or pelletized.

Board

Wooden unit unto it a number of firing tubes are fastened. The tubes are connected to base fuses and contain pyrotechnic pieces such as stars or small shells placed over the black powder that is used as propellant for the pyrotechnic devices.

Bombs

Explosive articles that are dropped from aircraft. They may contain a flammable liquid with a bursting charge, a photo flash composition or a bursting charge. The term excludes torpedoes (aerial) and includes

- **Bombs, photo flash;**
- **Bombs**, with bursting charge;
- **Bombs with flammable liquid**, with bursting charge.

Boosters

Articles consisting of a charge of detonating explosive with or without a means of initiation. They are used to increase the initiating power of detonators or detonating cord.

Bursters, explosive

Articles consisting of a small charge of explosive used to open projectiles or other ammunition in order to disperse their contents.

Cartridges, blank

Articles that consist of a cartridge case with a centre or rim fire primer and a confined charge of smokeless or black powder but no projectile. They are used for training, saluting or in starter pistols, tools, etc.

Cartridges, flash

Articles consisting of a casing, a primer and flash powder, all assembled in one piece ready for firing.

Cartridges for weapons

1. Fixed (assembled) or semi fixed (partially assembled) ammunition designed to be fired from weapons. Each cartridge includes all the components necessary to function the weapon once. The name and description should be used for small arms cartridges that cannot be described as "cartridges, small arms." Separate

loading ammunition is included under this name and description when the propelling charge and projectile are packed together (see also “Cartridges, blank”).

2. Incendiary, smoke, toxic and tear producing cartridges are described in this Glossary under **Ammunition, incendiary**, etc.

Cartridges for weapons, inert projectile

Ammunition consisting of a projectile without a bursting charge but with a propelling charge. The presence of a tracer can be disregarded for classification purposes provided the predominant hazard is that of the propelling charge.

Cartridges, oil well

Articles consisting of a casing of thin fibreboard, metal or other material containing only a propellant that projects a hardened projectile. The term excludes the following articles that are listed separately: **Charges, shaped**.

Cartridges, power device

Articles designed to accomplish mechanical actions. They consist of a casing with a charge of deflagrating explosive and a means of ignition. The gaseous products of the deflagration produce inflation, or linear or rotary motion, or activate diaphragms, valves or switches or project fastening devices or extinguishing agents.

Cartridges, signal

Articles designed to fire coloured flares or other signals from signal pistols, etc.

Cartridges, small arms

Ammunition consisting of a cartridge case fitted with a centre or rim fire primer and containing both a propelling charge and a solid projectile. They are designed to be fired in weapons of calibre not larger than 19.1 mm. Shotgun cartridges of any calibre are included in this description. The term excludes: **Cartridges, small arms, blank** listed separately in the table of explosives (Table 6.1); and some small arms cartridges that are listed under **Cartridges for weapons, inert projectile**.

Cases, cartridge, empty, with primer

Articles consisting of a cartridge case made from metal, plastics or other nonflammable material, in which the only explosive component is the primer.

Cases, combustible, empty, without primer

Articles consisting of cartridge cases made partly or entirely from nitrocellulose.

Charges, bursting

Articles consisting of a charge of detonating explosive such as hexolite, octolite or plastics bonded explosive designed to produce an effect by blast or fragmentation.

Charges, demolition

Articles containing a charge of a detonating explosive in a casing of fibreboard, plastics, metal or other material. The term excludes the following articles that are listed separately: **Bombs, Mines**, etc.

Charges, depth

Articles consisting of a charge of detonating explosive contained in a drum or projectile. They are designed to detonate under water.

Charges, expelling

A charge of deflagrating explosive designed to eject the payload from the parent articles without damage.

Charges, explosive, commercial, without detonator

Articles consisting of a charge of detonating explosive without a means of initiation, used for explosive welding, jointing, forming and other metallurgical processes.

Charges, propelling

Articles consisting of a propellant charge in any physical form, with or without a casing, for use as a component of rocket motors or for reducing the drag of projectiles.

Charges, propelling, for cannon

Articles consisting of a propellant charge in any physical form, with or without a casing, for use in a cannon.

Charges, shaped, without detonator

Articles consisting of a casing containing a charge of detonating explosive with a cavity lined with a rigid material, without a means of initiation. They are designed to produce a powerful, penetrating jet effect.

Charges, shaped, flexible, linear

Articles consisting of a V-shaped core of a detonating explosive clad by a flexible metal sheath.

Charges, supplementary, explosive

Articles consisting of a small removable booster used in the cavity of a projectile between the fuse and the bursting charge.

Components, explosive train, n.o.s.

Articles containing an explosive designed to transmit the detonation or deflagration within an explosive train.

Contrivances, water-activated, with burster, expelling charge or propelling charge

Articles whose functioning depends upon physicochemical reaction of their contents with water.

Cord, detonating, flexible

An article consisting of a core of detonating explosive enclosed in spun fabric, with plastics or other covering unless the spun fabric is siftproof.

Cord (fuse), detonating, metal clad

An article consisting of a core of detonating explosive clad by a soft metal tube with or without a protective covering. When the core contains a sufficiently small quantity of explosive, the words "MILD EFFECT" are added.

Cord, igniter

An article consisting of textile yarns covered with black powder or another fast-burning pyrotechnic composition and of a flexible protective covering; or it consists of a core of black powder surrounded by a flexible woven fabric. It burns progressively along its length with an external flame and is used to transmit ignition from a device to a charge or primer.

Cutters, cable, explosive

Articles consisting of a knife edged device that is driven by a small charge of deflagrating explosive into an anvil.

Detonator assemblies, non-electric for blasting

Non-electric detonators assembled with and activated by a safety fuse, shock tube, flash tube or detonating cord. They may be of instantaneous design or incorporate delay elements. Detonating relays incorporating detonating cord are included. Other detonating relays are included in **Detonators, non-electric**.

Detonators

Articles consisting of a small metal or plastic tube containing explosives such as lead azide, PETN or combinations of explosives that are designed to start a detonation train. They may be constructed to detonate instantaneously or may contain a delay element. The term includes

— **Detonators for ammunition;** and

— **Detonators** for blasting, both **electric** and **non-electric**.

Detonating relays without flexible detonating cord are included.

Entire load and Total contents

The phrases **Entire load** and **Total contents** mean such a substantial proportion that the practical hazard should be assessed by assuming simultaneous explosion of the whole of the explosive content of the load or package.

Explode

The verb used to indicate those explosive effects capable of endangering life and property through blast, heat and projection of missiles. It encompasses both deflagration and detonation.

Explosion of the total contents

The phrase **Explosion of the total contents** is used in testing a single article or package or a small stack of articles or packages.

Explosive, blasting

Detonating explosive substances used in mining, construction and similar tasks. Blasting explosives are assigned to one of five types. In addition to the ingredients listed, blasting explosives may also contain inert components such as kieselguhr, and minor ingredients such as colouring agents and stabilizers.

Explosive, blasting, type A

Substances consisting of liquid organic nitrates such as nitroglycerin or a mixture of such ingredients with one or more of the following: nitrocellulose; ammonium nitrate or other inorganic nitrates; aromatic nitro derivatives, or combustible materials, such as wood meal and aluminum powder. Such explosives shall be in powdery, gelatinous or elastic form. The term includes dynamite gelatine, blasting and gelatine dynamites.

Explosive, blasting, type B

Substances consisting of a) a mixture of ammonium nitrate or other inorganic nitrates with an explosive such as trinitrotoluene, with or without other substances such as wood meal and aluminum powder, or b) a mixture of ammonium nitrate or other inorganic nitrates with other combustible substances that are not explosive ingredients. Such explosives shall not contain nitroglycerin, similar liquid organic nitrates or chlorates.

Explosive, blasting, type C

Substances consisting of a mixture of either potassium or sodium chlorate or potassium, sodium or ammonium perchlorate with organic nitro derivatives or combustible materials such as wood meal or aluminum powder or a hydrocarbon. Such explosives shall not contain nitroglycerin or similar liquid organic nitrates.

Explosive, blasting, type D

Substances consisting of a mixture of organic nitrated compounds and combustible materials such as hydrocarbons and aluminum powder. Such explosives shall not contain nitroglycerin, similar liquid organic nitrates, chlorates or ammonium nitrate. The term generally includes plastic explosives.

Explosive, blasting, type E

Substances consisting of water as an essential ingredient and high proportions of ammonium nitrate or other oxidizers, some or all of which are in solution. The other constituents may include nitro derivatives such as trinitrotoluene, hydrocarbons or aluminum powder. The term includes explosives, emulsion; explosives, slurry, and explosives, watergel.

Explosive, deflagrating

A substance (e.g. propellant) that reacts by deflagration rather than detonation when ignited and used in its normal manner.

Explosive, detonating

A substance that reacts by detonation rather than deflagration when initiated and used in its normal manner.

Explosive, extremely insensitive substance (EIS)

A substance that, although capable of sustaining a detonation, has demonstrated through tests that it is so insensitive that there is very little probability of accidental initiation.

Explosive, primary

An explosive substance manufactured to produce a practical effect by explosion that is very sensitive to heat, impact or friction and that, even in very small quantities, either detonates or burns very rapidly. It is able to transmit detonation (in the case of initiating explosive) or deflagration to secondary explosives close to it. The main primary explosives are mercury fulminate, lead azide and lead styphnate.

Explosive, secondary

An explosive substance that is relatively insensitive (when compared to primary explosives) and that is usually initiated by primary explosives with or without the aid of boosters or supplementary charges. Such an explosive may react as a deflagrating or as a detonating explosive.

Fireworks

Pyrotechnic articles designed for entertainment.

Flares

Articles containing pyrotechnic substances that are designed to illuminate, identify, signal or warn. The term includes

- **Flares, aerial;**
- **Flares, surface.**

Flash powder

A pyrotechnic substance that produces an intense light when ignited.

Fountain

An article consisting of a non-metallic case containing pressed or consolidated sparks and flame producing pyrotechnic substance. Also known as volcanoes, gerbs, showers, lances, Bengal fire, flitter sparkle, cylindrical fountains, cone fountains or illuminating torches.

Fracturing devices, explosive, without detonator, for oil wells

Articles consisting of a charge of detonating explosive contained in a casing without means of initiation. They are used to fracture the rock around a drill shaft to assist the flow of crude oil from the rock.

Fuse/Fuze (English text only)

Although these two words have a common origin (French fusée, fusil) and are sometimes considered to be different spellings, it is useful to maintain the convention that fuse refers to a cord-like igniting device whereas fuze refers to a device used in ammunition that incorporates mechanical, electrical, chemical or hydrostatic components to initiate a train by deflagration or detonation.

Fuse, igniter, tubular, metal clad

An article consisting of a metal tube with a core of deflagrating explosive.

Fuse, instantaneous, non detonating (quickmatch)

An article consisting of cotton yarns impregnated with fine black powder (quickmatch). It burns with an external flame and is used in ignition trains for fireworks, etc.

Fuse, safety

Article consisting of a core of fine-grained black powder surrounded by a flexible woven fabric with one or more protective outer coverings. When ignited, it burns at a pre-determined rate without any external explosive effect.

Fuses

Articles designed to start a detonation or a deflagration in ammunition. They incorporate mechanical, electrical, chemical or hydrostatic components and generally protective features. The term includes

- **Fuses, detonating;**
- **Fuses, detonating**, with protective features;
- **Fuses, igniting.**

Grenades, hand or rifle

Articles that are designed to be thrown by hand or to be projected by a rifle. The term includes

- **Grenades, hand or rifle, with bursting charge;**
- **Grenades, practice, hand or rifle.**

The term excludes **Grenades, smoke** listed under **Ammunition, smoke**.

Igniters

Articles containing one or more explosive substances used to start deflagration in an explosive train. They may be actuated chemically, electrically or mechanically. This term excludes the following articles that are listed separately:

Cord, igniter; Fuse, igniter; Fuse, instantaneous, non detonating; Fuses, igniting; Lighters, fuse; Primers, cap type; Primers, tubular.

Ignition, means of

A general term used in connection with the method employed to ignite a deflagrating train of explosive or pyrotechnic substances (e.g. a primer for a propelling charge, an igniter for a rocket motor, an igniting fuse).

Initiation, means of

1. A device intended to cause the detonation of an explosive (e.g. a detonator, detonator for ammunition, a detonating fuse).
2. The phrase “with its own means of initiation” means that the contrivance has its normal initiating device assembled to it, and this device is considered to present a significant risk during transport but not one great enough to be unacceptable. The phrase does not apply, however, to a contrivance packed with its means of initiation, provided the device is packaged to eliminate the risk of detonation of the contrivance in the event of accidental functioning of the initiating device. The means of initiating can even be assembled to the contrivance provided there are protective features so that the device is very unlikely to cause detonation of the contrivance in conditions that are associated with transport.
3. For the purposes of classification, any means of initiation without two effective protective features should be regarded as Compatibility Group B; an article with its own means of initiation without two effective protective features would be Compatibility Group F. On the other hand, a means of initiation that possesses two effective protective features would be Compatibility Group D; and an article with a means of initiation that possesses two effective protective features would be Compatibility Group D or E. A means of initiation adjudged as having two effective protective features should have been approved by the competent national authority. A common and effective way of achieving the necessary degree of protection is to use a means of initiation that incorporates two or more independent safety features.

Jet perforating guns, charged, oil well, without detonator

Articles consisting of a steel tube or a metallic strip, into which are inserted shaped charges connected by a detonating cord, without a means of initiation.

Lighters, fuse

Articles of various design actuated by friction, percussion or electricity and used to ignite safety fuse.

Mass explosion

An explosion that affects almost the entire load virtually instantaneously.

Mines

Articles consisting normally of metal or composition receptacles and a bursting charge. They are designed to be operated by the passage of ships, vehicles or personnel. The term includes “Bangalore torpedoes.”

Powder cake (powder paste), wetted

A substance consisting of nitrocellulose impregnated with not more than 60% of nitroglycerin or other liquid organic nitrates or a mixture of these.

Powder, smokeless

A substance based on nitrocellulose (NC) used as propellant. The term includes propellants with a single base (NC alone), those with a double base (such as NC and nitroglycerin [NG]) and those with a triple base (such as NC/NG/nitroguanidine). Cast, pressed or bag charges of smokeless powder are listed under **Charges, propelling** or **Charges, propelling for cannon**.

Primers, cap type

Articles consisting of a metal or plastic cap containing a small amount of primary explosive mixture that is readily ignited by impact. They serve as igniting elements in small arms cartridges and in percussion primers for propelling charges.

Primers, tubular

Articles consisting of a primer for ignition and an auxiliary charge of deflagrating explosive such as black powder used to ignite the propelling charge in a cartridge case for cannon, etc.

Projectiles

Articles such as a shell or bullet that are projected from a cannon or other artillery gun, a rifle or other small arm. They may be inert, with or without a tracer, or may contain a burster or an expelling charge or a bursting charge. The term includes

- **Projectiles**, inert, with tracer;
- **Projectiles**, with burster or expelling charge;
- **Projectiles**, with bursting charge.

Propellants

Deflagrating explosive used for propulsion or for reducing the drag of projectiles.

Propellants, liquid

Substances consisting of a deflagrating liquid explosive, used for propulsion.

Propellants, solid

Substances consisting of a deflagrating solid explosive, used for propulsion.

Release devices, explosive

Articles consisting of a small charge of explosive with a means of initiation designed to sever rods or links to release equipment quickly.

Rocket motors

Articles consisting of a solid, liquid or hypergolic fuel contained in a cylinder fitted with one or more nozzles. They are designed to propel a rocket or a guided missile. The term includes

- **Rocket motors**;
- **Rocket motors with hypergolic liquids**, with or without expelling charge;
- **Rocket motors, liquid fuelled**.

Rockets

Articles consisting of a rocket motor and a payload that may be an explosive warhead or other device. The term includes guided missiles and

- **Rockets, line throwing**;
- **Rockets, liquid fuelled**, with bursting charge;

- **Rockets**, with bursting charge;
- **Rockets**, with expelling charge;
- **Rockets**, with inert head.

Set piece

An assembly made from fireworks fountains or wheels and their associated fuses and igniters mounted on a frame or other means of support intended to be function at a fireworks display.

Signals

Articles containing pyrotechnic substances designed to produce signals by means of sound, flame or smoke or any combinations thereof. The term includes

- **Signal devices, hand**;
- **Signals, distress**, ship;
- **Signals, railway track, explosive**;
- **Signals, smoke**.

Sounding devices, explosive

Articles consisting of a charge of detonating explosive. They are dropped from ships and function when they reach a predetermined depth or the sea bed.

Substances, explosive, very insensitive (substances, EVI), n.o.s.

Substances that present a mass explosion hazard but are so insensitive that there is very little probability of initiation, or of transition from burning to detonation (under normal conditions of transport) and have passed Test Series 5 of the UN Recommendations on the Transportation of Dangerous Goods.

Torpedoes

Articles containing an explosive or non-explosive propulsion system and designed to be propelled through water. They may contain an inert head or a warhead. The term includes

- **Torpedoes, liquid fuelled**, with inert head;
- **Torpedoes, liquid fuelled**, with or without bursting charge;
- **Torpedoes**, with bursting charge.

Tracers for ammunition

Sealed articles containing pyrotechnic substances, designed to reveal the trajectory of a projectile.

Warheads

Articles consisting of detonating explosives. They are designed to be fitted to a rocket, guided missile or torpedo. They may contain a burster, expelling charge or bursting charge. The term includes

- **Warheads, rocket**, with burster or expelling charge;
- **Warheads, rocket**, with bursting charge;
- **Warheads, torpedo**, with bursting charge.

Wheel

An assembly including drivers containing pyrotechnic substance and provided with a means of attaching it to a support so that it can rotate. Also known as Catherine wheels or Saxon wheels.

ANNEX D (INFORMATIVE)

UN NUMBERS FOR TERMS IN THE GLOSSARY

Description or term	UN number
Air bag inflators, pyrotechnic Air bag modules, pyrotechnic Seat-belt pretensioners, pyrotechnic	0503
Ammunition, illuminating	0171, 0254, 0297
Ammunition, incendiary	0009, 0010, 0243, 0244, 0247, 0300
Ammunition, practice	0362, 0488
Ammunition, proof	0363
Ammunition, smoke	0015, 0016, 0245, 0246, 0303
Ammunition, tear-producing	0018, 0019, 0301
Ammunition, toxic	0020, 0021
Articles, EEI	0486
Articles, pyrophoric	0380
Articles, pyrotechnic, for technical purposes	0428, 0429, 0430, 0431, 0432
Black powder (Gunpowder)	0027, 0028
Bombs	0033, 0034, 0035, 0037, 0038, 0039, 0291, 0299, 0399, 0400
Boosters	0042, 0225, 0268, 0283
Bursters, explosive	0043
Cartridges, flash	0049, 0050
Cartridges for weapons	0005, 0006, 0007, 0012, 0014, 0321, 0326, 0327, 0328, 0338, 0339, 0348, 0412, 0413, 0417
Cartridges, oil well	0277, 0278
Cartridges, power device	0275, 0276, 0323, 0381
Cartridges, signal	0054, 0312, 0405
Cartridges, small arms	0012, 0339, 0417
Cases, cartridge, empty, with primer	0055, 0379
Cases, combustible, empty, without primer	0446, 0447
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