BS EN 14564:2013

BSI Standards Publication

Tanks for transport of dangerous goods — Terminology

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National foreword

This British Standard is the UK implementation of EN 14564:2013. It supersedes BS EN 14564:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AUE/18, Tanks for the transport of dangerous goods.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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English Version

Tanks for transport of dangerous goods - Terminology

Citernes pour le transport des matières dangereuses - Terminologie

Tanks für die Beförderung gefährlicher Güter - Begriffe

This European Standard was approved by CEN on 24 November 2012.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 14564:2013) has been prepared by Technical Committee CEN/TC 296 “Tanks for transport of dangerous goods”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14564:2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

EN 14564:2012 includes the following major changes with respect to EN 14564:2004:

a) The following new definitions have been added: 3.2 Adaptor, 3.4 Breathing, 3.5 Capacity, 3.6 Cold forming, 3.10 Elliptical, 3.12 Fastenings, 3.13 Flame arrester, 3.19 Pressure balanced, 3.20 Product sensor, 3.23 Run off pipe, 3.24 Self actuating adaptor, 3.25 Self closing (valve), 3.28 Venting, 4.2 Demountable, A.6 Conformity assessment, A.7 Control temperature, A.8 Critical temperature, A.12 Emergency temperature, A.14 Filling ratio, A.16 Flash point, A.18 Hermetically closed tank, A.19 Inspection body, A.33 Solid and A.41 UN – number.

b) The definition of 3.15 Inspector has been modified.

c) The following definitions have been deleted: 3.2 Attachment, 3.18 Total capacity, 3.19 Total mass, 4.1 Actuator, 4.2 Demountable, 4.3 Cross compatibility, 4.4 Effective cycle time, 4.5 Fail safe, 4.8 Fire wire system, 4.9 Gantry control system, 4.10 Gantry control system reaction time, 4.11 Interface, 4.13 Inter-operable, 4.18 Non-permissive, 4.19 Overfill prevention controller, 4.21 Overfill prevention system response time, 4.22 Permissive, 4.26 Self-checking, 4.27 Sensor and 4.28 Two-wire system.

This standard provides uniform terminology for technical terms which require definition in addition to regulatory definitions based in RID/ADR, and specific terms defined in other standards on tanks for transport of dangerous goods, prepared by CEN/TC 296.

Clause 3 defines general terms and Clause 4 defines specific terms.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard gives the terminology for all tanks and does not cover carriage in bulk for the transport of dangerous goods. This document is part of the standards on tanks for transport of dangerous goods, prepared by CEN/TC 296 in application of the RID/ADR [2, 3]:

— Annex A gives some definitions taken from RID/ADR chapter 1.2 ; and

— Annex B gives some definitions taken from RID/ADR chapter 6.7.

NOTE Annexes A and B are based on the 2013 edition of RID/ADR which are updated every two years. This includes the potential of temporary inconsistencies with these annexes.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12266-1:2012, *Industrial valves — Testing of metallic valves — Part 1: Pressure tests, test procedures and acceptance criteria — Mandatory requirements*

3 General terms

For the purposes of this document, the following terms and definitions apply.

3.1
accessory
equipment mounted to the tank which is not part of the shell or service equipment or structural equipment

3.2
adaptor
closure with a particular connection profile

3.3
baffle
any non-hermetically sealed structure other than a surge plate, intended to inhibit the movement of the shell contents

3.4
breathing
automatic and normal function to control pressure and vacuum between the inside and the outside of the shell

3.5
capacity
total inner volume of shell or shell compartment construction

Note 1 to entry: When it is impossible to fill completely the shell or shell compartment because of its shape or construction, this reduced capacity is used for the determination of the degree of filling and for the marking of the tank.

3.6
cold forming
forming at temperatures not less than 25 °C below the maximum permissible temperature for stress relieving, in accordance with the applicable material specifications

3.7
cover plate
closure of an opening of the shell which is not service equipment

3.8
design stress
stress value used for calculation

3.9
design temperature
temperature chosen for the design of each part of the tank

3.10
elliptical
section of a shape which has a side radius of curvature lower than or equal to the radius of curvature of a circular section tank of the same width

3.11
end
head
part of the shell shutting off the longitudinal section

3.12
fastenings
structural equipment used for fixing the tank on the chassis, frame or auxiliary frame

3.13
flame arrester
flame trap
device fitted to the opening of an enclosure or to the connecting pipework of a system of enclosures and whose intended function is to allow flow but prevent the transmission of flame

3.14
hydraulic pressure test
strength test carried out with liquid (generally water)

3.15
inspector
individual of an inspection body approved by the competent authority

3.16
leak proof
able to contain the fluid in accordance with Table A.5 of EN 12266-1:2012, Rate A

3.17
nominal capacity
maximum volume intended to be carried

3.18
partition
hermetically sealed dividing wall between adjacent compartments in compartmented tanks

3.19
pressure balanced
equilibrium of substance pressure on both sides of the internal stop valve

3.20
product sensor
device which detects the presence of product in liquid phase and whose output signal can be used to display whether liquid is present

3.21
protective lining or coating
lining or coating protecting the metallic tank material against corrosion or reaction with the substances to be transported

3.22
repair
correction of a defect which may have impaired the safety of the tank or where equipment that communes directly with the shells content or safety device is replaced; it does not include normal service and maintenance operations of the shell or service equipment or replacement of gaskets or service equipment to the same specification

3.23
run off pipe
pipe connecting a footvalve to the associated external stop-valve

3.24
self actuating adaptor
adaptor capable of being opened by built-in and external means

3.25
self closing (valve)
valve held in the closed position by means of stored energy (such as a spring) which opens only by application of external force and which closes when the external force is removed

3.26
surge plate
non-hermetically sealed wall in tanks or compartments of shells intended to reduce the effect of surge, mounted at right angles to the direction of travel, having an area of at least 70 % of the cross-sectional area of the shells where the surge plate is located

3.27
test
technical operation that consists of the determination of one or more characteristics of a given tank and/or service equipment, process or service according to a specified procedure

3.28
venting
function allowing passage of gas during loading and unloading

3.29
weld joint factor
stress reduction factor applied because of the welding manufacturing process

4 Specific terms

4.1
bottom loading
filling of a tank through the tank's piping system which enables substances to enter the tank compartments from the bottom

4.2
demountable
any part of service equipment which is not permanently attached (welded) or demountable with a special tool

4.3
fill hole
opening in a tank or in a manhole cover assembly to allow top filling of a tank compartment

4.4
fill hole cover
operating device on top of a tank or part of manhole cover to enable top loading and closing the fill hole

4.5
interlock
device which can be used to permit or prevent an action

4.6
load plan
plan that identifies the different substances and volumes to be loaded into each tank compartment

4.7
manhole
opening in a tank to allow internal inspection by a person passing through

4.8
manhole cover plate
plate covering the manhole which may include auxiliary equipment such as fill hole cover assembly, vapour transfer valve, sensors, etc.

4.9
neck ring
ring joined to the shell that provides the attachment for a cover plate

4.10
overfill prevention system
sensor or sensor circuits, interface plug/socket, overfill prevention controller and all connecting wiring and cables

4.11
plug and ball valve
valve in which the obturator rotates about an axis at right angle to the direction of flow and, in the open position, the flow passes through the obturator

4.12
relief pressure
pressure at which the safety valve starts to open

4.13
vapour collection manifold
piping system into which each vapour transfer valve from each compartment is connected and which connects to the vapour recovery adaptor

Annex A
(informative)

RID/ADR definitions

A.1
battery-vehicle/battery-wagon
vehicle/wagon containing elements which are linked to each other by a manifold and permanently fixed to a transport unit

The following elements are considered to be elements of a battery-vehicle/wagon: cylinders, tubes, bundles of cylinders (also known as frames), pressure drums as well as tanks destined for the carriage of gases of Class 2 with a capacity of more than 450 l.

A.2
calculation pressure
theoretical pressure at least equal to the test pressure which, according to the degree of danger exhibited by the substance being carried, may to a greater or lesser degree exceed the working pressure

It is used solely to determine the thickness of the walls of the shell, independently of any external or internal reinforcing device (See also "Discharge pressure", "Filling pressure", "Maximum working pressure (gauge pressure)" and "'Test pressure").

A.3
carriage in bulk
carriage of unpackaged solids or articles in vehicles/wagons or containers

The term does not apply to packaged goods nor to substances carried in tanks.

A.4
closure
device which closes an opening in a receptacle

A.5
competent authority
authority or authorities or any other body or bodies designated as such in each State and in each specific case in accordance with domestic law

A.6
conformity assessment
means the process of verifying the conformity of a product according to the provisions of sections 1.8.6 and 1.8.7 related to type approval, supervision of manufacture and initial inspection and testing

A.7
control temperature
means the maximum temperature at which the organic peroxide or the self-reactive substance can be safely carried

A.8
critical temperature
means the temperature above which the substance cannot exist in the liquid state

A.9
dangerous goods
substances and articles, the carriage of which is prohibited by RID/ADR, or authorized only under the conditions prescribed therein

A.10
demountable tank
tank, other than a fixed tank, a portable tank, a tank-container or an element of a battery-vehicle or a MEGC which has a capacity of more than 450 l, is not designed for the carriage of goods without breakage of load, and normally can only be handled when it is empty

A.11
discharge pressure
maximum pressure actually built up in the tank when it is being discharged under pressure (see also “Calculation pressure”, “Filling pressure”, “Maximum working pressure (gauge pressure)” and “Test pressure”)

A.12
emergency temperature
means the temperature at which emergency procedures shall be implemented in the event of loss of temperature control

A.13
filling pressure
maximum pressure actually built up in the tank when it is being filled under pressure (see also "Calculation pressure", "Discharge pressure", "Maximum working pressure (gauge pressure)" and "Test pressure")

A.14
filling ratio
means the ratio of the mass of gas to the mass of water at 15 °C that would fill completely a pressure receptacle fitted ready for use

A.15
fixed tank
tank having a capacity of more than 1 000 l which is permanently attached to a vehicle or a wagon or is an integral part of the frame of such vehicle or wagon

A.16
flash-point
means the lowest temperature of a liquid at which its vapours form a flammable mixture with air

A.17
gas
substance which:

a) at 50 °C has a vapour pressure greater than 300 kPa (3 bar); or

b) is completely gaseous at 20 °C under standard pressure of 101,3 kPa.

A.18
hermetically closed tank
means a tank intended for the carriage of liquid substances with a calculation pressure of at least 4 bar or intended for the carriage of solid substances (powdery or granular) regardless of its calculation pressure, the openings of which are hermetically closed and which:

— is not equipped with safety valves, bursting discs, other similar safety devices or vacuum valves; or

— is not equipped with safety valves, bursting discs or other similar safety devices, but is equipped with vacuum valves, in accordance with the requirements of 6.8.2.2.3: or

  — is equipped with safety valves preceded by a bursting disc according to 6.8.2.2.10 but is not equipped with vacuum valves; or

  — is equipped with safety valves preceded by a bursting disc according to 6.8.2.2.10 and vacuum valves, in accordance with the requirements of 6.8.2.2.3.

A.19
inspection body
an independent inspection and testing body approved by the competent authority

A.20
leak proofness test
test to determine the leak proofness of a tank and of the equipment and closure devices

A.21
liquid
substance which at 50 °C has a vapour pressure of not more than 300 kPa (3 bar), which is not completely gaseous at 20 °C and 101,3 kPa, and which:

a) has a melting point or initial melting point of 20 °C or less at a pressure of 101,3 kPa; or

b) is liquid according to the ASTM D 4359-90 test method; or

c) is not pasty according to the criteria applicable to the test for determining fluidity (penetrometer test) described in RID/ADR 2.3.4.

NOTE "Carriage in the liquid state", for the purpose of tank requirements, means:

— carriage of liquids according to the above definition; or

— solids handed over for carriage in the molten state.

A.22
maximum permissible gross mass
tare of the tank and the heaviest load authorized for carriage

A.23
maximum working pressure (gauge pressure)
highest of the following three pressures:

a) highest effective pressure allowed in the tank during filling (maximum filling pressure allowed);

b) highest effective pressure allowed in the tank during discharge (maximum discharge pressure allowed); and

c) effective gauge pressure to which the tank is subjected by its contents (including such extraneous gases as it may contain) at the maximum working temperature

Unless the special requirements prescribed in Chapter 4.3 provide otherwise, the numerical value of this working pressure (gauge pressure) shall not be lower than the vapour pressure (absolute pressure) of the filling substance at 50 °C.

For tanks equipped with safety valves (with or without bursting disc) other than tanks for the carriage of compressed, liquefied or dissolved gases of Class 2, the maximum working pressure (gauge pressure) shall however be equal to the prescribed opening pressure of such safety valves.

A.24
MEGC
see “Multiple-element gas container”

A.25
mild steel
steel having a minimum tensile strength between 360 N/mm^2 and 440 N/mm^2

A.26
multiple-element gas container
unit containing elements which are linked to each other by a manifold and mounted on a frame

The following elements are considered to be elements of a multiple-element gas container: cylinders, tubes, pressure drums and bundles of cylinders as well as tanks for the carriage of gases of Class 2 having a capacity of more than 450 l.

A.27
portable tank
means a multimodal tank having, when used for the carriage of gases as defined in 2.2.2.1.1, a capacity of more than 450 l in accordance with the definitions in Chapter 6.7 or the IMDG Code and indicated by a portable tank instruction (T-Code) in Column (10) of Table A of chapter 3.2

A.28
reference steel
steel with a tensile strength of 370 N/mm^2 and an elongation at fracture of 27 %

A.29
safety valve
spring-loaded device which is activated automatically by pressure to protect the tank against unacceptable excess internal pressure

A.30
service equipment
a) of the tank: means filling and emptying, venting, safety, heating and heat insulating devices and measuring instruments;

b) of the elements of a battery-vehicle or of a MEGC: means filling and emptying devices, including the manifold, safety devices and measuring instruments.

A.31
settled pressure
means the pressure of the contents of a pressure receptacle in thermal and diffusive equilibrium

A.32
shell
sheathing containing the substance (including the openings and their closures)

A.33
solid
means:

a) a substance with a melting point or initial melting point of more than 20 °C at a pressure of 101,3 kPa; or

b) a substance which is not liquid according to the ASTM D 4359-90 test method or which is pasty according to the criteria applicable to the test for determining fluidity (penetrometer test) described in 2.3.4;

c) for elements of a battery-vehicle or an MEGC: means the external or internal reinforcing, fastening, protective or stabilizing members of the shell or receptacle;

d) for IBCs other than flexible IBCs: means the reinforcing, facening, handling, protective or stabilizing members of the body (including the base pallet for composite IBCs with plastics inner receptacle).

A.34
structural equipment
a) for tanks of a tank-vehicle or tank wagon or demountable tank: external or internal reinforcing, fastening, protective or stabilizing members of the shell;

b) for tanks of a tank-container: external or internal reinforcing, fastening, protective or stabilizing members of the shell;

c) for elements of a battery-vehicle or a battery-wagon or an MEGC: external or internal, reinforcing, fastening, protective or stabilizing members of the shell or receptacle.

A.35
tank
shell, including its service and structural equipment

A.36
tank-container
article of transport equipment meeting the definition of a container, and comprising a shell and items of equipment, including the equipment to facilitate movement of the tank-container without significant change of attitude, used for the carriage of gases, liquid, powdery or granular substances and having a capacity of more than 0,45 m^3 (450 l)

A.37
tank swap body
is considered to be a tank-container

A.38
tank-vehicle
vehicle built to carry liquids, gases or powdery or granular substances and comprising one or more fixed tanks. In addition to the vehicle proper, or the units of running gear used in its stead, a tank-vehicle comprises one or more shells, their items of equipment and the fittings for attaching them to the vehicle or to the running-gear units

A.39
tank wagon
wagon intended for the carriage of liquids, gases, powdery or granular substances, comprising a superstructure, consisting of one or more shells, and an underframe fitted with its own items of equipment (running gear, suspension, buffing, traction, braking gear and inscriptions)

NOTE Tank wagon also includes wagons with demountable tank.

A.40
test pressure
required pressure applied during a pressure test for initial or periodic inspection

See also "calculation pressure", "Discharge pressure", "Filling pressure" and "Maximum working pressure (gauge pressure)".

A.41
UN- number
means the four-figure identification number of the substance or article taken from the UN Model Regulations

A.42
vacuum valve
spring-loaded device which is activated automatically by pressure to protect the tank against unacceptable negative internal pressure

A.43
vacuum-operated waste tank
tank primarily used for the carriage of dangerous wastes, with special constructional features and/or equipment to facilitate the loading and unloading of wastes as specified in RID/ADR Chapter 6.10

Annex B
(informative)

RID/ADR definitions

		6.7.2	6.7.3	6.7.4	6.7.5
B.1	alternative arrangement	an approval granted by the competent authority for a portable tank or MEGC that has been designed, constructed or tested to technical requirements or testing methods other than those specified in this Chapter:			
B.2	elements				elements are cylinders, tubes or bundles of cylinders
B.3	portable tank	a multimodal tank used for the carriage of substances of Class 1 and Classes 3 to 9. The portable tank includes a shell fitted with service equipment and structural equipment necessary for the carriage of dangerous substances	a multimodal tank having a capacity of more than 450 l used for the carriage of non-refrigerated liquefied gases of Class 2	a thermally insulated multimodal tank having a capacity of more than 450 l fitted with service equipment and structural equipment necessary for the carriage of refrigerated liquefied gases	
		The portable tank shall be capable of being filled and discharged without the removal of its structural equipment. It shall possess stabilizing members external to the shell, and shall be capable of being lifted when full. It shall be designed primarily to be loaded onto a vehicle, wagon or sea-going or inland navigation vessel and shall be equipped with skids, mountings or accessories to facilitate mechanical handling. Tank vehicles, tank-wagons, non-metallic tanks and intermediate bulk containers (IBCs) are not considered to fall within the definition for portable tanks			
B.4	shell	the part of the portable tank which retains the substance intended	the part of the portable tank which retains the non-refrigerated liquefied gas intended	the part of the portable tank which retains the refrigerated liquefied gas intended	
		for carriage, including openings and their closures, but does not include service equipment or external structural equipment			

"to be continued"

		6.7.2	6.7.3	6.7.4	6.7.5
B.5	tank			a construction which normally consists of either: a) a jacket and one or more inner shells where the space between the shell(s) and the jacket is exhausted of air (vacuum insulation) and may incorporate a thermal insulation system; or b) a jacket and an inner shell with an intermediate layer of solid thermally insulating material (e.g. solid foam)	
B.6	jacket			the outer insulation cover or cladding which may be part of the insulation system	
B.7	service equipment	service equipment means measuring instruments and filling, discharge, venting, safety, pressurizing, cooling and thermal insulation devices			
B.8	structural equipment	structural equipment means the reinforcing, fastening, protective and stabilizing members external to the shell			
B.9	maximum allowable working pressure	a pressure that shall be not less than the highest of the following pressures measured at the top of the shell while in operating position: a) the maximum effective gauge pressure allowed in the shell during filling or discharge; or b) the maximum effective gauge pressure to which the shell is designed which shall be not less than the sum of:	a pressure that shall be not less than the highest of the following pressures measured at the top of the shell while in operating position, but in no case less than 7 bar: a) the maximum effective gauge pressure allowed in the shell during filling or discharge; or b) the maximum effective gauge pressure to which the shell is designed, which shall be:	the maximum effective gauge pressure permissible at the top of the shell of a loaded portable tank in its operating position including the highest effective pressure during filling and discharge	

"to be continued"

		6.7.2	6.7.3	6.7.4	6.7.5
		i) the absolute vapour pressure (in bar) of the substance at 65 °C, minus 1 bar; and ii) the partial pressure (in bar) of air or other gases in the ullage space being determined by a maximum ullage temperature of 65 °C and a liquid expansion due to an increase in mean bulk temperature of tr-tf (tf = filling temperature, usually 15 °C; tr = maximum mean bulk temperature, 50 °C).	i) for a non-refrigerated liquefied gas listed in the portable tank instruction T50 in 4.2.5.2.6, the MAWP (in bar) given in T50 portable tank instruction for that gas; ii) for other non-refrigerated liquefied gases, not less than the sum of:		
		Design pressure means the pressure to be used in calculations required by a recognized pressure vessel code. The design pressure shall be not less than the highest of the following pressures: a) the maximum effective gauge pressure allowed in the shell during filling or discharge; or b) The sum of: i) the absolute vapour pressure (in bar) of the substance at 65 °C, minus 1 bar;	— the absolute vapour pressure (in bar) of the non-refrigerated liquefied gas at the design reference temperature minus 1 bar; and — the partial pressure (in bar) of air or other gases in the ullage space being determined by the design reference temperature and the liquid phase expansion due to an increase of the mean bulk temperature of tr-tf (tf = filling temperature, usually 15 °C, tr = maximum mean bulk temperature, 50 °C);		

"to be continued"

		6.7.2	6.7.3	6.7.4	6.7.5
		(ii) the partial pressure (in bar) of air or other gases in the ullage space being determined by a maximum ullage temperature of 65 °C and a liquid expansion due to an increase in mean bulk temperature of tr – tf (tf = filling temperature usually 15 °C; tr = maximum mean bulk temperature, 50 °C); and			
		(iii) a head pressure determined on the basis of the static forces specified in 6.7.2.2.12, but not less than 0.35 bar; or (c) Two thirds of the minimum test pressure specified in the applicable portable tank instruction in 4.2.5.2.6;			
B.10	design pressure	the pressure to be used in calculations required by a recognized pressure vessel code. The design pressure shall be not less than the highest of the following pressures: a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or b) The sum of: (i) the absolute vapour pressure (in bar) of the substance at 65 °C, minus 1 bar;	the pressure to be used in calculations required by a recognized pressure vessel code. The design pressure shall be not less than the highest of the following pressures: a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or b) The sum of: (i) the maximum effective gauge pressure to which the shell is designed as defined in (b) of the MAWP definition (see above); and		

"to be continued"

		6.7.2	6.7.3	6.7.4	6.7.5
		(ii) the partial pressure (in bar) of air or other gases in the ullage space being determined by a maximum ullage temperature of 65 °C and a liquid expansion due to an increase in mean bulk temperature of tr - tf (tf = filling temperature usually 15 °C; tr = maximum mean bulk temperature, 50 °C); and (iii) a head pressure determined on the basis of the static forces specified in 6.7.2.2.12, but not less than 0.35 bar; or c) Two thirds of the minimum test pressure specified in the applicable portable tank instruction in 4.2.5.2.6;	(ii) a head pressure determined on the basis of the static forces specified in 6.7.3.2.9, but not less than 0.35 bar;		
B.11	test pressure	the maximum gauge pressure at the top of the shell during the (hydraulic) pressure test equal to not less than 1.5 times the design pressure. The minimum test pressure for portable tanks intended for specific substances is specified in the applicable portable tank instruction in 4.2.5.2.6;			
B.12	leakproofness test	a test using gas subjecting the shell and its service equipment to an effective internal pressure			a test using gas subjecting the elements and the service equipment of the MEGC to an effective internal pressure of not less than 20 % of the test pressure
		of not less than 25 % of the MAWP		not less than 90 % of the MAWP	
B.13	manifold				an assembly of piping and valves connecting the filling and/or discharge openings of the elements;

"to be continued"

		6.7.2	6.7.3	6.7.4	6.7.5
B.14	maximum permissible gross mass	maximum permissible gross mass (MPGM) means the sum of the tare mass of the portable tank and the heaviest load authorized for carriage			the sum of the tare mass of the MEGC and the heaviest load authorized for carriage;
B.15	holding time			the time that will elapse from the establishment of the initial filling condition until the pressure has risen due to heat influx to the lowest set pressure of the pressure limiting device(s)	
B.16	UN Multiple-element gas containers				UN Multiple-element gas containers (MEGCs) are multimodal assemblies of cylinders, tubes and bundles of cylinders which are interconnected by a manifold and which are assembled within a framework. The MEGC includes service equipment and structural equipment necessary for the carriage of gases;
B.17	reference steel	a steel with a tensile strength of 370 N/mm^2 and an elongation at fracture of 27 %			
B.18	mild steel	a steel with a guaranteed minimum tensile strength of 360 N/mm^2 to 440 N/mm^2 and a guaranteed minimum elongation at fracture conforming to 6.7.2.3.3.3			

"to be continued"

		6.7.2	6.7.3	6.7.4	6.7.5
B.19	design temperature range	design temperature range for the shell shall be – 40 °C to 50 °C for substances carried under ambient conditions. For the other substances handled under elevated temperature conditions, the design temperature shall be not less than the maximum temperature of the substance during filling, discharge or carriage. More severe design temperatures shall be considered for portable tanks subjected to severe climatic conditions	design temperature range for the shell shall be – 40 °C to 50 °C for non-refrigerated liquefied gases carried under ambient conditions. More severe design temperatures shall be considered for portable tanks subjected to severe climatic conditions		
B.20	design reference temperature			minimum design temperature means the temperature which is used for the design and construction of the shell not higher than the lowest (coldest) temperature (service temperature) of the contents during normal conditions of filling, discharge and carriage	
B.21	filling density		the average mass of non-refrigerated liquefied gas per litre of shell capacity (kg/l). The filling density is given in portable tank instruction T50 in 4.2.5.2.6		
B.22	fine grain steel	steel which has a ferritic grain size of 6 or finer when determined in accordance with ASTM E 112-96 or as defined in EN 10028-3, Part 3			
B.23	fusible element	a non-reclosable pressure relief device that is thermally actuated			
B.24	offshore portable tank	a portable tank specially designed for repeated use for carriage to, from and between offshore facilities. An offshore portable tank is designed and constructed in accordance with the guidelines for the approval of containers handled in open seas specified by the International Maritime Organization in document MSC/Circ.860			

Annex C
(informative)

Alphabetical index for English terms

Numbering	English terms	French terms	German terms
3.1	Accessory	Accessoire	Zubehörteil
3.2	Adaptor	Adaptateur	Adapter
3.3	Baffle	Cloison non étanche	Schwallblech
A.1	Battery-vehicle/battery-wagon	Véhicule-batterie/wagon-batterie	Batterie-Fahrzeug/Batteriewagen
4.1	Bottom loading	Chargement par le bas (chargement en source)	Untenbefüllung
3.4	Breathing	Respiration	Über- und Unterdruckbelüftung
A.2	Calculation pressure	Pression de calcul	Berechnungsdruck
3.5	Capacity	Capacité	Fassugsraum
A.3	Carriage in bulk	Transport en vrac	Beförderung in loser Schüttung
A.4	Closure	Fermeture	Verschluss
3.6	Cold forming	Formage à froid	Kaltumformung
A.5	Competent authority	Autorité compétente	Zuständige Behörde
A.6	Conformity assessment	Evaluation de conformité	Konformitätsbewertung
A.7	Control Temperature	Température de contrôle	Kontrolltemperatur
3.7	Cover plate	Couvercle	Deckel
A.8	Critical temperature	Température critique	kritische Temperatur
A.9	Dangerous goods	Marchandises dangereuses	Gefahrgut, gefährliche Güter
4.2	Demountable	Démontable	Abnehmbar
A.10	Demountable tank	Citerne démontable	Aufsetztank
3.8	Design stress	Contrainte de calcul	Auslegungsspannung
3.9	Design temperature	Température de calcul	Auslegungstemperatur
A.11	Discharge pressure	Pression de vidange	Entleerungsdruck
3.10	Elliptical	Elliptique	Elliptisch
A.12	Emergency temperature	Température critique	Notfall-Temperatur
3.11	End (head)	Fond	Boden
3.12	Fastenings	Fixations	Befestigungseinrichtungen
4.3	Fill hole	Orifice de remplissage	Fülllloch
4.4	Fill hole cover	Couvercle d'orifice de remplissage	Fülllochdeckel
A.13	Filling pressure	Pression de remplissage	Fülldruck
A.14	Filling ratio	Taux de remplissage	Füllungsgrad
A.15	Fixed tank	Citerne fixe	festverbundener Tank

"to be continued"

Numbering	English terms	French terms	German terms
3.13	Flame-arrester	Arrête-flamme	Flammendurchschlagsicherung
A.16	Flash-point	Point critique	Flammpunkt
A.17	Gas	Gaz	Gas
A.18	Hermetically closed tank	Citerne hermétique	luftdicht verschlossener Tank
3.14	Hydraulic pressure test	Epreuve de pression hydraulique	Hydraulische Druckprüfung
3.15	Inspector	Inspecteur	Inspektor
A.19	Inspection body	Inspecteur	Inspektionsstelle
4.5	Interlock	Dispositif pour synchronisation d'action	Verriegelung
3.16	Leak proof	Etanche	Dicht
A.20	Leakproofness test	Epreuve d'étanchéité	Dichtheitsprüfung
A.21	Liquid	Liquide	Flüssiger Stoff
4.6	Load plan	Plan de chargement	Ladeplan
4.7	Manhole	Trou d'homme	Einsteigeöffnung
4.8	Manhole cover plate	Couvercle de trou d'homme	Deckel für die Einsteigeöffnung
A.22	Maximum permissible gross mass	Masse brute maximale admissible	Höchstzulässige Bruttomasse
A.23	Maximum working pressure (gauge pressure)	Pression maximale de service (pression manométrique)	Höchster Betriebsdruck (Überdruck)
A.24	MEGC	CGEM	MEGC
A.25	Mild steel	Acier doux	Baustahl
A.26	Multiple-element gas container	Conteneur à gaz à éléments multiples	Gascontainer mit mehreren Elementen
4.9	Neck ring	Virole de trou d'homme (virolette)	Kragenring
3.17	Nominal capacity	Capacité nominale	Nenn-Fassungsraum
4.10	Overfill prevention system	Système de contrôle de sur remplissage	Überfüllsicherungssystem
3.18	Partition	Cloison étanche	Trennwand
4.11	Plug and ball valve	Vanne à boisseau	Hahn
A.27	Portable tank	Citerne mobile	ortsbeweglicher Tank
3.19	Pressure balanced	Pression compressée	druckausgeglichen
3.20	Product sensor	Capteur de produit	Flüssigkeitssensor
3.21	Protective lining or coating	Revêtement protecteur	Schutzauskleidung oder -beschichtung
A.28	Reference steel	Acier de référence	Bezugsstahl
4.12	Relief pressure	Pression d'ouverture	Ansprechdruck
3.22	Repair	Réparation	Reparatur
3.23	Run off pipe	Tube à égoutture	Auslaufrohr
A.29	Safety valve	Soupape de sécurité	Sicherheitsventil

"to be continued"

Numbering	English terms	French terms	German terms
3.24	Self actuating adaptor	Adaptateur à ouverture commandée	selbsttätiger Adapter
3.25	Self closing	Fermeture automatique	selbstschließend(es Ventil)
A.30	Service equipment	Equipement de service	Bedienungsausrüstung
A.31	Settled pressure	Pression de consigne	entwickelter Druck
A.32	Shell	Réservoir	Tankkörper
A.33	Solid	Solide	fester Stoff
A.34	Structural equipment	Equipement de structure	Bauliche Ausrüstung
3.26	Surge plate	Brise-flots	Schwallwand
A.35	Tank	Citerne	Tank
A.36	Tank -container	Conteneur-citerne	Tankcontainer
A.37	Tank swap body	Caisse mobile citerne	Tankwechselbehälter
A.38	Tank -vehicle	Véhicule-citerne	Tankfahrzeug
A.39	Tank wagon	Wagon-citerne	Kesselwagen
3.27	Test	Epreuve	Prüfung
A.40	Test pressure	Pression d’épreuve	Prüfdruck
A.41	UN- number	Numéro O.N.U	UN-Nummer
A.42	Vacuum valve	Soupape de dépression	Unterdruckventil
A.43	Vacuum-operated waste tank	Citerne à déchets opérant sous vide	Saug-Druck-Tank für Abfälle
4.13	Vapour collection manifold	Collecteur de vapeurs	Gassammelleitung
3.28	Venting	Dispositif d’aération (event)	Lüftungseinrichtung
3.29	Weld joint factor	Coefficient de soudure	Schweißnahtfaktor

Annex D
(informative)

Alphabetical index for French terms

Numbering	French terms	English terms	German terms
3.1	Accessoire	Accessory	Zubehörteil
A.28	Acier de référence	Reference steel	Bezugsstahl
A.25	Acier doux	Mild steel	Baustahl
3.2	Adaptateur	Adaptor	Adapter
3.24	Adaptateur à ouverture commandée	Self actuating adaptor	Selbsttätiger Adapter
3.13	Arrête-flamme	Flame-arrester	Flammendurchschlagsicherung
A.5	Autorité compétente	Competent authority	Zuständige Behörde
3.26	Brise-flots	Surge plate	Schwallwand
A.37	Caisse mobile citerne	Tank swap body	Tankwechselbehälter
3.5	Capacité	Capacity	Fassugsraum
3.17	Capacité nominale	Nominal capacity	Nenn-Fassungsraum
3.20	Capteur de produit	Product sensor	Flüssigkeitssensor
A.24	CGEM	MEGC	MEGC
4.1	Chargement par le bas (chargement en source)	Bottom loading	Untenbefüllung
A.35	Citerne	Tank	Tank
A.43	Citerne à déchets opérant sous vide	Vacuum-operated waste tank	Saug-Druck-Tank für Abfälle
A.10	Citerne démontable	Demountable tank	Aufsetztank
A.15	Citerne fixe	Fixed tank	festverbundener Tank
A.18	Citerne hermétique	Hermetically closed tank	luftdicht verschlossener Tank
A.27	Citerne mobile	Portable tank	ortsbeweglicher Tank
3.18	Cloison étanche	Partition	Trennwand
3.3	Cloison non étanche	Baffle	Schwallblech
3.29	Coefficient de soudure	Weld joint factor	Schweißnahtfaktor
4.13	Collecteur de vapeurs	Vapour collection manifold	Gassammelleitung
A.26	Conteneur à gaz à éléments multiples	Multiple-element gas container	Gascontainer mit mehreren Elementen
A.36	Conteneur-citerne	Tank -container	Tankcontainer
3.8	Contrainte de calcul	Design stress	Auslegungsspannung
3.7	Couvercle	Cover plate	Deckel

"to be continued"

Numbering	French terms	English terms	German terms
4.4	Couvercle d'orifice de remplissage	Fill hole cover	Fülllochdeckel
4.8	Couvercle de trou d'homme	Manhole cover plate	Deckel für die Einsteigeöffnung
4.2	Démontable	Demountable	Abnehmbar
3.28	Dispositif d'aération (event)	Venting	Lüftungseinrichtung
4.5	Dispositif pour synchronisation d'action	Interlock	Verriegelung
3.10	Elliptique	Elliptical	Elliptisch
3.27	Epreuve	Test	Prüfung
A.20	Epreuve d'étanchéité	Leakproofness test	Dichtheitsprüfung
3.14	Epreuve de pression hydraulique	Hydraulic pressure test	Hydraulische Druckprüfung
A.30	Equipement de service	Service equipment	Bedienungsausrüstung
A.34	Equipement de structure	Structural equipment	Bauliche Ausrüstung
3.16	Etanche	Leak proof	Dicht
A.6	Evaluation de conformité	Conformity assessment	Konformitätsbewertung
A.4	Fermeture	Closure	Verschluss
3.25	Fermeture automatique	Self closing	selbstschließend(es Ventil)
3.11	Fond	End (head)	Boden
3.6	Formage à froid	Cold forming	Kaltumformung
3.12	Fixations	Fastenings	Befestigungseinrichtungen
A.17	Gaz	Gas	Gas
3.15	Inspecteur	Inspector	Inspektor
A.19	Inspecteur	Inspector body	Inspektionsstelle
A.21	Liquide	Liquid	Flüssiger Stoff
A.9	Marchandises dangereuses	Dangerous goods	Gefahrgut, gefährliche Güter
A.22	Masse brute maximale admissible	Maximum permissible gross mass	Höchstzulässige Bruttomasse
A.41	Numéro O.N.U	UN- number	UN-Nummer
4.3	Orifice de remplissage	Fill hole	Fülloch
4.6	Plan de chargement	Load plan	Ladeplan
A.16	Point critique	Flash-point	Flammpunkt
3.19	Pression compressée	Pressure balanced	druckausgeglichen
A.2	Pression de calcul	Calculation pressure	Berechnungsdruck
A.31	Pression de consigne	Settled pressure	entwickelter Druck
A.40	Pression d'épreuve	Test pressure	Prüfdruck
4.12	Pression d'ouverture	Relief pressure	Ansprechdruck
A.23	Pression maximale de service (pression manométrique)	Maximum working pressure (gauge pressure)	Höchster Betriebsdruck (Überdruck)
A.13	Pression de remplissage	Filling pressure	Fülldruck

"to be continued"

Numbering	French terms	English terms	German terms
A.11	Pression de vidange	Discharge pressure	Entleerungsdruck
3.22	Réparation	Repair	Reparatur
A.32	Réservoir	Shell	Tankkörper
3.4	Respiration	Breathing	Über- und Unterdruckbelüftung
3.21	Revêtement protecteur	Protective lining or coating	Schutzauskleidung oder -beschichtung
A.33	Solide	Solid	fester Stoff
A.29	Soupape de sécurité	Safety valve	Sicherheitsventil
A.42	Soupape de dépression	Vacuum valve	Unterdruckventil
4.10	Système de contrôle de sur remplissage	Overfill prevention system	Überfüllsicherungssystem
A.12	Température critique	Emergency temperature	Notfall-Temperatur
A.14	Taux de remplissage	Filling ratio	Füllungsgrad
A.3	Transport en vrac	Carriage in bulk	Beförderung in loser Schüttung
A.8	Température critique	Critical temperature	kritische Temperatur
3.9	Température de calcul	Design temperature	Auslegungstemperatur
A.7	Température de contrôle	Control Temperature	Kontrolltemperatur
4.7	Trou d'homme	Manhole	Einsteigeöffnung
3.23	Tube à égoutture	Run off pipe	Auslaufrohr
4.11	Vanne à boisseau	Plug and ball valve	Hahn
A.1	Véhicule-batterie/wagon-batterie	Battery-vehicle/battery-wagon	Batterie-Fahrzeug/Batteriewagen
A.38	Véhicule-citerne	Tank -vehicle	Tankfahrzeug
4.9	Virole de trou d'homme (virolette)	Neck ring	Kragenring
A.39	Wagon-citerne	Tank wagon	Kesselwagen

Annex E
(informative)

Alphabetical index for German terms

Numbering	German terms	English terms	French terms
4.2	abnehmbar	Demountable	Démontable
3.2	Adapter	Adaptor	Adaptateur
4.12	Ansprechdruck	Relief pressure	Pression d'ouverture
A.10	Aufsetztank	Demountable tank	Citerne démontable
3.23	Auslaufrohr	Run off pipe	Tube à égoutture
3.8	Auslegungsspannung	Design stress	Contrainte de calcul
3.9	Auslegungstemperatur	Design temperature	Température de calcul
A.1	Batterie-Fahrzeug/Batteriewagen	Battery-vehicle/battery-wagon	Véhicule-batterie/wagon-batterie
A.34	Bauliche Ausrüstung	Structural equipment	Equipement de structure
A.25	Baustahl	Mild steel	Acier doux
A.30	Bedienungsausrüstung	Service equipment	Equipement de service
3.12	Befestigungseinrichtungen	Fastenings	Fixations
A.3	Beförderung in loser Schüttung	Carriage in bulk	Transport en vrac
A.2	Berechnungsdruck	Calculation pressure	Pression de calcul
A.28	Bezugsstahl	Reference steel	Acier de référence
3.11	Boden	End (head)	Fond
3.7	Deckel	Cover plate	Couvercle
4.8	Deckel für die Einsteigeöffnung	Manhole cover plate	Couvercle de trou d'homme
3.16	Dicht	Leak proof	Etanche
A.20	Dichtheitsprüfung	Leakproofness test	Epreuve d'étanchéité
3.19	druckausgeglichen	Pressure balanced	Pression compressée
3.10	Elliptisch	Elliptical	Elliptique
A.31	entwickelter Druck	Settled pressure	Pression de consigne
4.7	Einsteigeöffnung	Manhole	Trou d'homme
A.11	Entleerungsdruck	Discharge pressure	Pression de vidange
3.5	Fassungsraum	Capacity	Capacité
A.33	fester Stoff	Solid	Solide
A.15	festverbundener Tank	Fixed tank	Citerne fixe
3.13	Flammendurchschlagsicherung	Flame-arrester	Arrête-flamme
A.21	Flüssiger Stoff	Liquid	Liquide
A.16	Flammpunkt	Flash-point	Point critique

"to be continued"

Numbering	German terms	English terms	French terms
3.20	Flüssigkeitssensor	Product sensor	Capteur de produit
A.13	Fülldruck	Filling pressure	Pression de remplissage
4.3	Füllloch	Fill hole	Orifice de remplissage
4.4	Fülllochdeckel	Fill hole cover	Couvercle d'orifice de remplissage
A.14	Füllungsgrad	Filling ratio	Taux de remplissage
A.17	Gas	Gas	Gaz
4.13	Gassammelleitung	Vapour collection manifold	Collecteur de vapeurs
A.26	Gascontainer mit mehreren Elementen	Multiple-element gas container	Conteneur à gaz à éléments multiples
A.9	Gefahrgut, gefährliche Güter	Dangerous goods	Marchandises dangereuses
4.11	Hahn	Plug and ball valve	Vanne à boisseau
A.23	Höchster Betriebsdruck (Überdruck)	Maximum working pressure (gauge pressure)	Pression maximale de service (pression manométrique)
A.22	Höchstzulässige Bruttomasse	Maximum permissible gross mass	Masse brute maximale admissible
3.14	Hydraulische Druckprüfung	Hydraulic pressure test	Epreuve de pression hydraulique
3.15	Inspektor	Inspector	Inspecteur
A.19	Inspektionsstelle	Inspector body	Inspecteur
3.6	Kaltumformung	Cold forming	Formage à froid
A.39	Kesselwagen	Tank wagon	Wagon-citerne
A.6	Konformitätsbewertung	Conformity assessment	Evaluation de conformité
A.7	Kontrolltemperatur	Control Temperature	Température de contrôle
4.9	Kragenring	Neck ring	Virole de trou d'homme (virolette)
A.8	kritische Temperatur	Critical temperature	Température critique
4.6	Ladeplan	Load plan	Plan de chargement
A.18	luftdicht verschlossener Tank	Hermetically closed tank	Citerne hermétique
3.28	Lüftungseinrichtung	Venting	Dispositif d'aération (event)
A.24	MEGC	MEGC	CGEM
3.17	Nenn-Fassungsraum	Nominal capacity	Capacité nominale
A.12	Notfall- Temperatur	Emergency temperature	Température critique
A.27	ortsbeweglicher Tank	Portable tank	Citerne mobile
A.40	Prüfdruck	Test pressure	Pression d'épreuve
3.27	Prüfung	Test	Epreuve
3.22	Reparatur	Repair	Réparation
A.43	Saug-Druck-Tank für Abfälle	Vacuum-operated waste tank	Citerne à déchets opérant sous vide

"to be continued"

Numbering	German terms	English terms	French terms
3.24	Selbsttätiger Adapter	Self actuating adaptor	Adaptateur à ouverture commandée
3.21	Schutzauskleidung oder -beschichtung	Protective lining or coating	Revêtement protecteur
3.3	Schwallblech	Baffle	Cloison non étanche
3.26	Schwallwand	Surge plate	Brise-flots
3.29	Schweißnahtfaktor	Weld joint factor	Coefficient de soudure
3.25	selbstschließend(es Ventil)	Self closing	Fermeture automatique
A.29	Sicherheitsventil	Safety valve	Soupape de sécurité
A.35	Tank	Tank	Citerne
A.36	Tankcontainer	Tank -container	Conteneur-citerne
A.38	Tankfahrzeug	Tank -vehicle	Véhicule-citerne
A.32	Tankkörper	Shell	Réservoir
A.37	Tankwechselbehälter	Tank swap body	Caisse mobile citerne
3.18	Trennwand	Partition	Cloison étanche
4.10	Überfüllsicherungssystem	Overfill prevention system	Système de contrôle de sur remplissage
3.4	Über- und Unterdruckbelüftung	Breathing	Respiration
A.41	UN-Nummer	UN- number	Numéro O.N.U
4.1	Untenbefüllung	Bottom loading	Chargement par le bas (chargement en source)
A.42	Unterdruckventil	Vacuum valve	Soupape de dépression
4.5	Verriegelung	Interlock	Dispositif pour synchronisation d'action
A.4	Verschluss	Closure	Fermeture
3.1	Zubehörteil	Accessory	Accessoire
A.5	Zuständige Behörde	Competent authority	Autorité compétente

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