

ANNEX 4

RESOLUTION MSC.28(61)
adopted on 11 December 1992

ADOPTION OF AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND
EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK (IBC CODE)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution MSC.4(48), by which the Committee adopted the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code),

RECALLING FURTHER Article VIII(b) and regulation VII/8.1 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, concerning the procedure for amending the IBC Code,

BEING DESIROUS of keeping the IBC Code up to date,

HAVING CONSIDERED, at its sixty-first session, amendments to the Code proposed and circulated in accordance with article VIII(b)(i) of the SOLAS Convention,

CONSIDERING that it is highly desirable for the provisions of the IBC Code, which are mandatory under both the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (MARPOL 73/78) and the 1974 SOLAS Convention, to remain identical,

1. ADOPTS, in accordance with article VIII(b)(iv) of the SOLAS Convention, amendments to the Code, the text of which is set out in the annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 January 1994 unless, prior to that date, more than one third of the Contracting Governments to the SOLAS Convention or Contracting Governments the combined merchant fleets of which constitute not less than fifty per cent of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the SOLAS Convention, the amendments shall enter into force on 1 July 1994 upon their acceptance in accordance with paragraph 2 above;

4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the SOLAS Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the SOLAS Convention;

5. FURTHER REQUESTS the Secretary-General to transmit copies of the resolution and its Annex to Members of the Organization, which are not Contracting Governments to the SOLAS Convention.

ANNEX

AMENDMENTS TO THE IBC CODE

The last sentence of 1.1.1 is replaced by the following:

Products that have been reviewed and determined not to present safety and pollution hazards to such an extent as to warrant the application of the Code are found in chapter 18.

The following sentence is added to the existing text of 1.1.3:

For the evaluation of the pollution hazard of such a product and assignment of its pollution category, the procedure specified in regulation 3(4) of Annex II of MARPOL 73/78 must be followed.

The existing text of chapter 8 is replaced by the following:

CHAPTER 8 - CARGO TANK VENTING AND GAS-FREEING ARRANGEMENTS

8.1 Application

8.1.1 This chapter applies to ships constructed on or after 1 January 1994.

8.1.2 Ships constructed before 1 January 1994 should comply with the requirements of chapter 8 of this Code which were in force prior to the said date.

8.1.3 For the purpose of this regulation, the term "ship constructed" is as defined in regulation II-1/1.3.1 of the 1974 SOLAS Convention as amended.

8.1.4 Ships constructed on or after 1 July 1986 but before 1 January 1994 which fully comply with the requirements of the Code applicable at that time may be regarded as complying with the requirements of regulation II-2/59 of SOLAS 74.

8.1.5 For ships to which the Code applies, the requirements of this chapter should apply in lieu of regulation II-2/59.1 and 59.2 of the 1974 SOLAS Convention, as amended.

8.2 Cargo tank venting

8.2.1 All cargo tanks should be provided with a venting system appropriate to the cargo being carried and these systems should be independent of the air pipes and venting systems of all other compartments of the ship. Tank venting systems should be designed so as to minimize the possibility of cargo vapour accumulating about the decks, entering accommodation, service and machinery spaces and control stations and in the case of flammable vapours entering or collecting in spaces or areas containing sources of ignition. Tank venting systems should be arranged to prevent entrance of water into the cargo tanks and at the same time, vent outlets should direct the vapour discharge upwards in the form of unimpeded jets.

8.2.2 The venting systems should be connected to the top of each cargo tank and as far as practicable the cargo vent lines should be self-draining back to the cargo tanks under all normal operational conditions of list and trim. Where it is necessary to drain venting systems above the level of any pressure/vacuum valve, capped or plugged drain cocks should be provided.

8.2.3 Provision should be made to ensure that the liquid head in any tank does not exceed the design head of the tank. Suitable high-level alarms, overflow control systems or spill valves, together with gauging and tank filling procedures may be accepted for this purpose. Where the means of limiting cargo tank overpressure includes an automatic closing valve, the valve should comply with the appropriate provisions of 15.19.

8.2.4 Tank venting systems should be designed and operated so as to ensure that neither pressure nor vacuum created in the cargo tanks during loading or unloading exceeds tank design parameters. The main factors to be considered in the sizing of a tank venting system are as follows:

- .1 design loading and unloading rate;
- .2 gas evolution during loading: this should be taken account of by multiplying the maximum loading rate by a factor of at least 1.25;
- .3 density of the cargo vapour mixture;
- .4 pressure loss in vent piping and across valves and fittings;
- .5 pressure/vacuum settings of relief devices.

8.2.5 Tank vent piping connected to cargo tanks of corrosion resistant material, or to tanks which are lined or coated to handle special cargoes as required by the Code, should be similarly lined or coated or constructed of corrosion resistant material.

8.2.6 The master should be provided with the maximum permissible loading and unloading rates for each tank or group of tanks consistent with design of the venting systems.

8.3 Types of tank venting systems

8.3.1 An open tank venting system is a system which offers no restriction except for friction losses to the free flow of cargo vapours to and from the cargo tanks during normal operations. An open venting system may consist of individual vents from each tank, or such individual vents may be combined into a common header or headers, with due regard to cargo segregation. In no case should shut-off valves be fitted either to the individual vents or to the header.

8.3.2 A controlled tank venting system is a system in which pressure and vacuum relief valves or pressure/vacuum valves are fitted to each tank to limit the pressure or vacuum in the tank. A controlled venting system may consist of individual vents from each tank or such individual vents on the pressure side only as may be combined into a common header or headers with due regard to cargo segregation. In no case should shut-off valves be fitted

either above or below pressure or vacuum relief valves or pressure/vacuum valves. Provision may be made for bypassing a pressure or vacuum valve or pressure/vacuum valve under certain operating conditions provided that the requirement of 8.3.5 is maintained and that there is suitable indication to show whether or not the valve is bypassed.

8.3.3 The position of vent outlets of a controlled tank venting system should be arranged:

- .1 at a height of not less than 6 m above the weather deck or above a raised walkway if fitted within 4 m of the raised walkway;
- .2 at a distance of at least 10 m measured horizontally from the nearest air intake or opening to accommodation, service and machinery spaces and ignition sources.

8.3.4 The vent outlet height referred to in 8.3.3.1 may be reduced to 3 m above the deck or a raised walkway, as applicable, provided that high velocity venting valves of a type approved by the Administration directing the vapour/air mixture upwards in an unimpeded jet with an exit velocity of at least 30 m/s are fitted.

8.3.5 Controlled tank venting systems fitted to tanks to be used for cargoes having a flashpoint not exceeding 60°C (closed cup test) should be provided with devices to prevent the passage of flame into the cargo tanks. The design, testing and locating of the devices should comply with the requirements of the Administration which should contain at least the standards adopted by the Organization.*

8.3.6 In designing venting systems and in the selection of devices to prevent the passage of flame for incorporation into the tank venting system, due attention should be paid to the possibility of the blockage of these systems and fittings by, for example, the freezing of cargo vapour, polymer build up, atmospheric dust or icing up in adverse weather conditions. In this context it should be noted that flame arresters and flame screens are more susceptible to blockage. Provisions should be made such that the system and fittings may be inspected, operationally checked, cleaned or renewed as applicable.

8.3.7 Reference in 8.3.1 and 8.3.2 to the use of shut-off valves in the venting lines should be interpreted to extend to all other means of stoppage including spectacle blanks and blank flanges.

8.4 Venting requirements for individual products

Venting requirements for individual products are shown in column "g" and additional requirements in column "o" in the table of chapter 17.

* Reference is made to the Revised Standards for the Design, Testing and Locating of Devices to Prevent the Passage of Flame into Cargo Tanks in Tankers (MSC/Circ.373/Rev.1).

8.5 Cargo tank gas-freeing*

8.5.1 The arrangements for gas-freeing cargo tanks used for cargoes other than those for which open venting is permitted should be such as to minimize the hazards due to the dispersal of flammable or toxic vapours in the atmosphere and to flammable or toxic vapour mixtures in a cargo tank. Accordingly, gas-freeing operations should be carried out such that vapour is initially discharged:

- .1 through the vent outlets specified in 8.3.3 and 8.3.4; or
- .2 through outlets at least 2 m above the cargo tank deck level with a vertical efflux velocity of at least 30 m/s maintained during the gas freeing operation; or
- .3 through outlets at least 2 m above the cargo tank deck level with a vertical efflux velocity of at least 20 m/s which are protected by suitable devices to prevent the passage of flame.

When the flammable vapour concentration at the outlets has been reduced to 30% of the lower flammable limit and in the case of a toxic product the vapour concentration does not present a significant health hazard, gas freeing may thereafter be continued at cargo tank deck level.

8.5.2 The outlets referred to in 8.5.1.2 and 8.5.1.3 may be fixed or portable pipes.

8.5.3 In designing a gas-freeing system in conformity with 8.5.1 particularly in order to achieve the required exit velocities of 8.5.1.2 and 8.5.1.3, due consideration should be given to the following:

- .1 materials of construction of system;
- .2 time to gas-free;
- .3 flow characteristics of fans to be used;
- .4 the pressure losses created by ducting, piping, cargo tank inlets and outlets;

* Reference is made to the Revised Factors to be taken into Consideration when Designing Cargo Tanks Venting and Gas-Freeing Arrangements (MSC/Circ.450/Rev.1) and to the Revised Standards for the Design, Testing and Locating of Devices to Prevent the Passage of Flame into Cargo Tanks in Tankers (MSC/Circ.373/Rev.1).

- .5 the pressure achievable in the fan driving medium (e.g. water or compressed air);
- .6 the densities of the cargo vapour/air mixtures for the range of cargoes to be carried.

In the existing text of 11.1.2 the words "Caustic potash solution, phosphoric acid or sodium hydroxide solution" are replaced by the following words:

"products which are non-flammable (entry NF in column 'i' of the table of minimum requirements)".

New paragraph 11.1.3 is added as follows:

For ships engaged solely in the carriage of products with flashpoint above 60°C (entry "yes" in column 'i' of the table of minimum requirements) requirements of chapter II-2 of the 1983 SOLAS amendments may apply as specified in regulation II-2/55.4 in lieu of the provisions of this chapter.

At the end of the existing text of the introductory paragraph of chapter 12 - Mechanical ventilation in the cargo area the following sentence is added:

However, for products addressed under paragraphs 11.1.2 and 11.1.3, except acids and products for which paragraph 15.17 apply, regulation II-2/59.3 of the 1983 SOLAS Amendments may apply in lieu of the provisions of this chapter.

The existing text of 14.2.8.1 is replaced by the following:

filter type respiratory protection is unacceptable;

The existing text of 15.13 is amended to read as follows:

15.13 Cargoes protected by additives

15.13.1 Certain cargoes with a reference in column 'o' in the table of chapter 17 by the nature of their chemical make-up tend, under certain conditions of temperature, exposure to air or contact with a catalyst, to undergo polymerization, decomposition, oxidation or other chemical changes. Mitigation of this tendency is carried out by introducing small amounts of chemical additives into the liquid cargo or by controlling the cargo tank environment.

15.13.2 No change.

15.13.3 Care should be taken to ensure that these cargoes are sufficiently protected to prevent deleterious chemical change at all times during the voyage. Ships carrying such cargoes should be provided with a certificate of protection from the manufacturer and kept during the voyage specifying:

- .1 the name and amount of additive present;
- .2 whether the additive is oxygen dependent;

- .3 date additive was put in the product and duration of effectiveness;
- .4 any temperature limitations qualifying the additives' effective lifetime; and
- .5 the action to be taken should the length of voyage exceed the effective lifetime of the additives.

15.13.4 Ships using the exclusion of air as the method of preventing oxidation of the cargo should comply with 9.1.3.

15.13.5 A product containing an oxygen dependent additive should be carried without inertion (in tanks of a size not greater than 3,000 m³). Such cargoes should not be carried in a tank requiring inertion under the requirements of SOLAS chapter II-2.

15.13.6 As existing 15.13.5.

15.13.7 As existing 15.13.6.

The existing text of 15.15 is replaced by the word:

"Deleted"

In the existing text of 15.8.29 the following words are inserted after the second sentence:

Remote manual operation should be arranged such that remote starting of pumps supplying the water spray system and remote operation of any normally closed valves in the system can be carried out from a suitable location outside the cargo area, adjacent to the accomodation spaces and readily accessible and operable in the even of fire in the areas protected.

A new 15.21 is added as follows:

15.21 Temperature sensors

Temperature sensors should be used to monitor the cargo pump temperature to detect overheating due to pump failures.

The existing text of chapter 17 is replaced by the following:

CHAPTER 17 - SUMMARY OF MINIMUM REQUIREMENTS

Mixtures of noxious liquid substances presenting pollution hazards only and which are provisionally assessed under regulation 3(4) of Annex II of MARPOL 73/78, may be carried under the requirements of the Code applicable to the appropriate position of the entry in this chapter for noxious liquids not otherwise specified.

EXPLANATORY NOTES

Product name (column a)	The product names are not identical with the names given in previous issues of the Code, or the BCH Code (for explanation see index of chemicals).
UN number (column b)	The number relating to each product shown in the recommendations proposed by the United Nations Committee of Experts on the Transport of Dangerous Goods. UN numbers, where available, are given for information only.
Pollution category (column c)	<p>The letter A, B, C or D means the pollution category assigned to each product under Annex II of MARPOL 73/78. "III" means the product was evaluated and found to fall outside the categories A, B, C or D.</p> <p>Pollution category in brackets indicates that the product is provisionally categorized and that further data are necessary to complete the evaluation of their pollution hazards. Until the hazard evaluation is completed, the pollution category assigned is used.</p>
Hazards (column d)	<p>S means that the product is included in the Code because of its safety hazards; P means that the product is included in the Code because of its pollution hazards; and S/P means that the product is included in the Code because of both its safety and pollution hazards.</p>
Ship type (column e)	<p>1 = ship type 1 (2.1.2) 2 = ship type 2 (2.1.2) 3 = ship type 3 (2.1.2)</p>
Tank type (column f)	<p>1 = independent tank (4.1.1) 2 = integral tank (4.1.2) G = gravity tank (4.1.3) P = pressure tank (4.1.4)</p>
Tank vents (column g)	<p>Open: open venting Cont: controlled venting SR: safety relief valve</p>
Tank environmental control* (column h)	<p>Inert: inerting (9.1.2.1) Pad: liquid or gas (9.1.2.2) Dry: drying (9.1.2.3) Vent: natural or forced (9.1.2.4)</p>

Electrical equipment (column i)	T1 to T6: temperature classes** IIA, IIB or IIC: apparatus groups** NF: nonflammable product (10.1.6) Yes: flashpoint exceeding 60°C (closed cup test) (10.1.6) No: flashpoint not exceeding 60°C (closed cup test) (10.1.6)
Gauging (column j)	O: open gauging (13.1.1.1) R: restricted gauging (13.1.1.2) C: closed gauging (13.1.1.3) I: indirect gauging (13.1.1.3)
Vapour detection* (column k)	F: flammable vapours T: toxic vapours
Fire protection (column l)	A: Alcohol-resistant foam or multi-purpose foam B: regular foam, encompasses all foams that are not of an alcohol-resistant type, including fluoro-protein and aqueous-film- forming foam (AFFF) C: water-spray D: dry chemical*** No: no special requirements under this Code
Materials of Construction (column m)	N: See 6.2.2 Z: See 6.2.3 Y: See 6.2.4 A blank indicates no special guidance given for materials of construction.
Respiratory and eye protection (column n)	E: See 14.2.8 "

* "No" indicates nil requirements.

** Temperature classes and apparatus groups as defined in International Electrotechnical Commission Publication 79 (part 1, appendix D, parts 4, 8 and 12. A blank indicates that data are currently not available.)

*** Dry chemical powder systems when used may require an additional water system for boundary cooling. This is normally provided in sufficient quantities by the standard fire main system required by regulation II-2/4 of the 1974 SOLAS Convention as amended.

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
Alkyl (C3-C4) benzenes		A	P	3	2G	Cont	No		No	R	F	A			No	15.19.6
Alkyl (C5-C8) benzenes		A	P	2	2G	Open	No		Yes	O	No	A			No	15.19.6
Alkylbenzene sulphonic acid	2584, 2586	C	S/P	3	2G	Open	No		Yes	O	No	A			No	16.2.7, 16.2.8
Alkylbenzene sulphonic acid, sodium salt solution		C	P	3	2G	Open	No	MF		O	No	No			No	16.2.7 to 16.2.9
Alkyl (C7-C9) nitrates		B	S/P	2	2G	Open	No		Yes	O	No	A,B			No	15.19.6, 15.20, 16.6
Allyl alcohol	1098	B	S/P	2	2G	Cont.	No	T2	IIB	C	F-T	A			E	15.12, 15.17, 15.19
Allyl chloride	1100	B	S/P	2	2G	Cont.	No	T2	IIA	C	F-T	A			E	15.12, 15.17, 15.19
aluminium chloride (30% or less)/hydrochloric acid (20% or less) solution		D	S	3	1G	Cont.	No		MF	R	T	No			E (f)	15.11
2-(2-Aminoethoxy) ethanol	3055	D	S	3	2G	Open	No		Yes	O	No	A,D		N2	No	15.19.6
Ethanoethyl ethanolamine		(D)	S	3	2G	Open	No	T2	IIA	O	No	A		N1	No	
N-Aminoethylpiperazine	2315	D	S	3	2G	Cont.	No		Yes	R	T	A		N2	No	15.19.6
2-Amino-2-methyl-1-propanol (90% or less)		D	S	3	2G	Open	No		Yes	O	No	A		N1	No	
Ammonia aqueous (2% or less)	2572(m)	C	S/P	3	2G	Cont.	No		MF	R	T	A,B,C		M4	E (a)	
Ammonium nitrate solution (93% or less)		D	S	2	1G	Open	No		MF	O	No	No		Y4	No	15.2, 15.11.4, 15.11.6, 15.13, 15.19.6
Ammonium sulphide solution (4% or less)	2583	B	S/P	2	2G	Cont.	No		No	C	F-T	A		N1	E	15.12, 15.16.1, 15.17, 15.19, 16.6
Ammonium thiocyanate (2% or less)/Ammonium thiosulphate (20% or less) solution		(C)	P	3	2G	Open	No		MF	O	No	No			No	
Ammonium thiosulphate solution (60% or less)		(C)	P	3	2G	Open	No		MF	O	No	No			No	16.2.9
Amyl acetate (all isomers)	1104	C	P	3	2G	Cont.	No		No	R	F	A			No	15.19.6
Butane	1047	C	S/P	2	2G	Cont.	No	T1	IIA	Yes	C	T	A		No	15.12, 15.17, 15.19
Aviation alkyliates (C3 paraffins and iso-paraffins 877 95 - 120°C) (bb)		(C)	P	3	2G	Cont.	No		No	R	F	B			No	15.19.6
Benzene and mixtures having 10% benzene or more*	1114(t)	C	S/P	3	2G	Cont.	No	T1	IIA	No	C	F-T	A,B		No	15.12.1, 15.17, 15.19.6, 16.2.9

* For mixtures containing no other components with safety hazards and where the pollution category is C or less.

PRODUCER	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
Benzene sulphonyl chloride	2225	D	S	3	2G	Cont.	No		Yes	R	T	A,D		No		15.19.6
Benzyl acetate		C	P	3	2G	Open	No		Yes	O	No	A		No		
Benzyl alcohol		C	P	3	2G	Open	No		Yes	O	No	A		No		
Benzyl chloride	1738	B	S/P	2	2G	Cont.	No	T1	IIA	C	T	A,B		E		15.12, 15.13, 15.17, 15.19
Butene oligomer		B	P	3	2G	Open	No		Yes	O	No	A		No		15.19.6
Butyl acetate (all isomers)	1123	C	P	3	2G	Cont.	No		No	R	F	A		No		15.19.6
Butyl acrylate (all isomers)	2348	B	S/P	2	2G	Cont.	No	T2	IIB	R	F-T	A		No		15.13, 15.19.6, 16.6.1, 16.6.2
Butylamine (all isomers)	1125, 1214	C	S/P	2	2G	Cont.	No		No	R	F-T	A		E		15.12, 15.17, 15.19.6
Butylbenzene (all isomers)	2709	A	P	3	2G	Cont.	No		No	R	F	A		No		15.19.6
Butyl benzyl phthalate		A	P	2	2G	Open	No		Yes	O	No	A		No		15.19.6
Butyl butyrate (all isomers)		B	P	3	2G	Cont.	No		No	R	F	A		No		15.19.6
Butyl/Decyl/Cetyl/Eicosyl methacrylate mixture		D	S	3	2G	Cont.	No		Yes	R	No	A,D		No		15.13, 16.6.1, 16.6.2
1,2-Butylene oxide	3022	C	S/P	3	2G	Cont.	Inert	T2	IIB	R	F	A,C		Z		15.8.1 to .7, .12, .13, .15 to .19, .21, .25, .27, .29, 15.19.6
n-Butyl ether	1149	C	S/P	3	2G	Cont.	Inert	T4	IIB	R	F-T	A		No		15.4.6, 15.12, 15.19.6
Butyl methacrylate		D	S	3	2G	Cont.	No		IIA	R	F-T	A,D		No		15.13, 15.19.6, 16.6.1, 16.6.2
n-Butyl propionate	1914	C	P	3	2G	Cont.	No		No	R	F	A		No		15.19.6
Butyraldehyde (all isomers)	1129	C	S/P	3	2G	Cont.	No	T3	IIA	R	F-T	A		No		15.16.1, 15.19.6
Butyric acid	2830	D	S	3	2G	Cont.	No		Yes	R	No	A		No		15.11.2 to 15.11.4, 15.11.5 to 15.11.8
Calcium alkyl (C9) phenol sulphide/ Polyolefin phosphorusulphide mixture		A	P	2	2G	Open	No		Yes	O	No	A,B		No		15.19.6
Calcium hypochlorite solution (15% or less)		C	S/P	3	2G	Cont.	No		NF	R	No	No		No		15.16.1
Calcium hypochlorite solution (more than 15%)		B	S/P	3	2G	Cont.	No		NF	R	No	No		No		15.16.1, 15.19.5
Calcium long chain alkyl salicylate (C13+)		C	P	3	2G	Open	No		Yes	O	No	A,B		No		16.2.7, 16.2.8
Camphor oil		B	S/P	2	2G	Cont.	No		IIA	R	F	A,B		No		15.19.6
Carbolic oil		A	S/P	2	2G	Cont.	No		Yes	C	F-T	A		No		15.12, 15.19

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
Carbon disulphide	1131	B	S/P	2	1G	Cont.	Pad+Inert	T6	IIC	No	C	F-T	C	Z	E	15.3, 15.12, 15.19
Carbon tetrachloride	1846	B	S/P	3	2G	Cont.	No		NF	Yes	C	T	No		E	15.12, 15.17, 15.19.6
Cashew nut shell oil (untreated)		D	S	3	2G	Cont.	No				R	T	A,B		No	
Cetyl/Eicosyl methacrylate mixture		III	S	3	2G	Open	No			Yes	O	No	A,D		No	15.13, 16.6.1, 16.6.2
Chloroacetic acid (80% or less)	1750	C	S/P	2	2G	Cont.	No		NF		C	No	No	Y5	No	15.11.2, 15.11.4, 15.11.6 to 15.11.8, 15.12.3, 15.19, 16.2.9
Chlorinated paraffins (C10-C13)		A	P	1	2G	Open	No			Yes	O	No	A		No	15.19
Chlorobenzene	1134	B	S/P	3	2G	Cont.	No	T1	IIA	No	R	F-T	A,B		No	15.19.6
Chloroform	1838	B	S/P	3	2G	Cont.	No		NF		R	T	No		E	15.12, 15.19.6
Chlorhydrins (crude)		(D)	S	2	2G	Cont.	No		IIA	No	C	F-T	A	NI	No	15.12, 15.19
±-Chloro-2-methylphenoxyacetic acid, dimethylamine salt solution		(C)	P	3	2G	Open	No		NF		O	No	No		No	
o-Chloronitrobenzene	1573	B	S/P	2	2G	Cont.	No			Yes	C	T	A,B,D		No	15.12, 15.17 to 15.19, 16.2.5, 16.2.9, 16A.2.2
2- or 3-Chloropropionic acid	2511(n)	(C)	S/P	3	2G	Open	No			Yes	O	No	A	Y1	No	15.11.2 to 15.11.4, 15.11.6 to 15.11.8, 16.2.7 to 16.2.9
Chlorosulphonic acid	1754	C	S/P	1	2G	Cont.	No		NF		C	T	No		E	15.11.2 to 15.11.8, 15.12, 15.16.2, 15.19
m-Chlorotoluene	2239	B	S/P	3	2G	Cont.	No			No	R	F-T	A,B		No	15.19.6
o-Chlorotoluene	2238	A	S/P	3	2G	Cont.	No			No	R	F-T	A,B		No	15.19.6
p-Chlorotoluene	2233	B	S/P	2	2G	Cont.	No			No	R	F-T	A,B		No	15.19.6, 16.2.9
Chlorotoluenes (mixed isomers)	2238	A	S/P	2	2G	Cont.	No			No	R	F-T	A,B		No	15.19.6
Coal tar		A	S/P	2*	2G	Cont.	No	T2	IIA	Yes	R	No	B,D		No	15.19.6
Coal tar naphtha solvent		B	S/P	3	2G	Cont.	No	T3	IIA	No	R	F-T	A,D		No	15.19.6
Coal tar pitch (molten)		D	S	3	1G	Cont.	No	T2	IIA	Yes	R	No	B,D		No	15.19.6
Cobalt naphthenate in solvent naphtha		A	S/P	2	2G	Cont.	No			No	R	F-T	A,D		No	15.19.6
Coconut oil fatty acid		C	P	3	2G	Open	No			Yes	O	No	A		No	16.2.7 to 16.2.9

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
Creosote (coal tar)		A	S/P	2	2G	Open	No	T2	IIA	Yes	0	No	A,D		No	15.19.6
Creosote (wood)		A	S/P	2	2G	Open	No	T2	IIA	Yes	0	No	A,D		No	15.19.6
Creosols (all isomers)	2076	A	S/P	2	2G	Open	No	T1	IIA	Yes	0	No	A,B		No	15.19.6
Cresylic acid, dephenolized		A	S/P	2	2G	Open	No			Yes	0	No	A,B		No	15.19.6
Cresylic acid, sodium salt solution		A	S/P	2	2G	Open	No			Yes	0	No	No	N8	No	15.19.6
Crtonaldehyde	1143	A	S/P	2	2G	Cont.	No	T3	IIB	No	R	F-T	A		E	15.12, 15.16.1, 15.17, 15.19.6
1,5,9-Cyclododecatriene		A	S/P	1	2G	Cont.	No			Yes	R	T	A	N2	No	15.13, 15.19, 16.6.1, 16.6.2
Cycloheptane (bb)	2241	(C)	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Cyclohexane (bb)	1145	(C)	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6, 16.2.9
Cyclohexanone	1915	D	S	3	2G	Cont.	No	T2	IIA	No	R	F-T	A	N5	No	15.19.6
Cyclohexanone, Cyclohexanol mixture		D	S	3	2G	Cont.	No			Yes	R	F-T	A	N5	No	
Cyclohexyl acetate	2243	(B)	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Cyclohexylamine	2357	C	S/P	3	2G	Cont.	No	T3	IIA	No	R	F-T	A,C	N1	No	15.19.6
1,3-Cyclopentadiene dimer (molten)		B	P	2	2G	Cont.	No			No	R	F	A		No	15.19.6, 16.2.6, 16.2.9, 16A.2.2
Cyclopentane (tb)	1146	(C)	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Cyclopentene	2246	(B)	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
p-Cymene (tb)	2046	C	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Decanoic acid		C	P	3	2G	Open	No			Yes	0	No	A		No	16.2.7 to 16.2.9
Decene		B	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Decyl acetate		(B)	P	3	2G	Open	No			Yes	0	No	A		No	15.19.6
Decyl acrylate		A	S/P	2	2G	Open	No	T3	IIA	Yes	0	No	A,C,D	N2	No	15.13, 15.19.6, 16.6.1, 16.6.2
Decyl alcohol (all isomers)		B	P	3	2G	Open	No			Yes	0	No	A		No	15.19.6, 16.2.9(s)
Decyloxytetrahydro-thiophene dioxide		A	S/P	2	2G	Cont	No			Yes	R	T	A		No	15.19.6
Dibutylamine		C	S/P	3	2G	Cont.	No	T2	IIA	No	R	F-T	A,C,D	N4	No	15.19.5
Di-butyl hydrogen phosphonate		B	P	3	2G	Open	No			Yes	0	No	A		No	15.19.6, 16.2.6
Dibutyl phthalate		A	P	2	2G	Open	No			Yes	0	No	A		No	15.19.6
Dichlorobenzene (all isomers)		B	S/P	2	2G	Cont.	No	T1	IIA	Yes	R	T	A,B,D	N5	No	15.19.6, 16.2.6(x), 16.2.9(y), 16A.2.2(z)
1,1-Dichloroethane	2362	D	S	3	2G	Cont.	No	T2	IIA	No	R	F-T	A		E	15.19.6

UN_NUMBER	PRODU_NAME	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
1916	Dichloroethyl ether	B	S/P	2	2G	Cont.	No	T2	IIA	No	R	F-T	A	N5	No	15.19.6
	1,6-Dichlorohexane	B	S/P	2	2G	Cont.	No			No	R	T	A,B		No	15.19.6
2490	2,2'-Dichloroisopropyl ether	C	S/P	2	2G	Cont.	No		Yes	Yes	R	T	A,C,D	N5	No	15.12, 15.17, 15.19
1593	Dichloromethane	D	S	3	2G	Cont.	No	T1	IIA	Yes	R	T	No		No	
2021	2,4-Dichlorophenol	A	S/P	2	2G	Cont.	Dry		Yes	Yes	R	T	A	N1	No	15.19.6
	2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution	A	S/P	3	2G	Open	No		HF		O	No	No	N1	No	15.19.6
	2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution (70% or less)	A	S/P	3	2G	Open	No		HF		O	No	No	N1	No	15.19.6
	2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution	A	S/P	3	2G	Open	No		HF		O	No	No	N1	No	15.19.6
1279	1,1-Dichloropropane	C	S/P	2	2G	Cont.	No	T1	IIA	No	R	F-T	A,B	Z	No	15.12, 15.19.5
	1,2-Dichloropropane	C	S/P	2	2G	Cont.	No			No	R	F-T	A,B	Z	No	15.12, 15.19.6
	1,3-Dichloropropane	D	S	2	2G	Cont.	No	T1	IIA	No	R	F-T	A,B		No	15.12, 15.19.6
2047	1,3-Dichloropropene	B	S/P	2	2G	Cont.	No	T2	IIA	No	C	F-T	A,B		E	15.12, 15.17 to 15.19
	Dichloropropene/Dichloropropane mixtures	B	S/P	2	2G	Cont.	No		No		C	F-T	A,B,D		E	15.12, 15.17 to 15.19
	2,2-Dichloropropionic acid	D	S	3	2G	Cont.	Dry		Yes		R	No	A	Y5	No	15.11.2, 15.11.4, 15.11.6 to 15.11.3
1151	Diethanolamine	D	S	3	2G	Open	No	T1	IIA	Yes	O	No	A	N2	No	
2686	Diethylamine	C	S/P	3	2G	Cont.	No	T2	IIA	No	R	F-T	A	N1	E	15.12, 15.19.6
	Diethylaminoethanol	C	S/P	3	2G	Cont.	No	T2	IIA	No	R	F-T	A,C	N1	No	15.19.6
2049	2,6-Diethylamine	A	S/P	3	2G	Open	No		Yes		O	No	B,C,D	N4	No	15.19.6, 15.2.3
2079	Diethylbenzene	A	P	3	2G	Cont.	No		No		R	F	A		No	15.19.6
1155	Diethyltriethylamine	D	S	3	2G	Open.	No	T2	IIA	Yes	O	No	A	N2	No	
	Diethyl ether	III	S	2	1G	Cont.	Inert	T4	IIIB	No	C	F-T	A	N7	E	15.4, 15.14, 15.19
1902	Di-(2-ethylhexyl) phosphoric acid	C	S/P	3	2G	Open	No		Yes		O	No	A,D	N2	No	
1594	Diethyl phosphate	C	P	3	2G	Open	No		Yes		O	No	A		No	
	Diethyl sulphate	(B)	S/P	2	2G	Cont.	No		Yes		C	T	A	N3	No	15.19.6

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PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	J	K	L	M	N	O
Diglycidyl ether of bisphenol		B	P	3	2G	Open	No		Yes	O	A		No	15.19.6, 16.2.6
A		B	P	3	2G	Open	No		Yes	O	A		No	15.19.6, 16.2.6
Diglycidyl ether of bisphenol		B	P	3	2G	Open	No		Yes	O	A		No	15.19.6, 16.2.6
F		B	P	3	2G	Open	No		Yes	O	A		No	15.19.6
Di-n-hexyl adipate	2361	(C)	S/P	2	2G	Cont.	No		No	R	F-T	A,C,D	No	15.12.3, 15.19.6
Diisobutylamine	2050	B	P	3	2G	Cont.	No		No	R	F	A	No	15.19.6
Diisobutylene		B	P	3	2G	Open	No		Yes	O	A		No	15.19.6, 16.2.6
Diisobutyl phthalate		C	S/P	3	2G	Open	No	T2	IIA	O	A		No	16.2.7 to 16.2.9
Diisopropanolamine		C	S/P	2	2G	Cont.	No	T2	IIA	C	F-T	A	E	15.12, 15.19
Diisopropylamine	1158	A	P	2	2G	Open	No		Yes	O	A		No	15.19.6
Diisopropylbenzene (all isomers)		D	S	3	2G	Cont.	No		Yes	R	T	B	M4	15.12.1, 15.17
N,N-Dimethylacetamide solution (40% or less)		B	P	3	2G	Open	No		Yes	O	A		No	15.19.6, 16.2.9
Dimethyl adipate		C	S/P	3	2G	Cont.	No	T2	IIA	R	F-T	A,C,D	E	15.12, 15.19.6
Dimethylamine solution (45% or less)	1160	C	S/P	2	2G	Cont.	No		No	C	F-T	A,C,D	E	15.12, 15.17, 15.19
Dimethylamine solution (greater than 45% but not greater than 55%)	1160	C	S/P	2	2G	Cont.	No		No	C	F-T	A,C,D	E	15.12, 15.14, 15.17, 15.19
Dimethylamine solution (greater than 55% but not greater than 65%)	2264	C	S/P	2	2G	Cont.	No		No	R	F-T	A,C	No	15.12, 15.17, 15.19.6
N,N-Dimethylcyclohexylamine	2051	D	S	3	2G	Cont.	No	T3	IIA	R	F-T	A,D	No	15.19.6
Dimethylethanamine	2265	D	S	3	2G	Cont.	No	T2	IIA	R	F-T	A,D	No	15.19.6
Dimethylformamide		C	P	3	2G	Open	No		Yes	O	No	A	No	
Dimethyl glutarate		(B)	S/P	3	2G	Cont.	No		Yes	R	T	A,D	No	15.12.1
Dimethyl hydrogen phosphate		(C)	P	3	2G	Open	No		Yes	O	No	A	No	16.2.8, 16.2.9
Dimethyl octanoic acid		C	P	3	2G	Open	No		Yes	O	No	A	No	
Dimethyl phthalate		C	P	3	2G	Open	No		Yes	O	No	A	No	16.2.9
Dimethyl succinate		C	P	3	2G	Open	No		Yes	O	No	A	No	
Dinitrotoluene (molten)	1600	A	S/P	2	2G (o)	Cont.	No	T2	IIA	C	T	A	No	15.12, 15.17, 15.19, 15.21
1,4-Dioxane	1165	D	S	2	2G	Cont.	No		No	C	F-T	A	No	15.12, 15.19

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
Ethanolamine	2491	D	S	3	2G	Open	No	T2	IIA	Yes	O	F-T	A	N2	No	15.19.6
Z-ethoxyethyl acetate	1172	C	P	3	2G	Cont.	No			No	R	F	A		No	15.13, 15.19.6, 16.6.1, 16.6.2
Ethyl acrylate	1917	A	S/P	2	2G	Cont.	No	T2	IIB	No	R	F-T	A	N2	E	15.12, 15.14, 15.19.6
Ethylamine	1036	(C)	S/P	2	1G	Cont.	No	T2	IIA	No	C	F-T	C,D		E	15.12, 15.14, 15.17, 15.19
Ethylamine solutions (7% or less)	2270	(C)	S/P	2	2G	Cont.	No			No	C	F-T	A,C	N1	E	
Ethyl amyl ketone	2271	C	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Ethylbenzene	1175	B	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
n-Ethylbutylamine		(C)	S/P	3	2G	Cont.	No			No	R	F-T	A	N1	No	15.12.3, 15.19.6
Ethyl butyrate	1180	C	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Ethylcyclohexane (bb)		(C)	P	3	2G	Cont.	No			No	R	F	A	N1	No	15.19.6
n-Ethylcyclohexylamine		D	S	3	2G	Cont.	No	T2	IIA	No	C	F-T	A,D		E	15.12, 15.17, 15.19
Ethylene chlorohydrin	1135	C	S/P	2	2G	Cont.	No			No	O	No	A		No	
Ethylene cyanohydrin	1604	(D)	S	3	2G	Open	No	T2	IIB	Yes	O	No	A	N2	No	15.19.6, 16.2.9
Ethylenediamine	1605	C	S/P	2	2G	Cont.	No			No	R	F-T	A		E	15.12, 15.19.6, 16.2.9
Ethylene dibromide	1184	B	S/P	2	2G	Cont.	No	T2	HF	No	C	T	No	N4	No	15.19
Ethylene dichloride		B	S/P	2	2G	Cont.	No			No	R	F-T	A,B		No	
Ethylene glycol butyl ether acetate		(C)	P	3	2G	Open	No			Yes	O	No	A		No	
Ethylene glycol diacetate		C	P	3	2G	Open	No			Yes	O	No	A		No	
Ethylene glycol methyl ether acetate		C	P	3	2G	Open	No			Yes	O	No	A		No	
Ethylene glycol monoalkyl ethers		D	S	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Ethylene oxide/Propylene oxide mixture with an Ethylene oxide content of not more than 30% in weight	2983	C	S/P	2	1G	Cont.	Inert	T2	IIB	No	C	F-T	A,C		No	15.8, 15.12, 15.14, 15.19
Ethyl-3-ethoxypropionate		C	P	3	2G	Cont.	No			No	R	No	A		No	15.19.6
2-Ethylhexyl acrylate		B	S/P	3	2G	Open	No	T3	IIB	Yes	O	No	A	N2	No	15.13, 15.19.6, 16.6.1, 16.6.2
2-Ethylhexylamine	2276	B	S/P	2	2G	Cont.	No			No	R	F-T	A		No	15.12, 15.19.6
Ethylidene norbornene		B	S/P	3	2G	Cont.	No			No	R	F-T	A,D	N4	No	15.12.1, 15.16.1, 15.19.6
Ethyl methacrylate	2277	(D)	S	3	2G	Cont.	No	T2	IIA	No	R	F-T	A,D		No	15.13, 15.19.6, 16.6.1, 16.6.2

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PRODN_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
o-Ethylphenol		(A)	S/P	3	2G	Open	No	T1	IIA	Yes	O	No	B		No	15.19.6
2-Ethyl-3-propylacrolein		A	S/P	3	2G	Cont.	No		IIA	No	R	F-T	A		No	15.19.6
Ethyltoluene		(B)	P	3	2G	Cont.	No		NF	No	R	F	A		No	15.19.6
Ferric chloride solutions	2582	C	S/P	3	2G	Open	No		NF		O	No	No		No	15.11, 15.19.6, 16.2.9
Ferric nitrate/Nitric acid solution		C	S/P	2	2G	Cont.	No		NF		R	T	No		E	15.11, 15.19
Fluorosilicic acid (20-30%) in water solution	1778	C	S/P	3	1G	Cont.	No		NF		R	T	No		E	15.11
Formaldehyde solutions (45% or less)	1199(d) 2209	C	S/P	3	2G	Cont.	No	T2	IIB	No	R	F-T	A		E (e)	15.16.1, 15.19.6, 16.2.9
Formic acid	1779	D	S	3	2G	Cont.	No	T1	IIA	No	R	T(v)	A	Y2,Y3	E	15.11.2 to 15.11.4, 15.11.6 to 15.11.8, 15.19.6
Fumaric adduct of resin, water dispersion		B	P	3	2G	Open	No			Yes	O	No	No		No	15.19.6, 16.2.6
Furfural	1199	C	S/P	3	2G	Cont.	No	T2	IIB	No	R	F-T	A		No	15.16.1, 15.19.6
Furfuryl alcohol	2874	C	P	3	2G	Open	No			Yes	O	No	A		No	
Glutaraldehyde solutions (50% or less)		D	S	3	2G	Open	No		NF		O	No	No		No	15.16.1
Glycidyl ester of C10 triethylacetic acid		B	P	3	2G	Open	No			Yes	O	No	A		No	15.19.6
Heptane (all isomers) (bb)	1206	(C)	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Heptanci (all isomers) (q)		C	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Heptene (all isomers) (bb)		C	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Heptyl acetate		(B)	P	3	2G	Open	No			Yes	O	No	A	N2	No	15.19.6, 16.2.9
Hexamethylenediamine solution	1783	C	S/P	3	2G	Cont.	No			Yes	R	T	A	N1	No	15.19.6
Hexamethyleneimine	2493	C	S/P	2	2G	Cont.	No			No	R	F-T	A,C		No	15.19.6
Hexane (all isomers) (bb)	1208	(C)	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Hexene (all isomers) (bb)		(C)	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Hexyl acetate	1233	B	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Hydrochloric acid	1789	D	S	3	1G	Cont.	No		NF		R	T	No		E (f)	15.11
Hydrogen peroxide solutions (over 5% but not over 60%)	2014, 2984	C	S/P	3	2G	Cont.	No		NF		C	No	No		No	15.5.14 to 15.5.26, 15.18, 15.19.6
Hydrogen peroxide solutions (over 5% but not over 70%)	2015	C	S/P	2	2G	Cont.	No		NF		C	No	No		No	15.5.1 to 15.5.13, 15.19.6

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
Methacrylonitrile	3079	D	S	2	2G	Cont. No	No		No		C	F-T	A	M4,Z	E	15.12, 15.13, 15.17, 15.19
Methyl acrylate	1919	B	S/P	2	2G	Cont. No	No	TI	IIB		R	F-T	A		E	15.13, 15.19.6, 16.6.1, 16.6.2
Methylamine solutions (42% or less)	1235	C	S/P	2	2G	Cont. No	No				C	F-T	A,C,D	M1	E	15.12, 15.17, 15.19
Methylamyl acetate	1233	(C)	P	3	2G	Cont. No	No				R	F	A		No	15.19.5
Methylamyl alcohol	2053	(C)	P	3	2G	Cont. No	No				R	F	A		No	15.19.6
Methyl butyrate	1237	(C)	P	3	2G	Cont. No	No				R	F	A		No	15.19.6
Methylcyclohexane (bb)	2296	(C)	P	3	2G	Cont. No	No				R	F	A		No	15.19.6
Methylcyclopentadiene dimer		(B)	P	3	2G	Cont. No	No				R	F	B		No	15.19.6
Methyl diethanolamine		D	S	3	2G	Open No	Yes				O	No	A	N2	No	
2-Methyl-6-ethyl aniline		C	S/P	3	2G	Open No	Yes				O	No	A,D		No	
2-Methyl-5-ethyl pyridine	2300	(B)	S/P	3	2G	Open No	Yes	IIA			O	No	A,D	N4	E	15.12, 15.14, 15.19
Methyl formate	1243	D	S	2	2G	Cont. No	No				R	F-T	A		No	15.19.6
Methyl heptyl ketone		B	P	3	2G	Cont. No	No				R	F	A		No	15.19.6
2-Methyl-2-hydroxy-3-butene		III	S	3	2G	Cont. No	No	IIA			R	F-T	A,B,D	M6	No	15.19.6
Methyl methacrylate	1247	D	S	2	2G	Cont. No	No				R	F-T	A		No	15.13, 15.19.6, 16.6.1, 16.6.2
Methyl naphthalene (molten)		A	S/P	2	2G	Cont. No	No				R	No	A,D		No	15.19.5
2-Methylpyridine	2313	D	S	2	2G	Cont. No	No				R	F	A	N4	No	15.12.3, 15.19.6
3-Methylpyridine	2313	C	S/P	2	2G	Cont. No	No				C	F	A	N4	No	15.12.3, 15.19
4-Methylpyridine	2313	D	S	2	2G	Cont. No	No				C	F-T	A	N4	No	15.12.3, 15.19, 16.2.3
Methyl salicylate		(B)	P	3	2G	Open No	Yes				O	No	A		No	15.19.5
alpha-Methylstyrene	2303	A	S/P	3	2G	Cont. No	No	TI	IIB		R	F-T	A,D**		No	15.13, 15.19.6, 16.6.1, 16.6.2
Morpholine	2054	D	S	3	2G	Cont. No	No	T2	IIA		R	F	A		No	15.19.6
Motor fuel anti-knock compounds (containing lead alkyls)	1649	A	S/P	1	1G	Cont. No	No	T4	IIA		C	F-T	A,C		E	15.6, 15.12, 15.18, 15.19
Naphthalene (molten)	2304	A	S/P	2	2G	Cont. No	No	TI	IIA		R	No	A,D		No	15.19.6
Naphthenic acids		A	P	2	2G	Open No	Yes				O	No	A		No	15.19.6
Neodecanoic acid		C	P	3	2G	Open No	Yes				O	No	A		No	16.2.9
Nitric acid (mixture of sulphuric and nitric acids)	1756	(C)	S/P	2	2G	Cont. No	No	NF			C	T	No		E	15.11, 15.16.2, 15.17, 15.19
Nitric acid (less than 70%)	2031	C	S/P	2	2G	Cont. No	No	NF			R	T	No		E	15.11, 15.19

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	J	K	L	M	N	O
Mitric acid (70% and over)	2031, 2032(h)	C	S/P	2	2G	Cont.	No		NF	C	T	No		E	15.11, 15.19
Nitrobenzene	1662	B	S/P	2	2G	Cont.	No	TI	IIA	Yes	T	A,D		No	15.12, 15.17 to 15.19, 16.2.9
o-Nitrophenol (molten)	1663	B	S/P	2	2G	Cont.	No			Yes	T	A,D		No	15.12, 15.19.6, 15.2.6, 16.2.9, 16A.2.2
1- or 2-Nitropropane	2608	D	S	3	2G	Cont.	No	T2	IIB	No	F-T	A	M4	No	15.19.6
Nitropropane (60%)/Nitroethane (40%) mixture		D	S	3	2G	Cont.	No			No	F-T	A(u)		No	15.19.6
m- or p-Nitrotoluenes	1664	B	S/P	2	2G	Cont.	No		IIB	Yes	T	A,B		No	15.12, 15.17, 15.19, 16.2.9
Xonane (all isomers) (bb)	1920	(C)	P	3	2G	Cont.	No			No	F	B,C		No	15.19.6
Xonene (all isomers)		B	P	3	2G	Cont.	No			No	F	A		No	15.19.6
Xonyl acetate		(C)	P	3	2G	Open	No			Yes	O	A		No	15.19.6
Xonyl alcohol (all isomers)		(C)	P	3	2G	Open	No			Yes	O	A		No	15.13.6
Xonyl phenol		A	P	2	2G	Open	No			Yes	O	A		No	15.19.5, 16.2.6, 16.2.9, 16A.2.2(aa)
Xonyl phenol poly(4-12)		B	P	3	2G	Open	No			Yes	O	A		No	15.19
ethoxylates		A	P	1	2G	Open	No			Yes	O	A		No	15.19
Xoxious liquid, M.F. (1)		A	P	1	2G	Cont.	No			No	R	A		No	15.19
n.o.s. (trade name ...)															
contains ...) S.T.1, Cat.A*															
Xoxious liquid, F, (2) n.o.s.		A	P	1	2G	Cont.	No			No	R	A		No	15.19
(trade name ..., contains ...)															
S.T.1, Cat.A*															
Xoxious liquid, M.F. (3)		A	P	2	2G	Open	No			Yes	O	A		No	15.19.6
n.o.s. (trade name ...)															
contains ...) S.T.2, Cat.A*															
Xoxious liquid, F, (4) n.o.s.		A	P	2	2G	Cont.	No			No	R	A		No	15.19.6
(trade name ..., contains ...)															
S.T.2, Cat.A*															
Xoxious liquid, M.F. (5)		B	P	2	2G	Open	No			Yes	O	A		No	15.19.6, [16.2.6, 16.2.9]**
n.o.s. (trade name ...)															
contains ...) S.T.2, Cat.B*															
Xoxious liquid, M.F. (6)		B	P	2	2G	Open	No			Yes	O	A		No	15.19.6, [16.2.6]**, 16.2.9, 16A.2.2
n.o.s. (trade name ...)															
contains ...) S.T.2, Cat.B*															
pp 15°C*															

* In case of a specific n.o.s. cargo assessed as falling within this n.o.s. group that is carried on a ship, this entry, including the cargo's trade name and one or two principal components, should be provided in the shipping document. Abbreviations used mean:

N.F.: Flashpoint exceeding 60°C (closed cup test)
F: Flashpoint not exceeding 60°C (closed cup test)
n.o.s.: Not otherwise specified

S.T.: Ship type
Cat.: Pollution category
m.p.: Melting point

** Only certain alcohol resistant foams are effective

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PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	J	K	L	M	N	O
Viscous liquid, F, (7) n.o.s. (trade name ..., contains ...) S.T.2, Cat.B*	B	P	2	2G	Cont.	No	No	No	No	R	F	A	No	No	15.19.6, [16.2.6, 16.2.9]**
Viscous liquid, F, (8) n.o.s. (trade name ..., contains ...) S.T.2, Cat.B*, mp 15°C*	B	P	2	2G	Cont.	No	No	No	No	R	F	A	No	No	15.19.6, [16.2.6]**, 16.2.9, 16A.2.2
Viscous liquid, H.F, (9) n.o.s. (trade name ..., contains ...) S.T.3, Cat.A*	A	P	3	2G	Open	No	No	Yes	O	No	A	A	No	No	15.19.6
Viscous liquid, F, (10) n.o.s. (trade name ..., contains ...) S.T.3, Cat.A*	A	P	3	2G	Cont.	No	No	No	No	R	F	A	No	No	15.19.6
Viscous liquid, H.F, (11) n.o.s. (trade name ..., contains ...) S.T.3, Cat.B*	B	P	3	2G	Open	No	No	Yes	O	No	A	A	No	No	15.19.6, [16.2.6, 16.2.9]**
Viscous liquid, H.F, (12) n.o.s. (trade name ..., contains ...) S.T.3, Cat.B*, mp 15°C*	B	P	3	2G	Open	No	No	Yes	O	No	A	A	No	No	15.19.6, [16.2.6]**, 16.2.9, 16A.2.2
Viscous liquid, F, (13) n.o.s. (trade name ..., contains ...) S.T.3, Cat.B*	B	P	3	2G	Cont.	No	No	No	No	R	F	A	No	No	15.19.6, [16.2.6, 16.2.9]**
Viscous liquid, F, (14) n.o.s. (trade name ..., contains ...) S.T.3, Cat.B*, mp 15°C*	B	P	3	2G	Cont.	No	No	No	No	R	F	A	No	No	15.19.6, [16.2.6]**, 16.2.9, 16A.2.2
Viscous liquid, H.F, (15) n.o.s. (trade name ..., contains ...) S.T.3, Cat.C*	C	P	3	2G	Cont.	No	No	Yes	O	No	A	A	No	No	[16.2.7 to 16.2.9]**
Viscous liquid, F, (16) n.o.s. (trade name ..., contains ...) S.T.3, Cat.C*	C	P	3	2G	Cont.	No	No	No	No	R	F	A	No	No	[16.2.7 to 16.2.9]**

* See footnote on page 22
** For high viscosity or high melting point cargoes.

PRODSY_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	J	K	L	H	N	O
Octane (all isomers) (bb)	1262	(C)	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
Octamol (all isomers)		C	P	3	2G	Open	No		Yes	O	No	A		No	15.19.6
Octene (all isomers)		B	P	3	2G	Cont.	No		No	R	F	A		No	
n-Octyl acetate		C	P	3	2G	Open	No		Yes	O	No	A		No	
Octyl aldehydes	1191	(B)	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6, 16.2.9
Olefin mixtures (C5-C7) (bb)		C	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
Olefin mixtures (C5-C15)		B	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
alpha-Olefins (C6-C18) mixtures		B	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6, 16.2.6, 16.2.9
Oleum	1831	C	S/P	2	2G	Cont.	No	NF		C	T	No		E	15.11.2 to 15.11.8, 15.12.1, 15.16.2, 15.17, 15.19, 16.2.7, 16.2.9
Oleyamine		A	S/P	2	2G	Cont.	No		Yes	R	T	A		No	15.19.6
Palm kernel acid oil		C	P	3	2G	Open	No		Yes	O	No	A,B		No	16.2.7 to 16.2.9
Paraldehyde	1264	C	S/P	3	2G	Cont.	No	T3	IIB	R	F	A		No	15.19.6, 16.2.9
Pentachloroethane	1669	B	S/P	2	2G	Cont.	No		NF	R	T	No		No	15.12, 15.17, 15.19.6
1,3-Pentadiene		C	S/P	3	2G	Cont.	No		No	R	F-T	A,B		No	15.13, 15.19.6, 16.6
Pentane (all isomers) (bb)	1265	(C)	P	3	2G	Cont.	No		No	R	F	A		No	15.14, 15.19.6
Pentene (all isomers) (bb)		C	P	3	2G	Cont.	No		No	R	F	A		No	15.14, 15.19.6
n-Pentyl propionate	1897	C	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
Percchloroethylene		B	S/P	3	2G	Cont.	No		NF	R	T	No		No	15.12.1, 15.12.2, 15.19.6
Phenol	2312	C	S/P	2	2G	Cont.	No	T1	IIA	C	T	A		No	15.12, 15.19, 16.2.7, 16.2.8, 16.2.9
1-Phenyl-1-xylyl ethane (bb)		C	P	3	2G	Open	No		Yes	O	No	A,B		No	15.11.1 to 15.11.4, 15.11.6 to 15.11.8
Phosphoric acid	1805	D	S	3	2G	Open	No		NF	O	No	No		No	
Phosphorus, yellow or white	1331, 2447	A	S/P	1	1G	Cont.	Pad+(Vent or inert)		No (k)	C	No	C		E	15.7, 15.19
Phthalic anhydride (molten)	2214	C	S/P	3	2G	Cont.	No	T1	IIA	R	No	A,D		No	16.2.7 to 16.2.9
alpha-Pinene	2368	A	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
beta-Pinene		B	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
Pine oil	1272	C	P	3	2G	Open	No		Yes	O	No	A		No	16.2.7, 16.2.8
Poly(2+)-cyclic aromatics		A	P	2	2G	Cont.	No		Yes	R	No	A,D		No	15.19.6
Polyalkyl (C18-C22) acrylate in Xylene		C	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6, 16.2.7, 16.2.8

PRODUCER	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	J	K	L	M	N	O
Polyalkylene oxide polyol		C	P	3	2G	Open	No		Yes	O	No	A		No	16.2.7, 16.2.8
Polyethylene polyamines	2734(i) 2735	(C)	S/P	3	2G	Open	No		Yes	O	No	A	N2	No	16.2.9
Polyferric sulphate solution		(C)	S/P	3	2G	Open	No	NF		O	No	No	Y4	No	
Polyethylene polyphenyl isocyanate	2206(i) 2207	D	S	2	2G	Cont. Dry	No		Yes(b)	C	T(b)	A	N5	No	15.12, 15.16.2, 15.19.6
Polyolefinamine in alkyl (C2-C4) benzenes		(C)	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6, 16.2.7, 16.2.8
Polyolefinamine in aromatic solvent		(C)	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6, 16.2.7, 16.2.8
Polyolefin phosphorusulphide - Barium derivative (C28-C250)		C	P	3	2G	Open	No		Yes	O	No	A,B		No	16.2.7, 16.2.8
Potassium chloride solution (10% or more)		C	P	3	2G	Open	No	NF		O	No	No		No	
Potassium hydroxide solution	1814	C	S/P	3	2G	Open	No		Yes	O	No	No	N8	No	16.2.9
Potassium oleate		(C)	P	3	2G	Open	No		Yes	O	No	A		No	15.19.6
n-Propylamine		C	S/P	3	2G	Open	No		Yes	O	No	A,D	N2	No	16.2.9
Beta-Propiolactone		D	S	2	2G	Cont.	No	IIA	Yes	R	T	A		No	
Propionaldehyde	1275	C	S/P	3	2G	Cont.	No		No	R	F-T	A	Y1	E	15.16.1, 15.17, 15.19.6
Propionic acid	1848	D	S	3	2G	Cont.	No	IIA	No	R	F	A		E	15.11.2 to 15.11.4, 15.11.6 to 15.11.8, 15.19.6
Propionic anhydride	2496	C	S/P	3	2G	Cont.	No	IIA	Yes	R	T	A	Y1	No	
Propionitrile	2404	C	S/P	2	1G	Cont.	No	IIA	No	C	F-T	A,D		E	15.12, 15.17 to 15.19
n-Propylamine	1277	C	S/P	2	2G	Cont. Inert	No	IIA	No	C	F-T	A,D	N2	E	15.12, 15.19
Propylbenzene (all isomers)		A	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
n-Propyl chloride	1278	D	S	3	2G	Cont.	No		No	R	F	A,B		No	15.19.6
Propylene dimer (bb)		(C)	P	3	2G	Cont.	No		No	R	F	A	Z	No	15.8, 15.12.1, 15.14, 15.19
Propylene oxide	1230	C	S/P	2	2G	Cont. Inert	No	IIA	No	C	F-T	A,C		No	15.19.6
Propylene tetramer	2850	B	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
Propylene trimer	2057	B	P	3	2G	Cont.	No		No	R	F	A		No	15.19.6
Pyridine	1232	D	S	3	2G	Cont.	No	IIA	No	R	F	A	N4	No	15.19.6
Rosin		B	P	3	2G	Open	No		Yes	O	No	A		No	15.19.6, 16.2.6, 16.2.9, 16A.2.2

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PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
Rosin soap (disproportionated) solution		B	P	3	2G	Open	No		Yes	O	No	A			No	15.19.6
Sodium aluminate solution	1819	D	S	3	2G	Open	No	NF		O	No	No	No	N1	No	
Sodium borohydride (15% or less)/Sodium hydroxide solution		C	S/P	3	2G	Open	No	NF		O	No	No	No	N1	No	16.2.7
Sodium chlorate solution (50% or less)	2428	III	S	3	2G	Open	No	NF		O	No	No	No		No	15.9, 15.16.1, 15.19.6
Sodium dichromate solution (70% or less)		C	S/P	2	2G	Open	No	NF		C	No	No	No	N2	No	15.12.3, 15.19
Sodium hydrogen sulphide (6% or less)/Sodium carbonate (3% or less) solution		B	P	3	2G	Open	No	NF		O	No	No	No		No	15.19.6
Sodium hydrogen sulphite solution (45% or less)	2693	D	S	3	2G	Open	No	NF		O	No	No	No		No	
Sodium hydrosulphide solution (45% or less)	2949	B	S/P	3	2G	Cont.	Vent or Pad(gas)	NF		R	T	No	No		No	15.16.1, 15.19.6, 16.2.9
Sodium hydroxide solution		B	S/P	2	2G	Cont.	No		No	C	F-T	A		N1	E	15.12, 15.14, 15.16.1, 15.17, 15.19, 16.6
Sodium hydroxide solution	1824	D	S	3	2G	Open	No	NF		O	No	No	No	N8	No	
Sodium hypochlorite solution (15% or less)	1791	C	S/P	3	2G	Cont.	No	NF		R	No	No	No	N5	No	15.16.1
Sodium nitrite solution	1500	B	S/P	2	2G	Open	No	NF		O	No	No	No		No	15.12.3.1, 15.12.3.2, 15.16.1, 15.19
Sodium petroleum sulfnate		B	S/P	2	2G	Open	No		Yes	O	No	A			No	15.19.6, 16.2.6
Sodium silicate solution		C	P	3	2G	Open	No		Yes	O	No	A			No	
Sodium sulphide solution (15% or less)		B	S/P	3	2G	Cont.	No	NF		C	T	No		N5	No	15.16.1, 15.19.6, 16.2.9
Sodium sulphite solution (25% or less)		C	P	3	2G	Open	No	NF		O	No	No	No		No	15.16.1, 15.19.6, 16.2.9
Sodium tartrates and mono-/di-succinate solution		D	S	3	2G	Open	No		Yes	O	No	A, B		Y5	No	
Sodium thioyanate solution (56% or less)		(B)	P	3	2G	Open	No		Yes	O	No	No			No	15.19.6

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	J	K	L	M	N	O
Styrene monomer	2055	B	S/P	3	2G	Cont.	No	T1	IIA	No	F	A,B	N4,Z	No	15.13, 15.19.6, 16.6.1, 16.6.2
Sulpho hydrocarbon long chain (C18+) alkylamine mixture		B	P	3	2G	Open	No			Yes	No	A,B		No	15.19.6, 16.2.6
Sulphur (molten)	2448	III	S	3	1G	Open	Vent or Pad(gas)	T3		Yes(1)	O	F-T	No	No	15.10
Sulphuric acid	1830	C	S/P	3	2S	Open	No		NF	O	No	No	No	No	15.11, 15.16.2, 16.2.8, 16.2.9
Sulphuric acid, spent	1832	C	S/P	3	2G	Open	No		NF	O	No	No	No	No	15.11, 15.16.2, 16.2.8, 16.2.9
Tall oil (crude and distilled)		B	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9, 16A.2.2
Tall oil fatty acid, barium salt		B	S/P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Tall oil fatty acid (resin acids less than 20%)		(C)	P	3	2G	Open	No			Yes	O	No	A	No	16.2.7 to 16.2.9
Tall oil soap		B	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
(disproportionated) solution															
Tetrachloroethane	1702	B	S/P	3	2G	Cont.	No		NF	R	T	No		No	15.12, 15.17, 15.19.6
Tetraethylene pentamine	2320	D	S	3	2G	Open	No			Yes	O	No	A	No	
Tetrahydrofuran	2056	D	S	3	2G	Cont.	No	T3	IIB	No	R	F-T	A	No	15.19.6
Tetrahydrophthalene (tb)		C	P	3	2G	Open	No			Yes	O	No	A	No	
Tetramethylbenzene (all isomers)		A	P	3	2G	Open	No			Yes	O	No	A	No	16.2.9, 16A.2.2
Toluene (bb)	1294	C	P	3	2G	Cont.	No			No	R	F	A	No	15.19.6
Toluenediamine	1709	C	S/P	2	2G	Cont.	No			Yes	C	T	A,D	E	15.12, 15.17, 15.19, 16.2.7, 16.2.9
Toluene diisocyanate	2078	C	S/P	2	2G	Cont.	DRY	T1	IIA	Yes	C	F-T	A,C(C), D	E	15.12, 15.16.2, 15.17, 15.19, 16.2.9
o-Toluidine	1708	C	S/P	2	2G	Cont.	No			Yes	C	T	A	No	15.12, 15.17, 15.19
Tributyl phosphate		B	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
1,2,4-Trichlorobenzene	2521	B	S/P	2	2G	Cont.	No			Yes	R	T	A,B	No	15.19.6, 16.2.9, 16A.2.2
1,1,1-Trichloroethane	2831	C	P	3	2G	Open	No			Yes	O	No	A	No	
1,1,2-Trichloroethane		C	S/P	3	2S	Cont.	No				R	T	No	No	15.12.1, 15.19.6
Trichloroethylene	1710	C	S/P	3	2G	Cont.	No	T2	IIA	Yes	R	T	No	No	15.12, 15.16.1, 15.17, 15.19.6
1,2,3-Trichloropropane		C	S/P	2	2G	Cont.	No			Yes	C	T	A,B,D	No	15.12, 15.17, 15.19

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
1,1,2-Trichloro-1,2,2-Trifluoroethane		C	P	3	2G	Open	No		NF		O	No	No		No	15.19.6
Tricresyl phosphate (containing less than 1% ortho-isomer)		A	P	2	2G	Open	No			Yes	O	No	A		No	
Tricresyl phosphate (containing 1% or more ortho-isomer)	2574(J)	A	S/P	1	2G	Cont.	No	T2	IIA	Yes	C	No	A,B		No	15.12.3, 15.19
Tridecanoic acid		B	P	3	2G	Open	No			Yes	O	No	A		No	15.19.6, 15.2.6, 16.2.9, 16A.2.2
Triethanolamine		D	S	3	2G	Open	No		IIA	Yes	O	No	A	N1	No	
Triethylamine	1286	C	S/P	2	2G	Cont.	No	T2	IIA	No	R	F-T	A,C	N2	E	15.12, 15.19.6
Triethylbenzene		A	P	2	2G	Open	No			Yes	O	No	A		No	15.19.6
Triethylenetetramine	2259	D	S	3	2G	Open	No	T2	IIA	Yes	O	No	A	N1	No	
Triethylphosphite	2123	B	S/P	3	2G	Cont.	No			No	R	F-T	A,B		No	15.12.1, 15.19.6
Triisopropylated phenyl phosphates		A	P	2	2G	Open	No			Yes	O	No	A		No	15.19.6
Trimethylacetic acid		D	S	3	2G	Cont.	No			Yes	R	No	A	Y1	No	15.11.2 to 15.11.8
Trimethylamine solution (30% or less)	1297	C	S/P	2	2G	Cont.	No			No	C	F-T	A,C	N1	E	15.12, 15.14, 15.19, 16.2.9
Trimethylbenzene (all isomers)		A	P	3	2G	Cont.	No			No	R	F	A		No	15.19.6
Trimethylhexamethylenediamine (2,2,4- and 2,4,4-isomers)	2327	D	S	3	2G	Open	No			Yes	O	No	A,C	N1	No	15.19.6
Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-isomers)	2138	B	S/P	2	2G	Cont.	DT7			Yes	C	T	A,C(c)		No	15.12, 15.16.2, 15.17, 15.19.6
2,2,4-Trimethyl-1,3-pentanediol 1-1-isobutylate		C	P	3	2G	Open	No			Yes	O	No	A		No	
Trimethyl phosphite	2229	D	S	3	2G	Cont.	No			No	R	F-T	A,D		No	15.12.1, 15.16.2, 15.19.6
1,3,5-Trioxane		A	P	1	2G	Open	No			No	R	F	A,D		No	15.19.6
Triethyl phosphate		B	P	3	2G	Cont.	No			Yes	O	No	A		No	15.19
Turpentine	1399	B	P	3	2G	Open	No			No	R	F	A		No	15.19.6
Undecanoic acid		B	P	3	2G	Open	No			Yes	O	No	A		No	16.2.6, 16.2.9

PRODU_NAME	UN_NUMBER	C	D	E	F	G	H	I	I_DASH	I_DASH3	J	K	L	M	N	O
1-Undecene		B	P	3	2G	Open	No		Yes	O	No	A			No	15.19.6
Undecyl alcohol		B	P	3	2G	Open	No		Yes	O	No	A			No	15.19.6, 16.2.9, 16A.2.2(r)
Urea/ammonium nitrate solution (containing aqua ammonia)		C	S/P	3	2G	Cont.	No	NF		R	T	A		M4	No	
Valeraldehyde (all isomers)	2058	C	S/P	3	2G	Cont.	Inert	T3	IIB	No	R	F-T	A		No	15.4.6, 15.16.1, 15.19.6
Vinyl acetate	1301	C	S/P	3	2G	Cont.	No	T2	IIA	No	R	F	A		No	15.13, 15.19.6, 16.6.1, 16.6.2
Vinyl ethyl ether	1302	C	S/P	2	1G	Cont.	Inert	T3	IIB	No	C	F-T	A	M6	E	15.4, 15.13, 15.14, 15.19, 16.6.1, 16.6.2
Vinylidene chloride	1303	D	S	2	2G	Cont.	Inert	T2	IIA	No	R	F-T	B	M5	E	15.13, 15.14, 15.19.6, 16.6.1, 16.6.2
Vinyl neodecanoate		B	S/P	3	2G	Open	No		Yes	O	No	A, B			No	15.13, 15.16.1, 15.19.6, 16.6.1, 16.6.2
Vinyltoluene	2618	A	S/P	3	2G	Cont.	No		IIA	No	R	F	A, B	M1	No	15.13, 15.19.6, 16.6.1, 16.6.2
White spirit, low (15-20% aromatic	1300	(B)	P	2	2G	Cont.	No		IIA	No	R	F	A		No	15.19.6
Xylenes (bb)	1307	C	P	3	2G	Cont.	No			R	R	F	A		No	15.19.6, 16.2.9(w)
Xylenol	2261	B	S/P	3	2G	Open	No		IIA	Yes	O	No	A, B		No	15.19.6, 16.2.9, 16A.2.2
Zinc alkaryl dithiophosphate (C7-C15)		(C)	P	3	2G	Open	No			Yes	O	No	A, B		No	16.2.7, 16.2.8
Zinc alkyl dithiophosphate (C3-C14)		B	P	3	2G	Open	No			Yes	O	No	A, B		No	15.19.6, 16.2.6

- a Applies to ammonia aqueous, (28% or less) but not below 10%.
Ammonia aqueous (28% or less)
- b If the product to be carried contains flammable solvents such that the flashpoint does not exceed 60°C c.c., then special electrical systems and a flammable vapour detector should be provided.
Diphenyl methane diisocyanate
Polymethylene polyphenyl isocyanate
- c Although water is suitable for extinguishing open air fires involving chemicals to which this footnote applies, water should not be allowed to contaminate closed tanks containing these chemicals because of the risk of hazardous gas generation.
Diphenylmethane diisocyanate
Toluene diisocyanate
Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-isomers)
- d UN No.1198 only applies if flashpoint is below 60°C c.c.
Formaldehyde solutions (45% or less)
- e Applies to formaldehyde solutions (45% or less), but not below 5%.
Formaldehyde solutions (45% or less)
- f Applies to hydrochloric acid not below 10%.
Aluminium chloride (30% or less)/Hydrochloric acid (20% or less) solution
Hydrochloric acid
- g Dry chemical cannot be used because of the possibility of an explosion.
Maleic anhydride
- h UN No.2032 assigned to red fuming nitric acid.
Nitric acid (70% and over)
- i UN number depends on boiling point of substance.
Polyethylene polyamines
Polymethylene polyphenyl isocyanate
- j UN number assigned to this substance containing more than 3% of ortho-isomer.
Tricresyl phosphate (containing 1% or more ortho-isomer)
- k Phosphorus (yellow or white) is carried above its autoignition temperature and therefore flashpoint is not appropriate. Electrical equipment requirements may be similar to those for substances with a flashpoint above 60°C c.c.
Phosphorus (yellow or white)

- l Sulphur (molten) has a flashpoint above 60°C c.c., however, electrical equipment should be certified safe for gases evolved.

Sulphur (molten)

- m UN No.2672 refers to 10-35% ammonia solutions.

Ammonia aqueous (28% or less)

- n UN No.2511 applies to 2-chloropropionic acid only.

2- or 3-Chloropropionic acid

- o Dinitrotoluene should not be carried in deck tanks.

Dinitrotoluene (molten)

- p (Deleted).

- q Requirements are based on those isomers having a flashpoint of 60°C c.c., or less; some isomers have a flashpoint greater than 60°C c.c., and therefore the requirements based on flammability would not apply to such isomers.

Heptanol (all isomers)

- r Reference 16A.2.2 applies to 1-undecyl alcohol only.

Undecyl alcohol

- s Applies to n-decyl alcohol only.

Decyl alcohol (all isomers)

- t UN.No 1114 applies to benzene.

Benzene and mixtures having 10% benzene or more

- u Dry chemicals should not be used as fire-extinguishing media.

Nitropropane (60%)/Nitroethane (40%) mixture

- v Confined spaces should be tested for both formic acid vapours and carbon monoxide gas, a decomposition product.

Formic acid

- w Applies to p-xylene only.

Xylenes

- x Applies to p-isomer and mixtures containing p-isomer viscosity of which is 25 mPa.s at 20°C.

Dichlorobenzenes (all isomers)

- y Applies to p-isomer and mixtures containing p-isomer melting point of which is 0°C and above.

Dichlorobenzenes (all isomers)

- z Applies to p-isomer and mixtures containing p-isomer melting point of which is 15°C and above.

Dichlorobenzenes (all isomers)

- aa Applies only to products with melting point of 15°C and above.

Nonyl phenol poly(4-12)ethoxylates

- bb Applies to oil-like substances identified in accordance with the provisions of the unified interpretation of regulation 14 of Annex II of MARPOL 73/78 agreed by the MEPC."

The existing text of chapter 18 is replaced by the following:

CHAPTER 18 - LIST OF CHEMICALS TO WHICH THE CODE DOES NOT APPLY

1 The following are chemicals which have been reviewed for their safety and pollution hazards and determined not to present hazards to such an extent as to warrant application of the Code. This may be used as a guide in considering bulk carriage of chemicals whose hazards have not yet been evaluated.

2 Although the chemicals listed in this chapter fall outside the scope of the Code, the attention of Administrations is drawn to the fact that some safety precautions may be needed for their safe transportation. Accordingly, Administrations should prescribe appropriate safety requirements.

3 Some chemicals are identified as falling into pollution category D and, therefore, subject to certain operational requirements of Annex II of MARPOL 73/78.

4 Liquid mixtures which are provisionally assessed under regulation 3(4) of Annex II of MARPOL 73/78 as falling into pollution category D, and which do not present safety hazards, may be carried under the entry for noxious liquids not otherwise specified in this chapter. Similarly, those mixtures provisionally assessed as falling outside pollution category A, B, C or D, and which do not present safety hazards, may be carried under the entry for non-noxious liquids not otherwise specified in this chapter.

EXPLANATORY NOTES

Product name
(column a) In some cases, the product names may not be identical with the names given in previous issues of the IBC Code or the BCH Code (for explanation see index of chemicals).

UN number
(column b) The number relating to each product shown in the recommendations proposed by the United Nations Committee of Experts on the Transport of Dangerous Goods. UN numbers, where available, are given for information only.

Pollution category
(column c) The letter D means the pollution category assigned to each product under Annex II of MARPOL 73/78. "III" means the product was evaluated and found to fall outside the categories A, B, C or D.

Pollution category in brackets indicates that the product is provisionally categorized and that further data are necessary to complete the evaluation of their pollution hazards. Until the hazard evaluation is completed, the pollution category assigned is used.

a	b	c
Product name	UN number	Pollution Category for operational discharge (regulation 3 of Annex II)
Acetone	1090	III
Alcohols (C ₁₃ +))	-	III
Alcoholic beverages, n.o.s.	3065	III
Acrylonitrile-Styrene copolymer dispersion in polyether polyol	-	D
n-Alkanes (C ₁₀ +))	-	III
Alkaryl polyether (C ₉ -C ₂₀))	-	D
Alkenyl(C ₁₁ +)amide	-	D
Alkyl(C ₈ +)amine, alkenyl (C ₁₂ +) acid ester mixture	-	D
Alkyl(C ₉ +)benzenes	-	III
Alkyl dithiothiadiazole (C ₆ -C ₂₄))	-	D
Aluminium sulphate solution	-	D
Aminoethyldiethanolamine/ Aminoethylethanolamine solution	-	III
2-Amino-2-hydroxymethyl- 1,3-propanediol solution (40% or less)	-	III

a	b	c
Ammonium hydrogen phosphate solution	-	D
Ammonium polyphosphate solution	-	D
Ammonium sulphate solution	-	D
n-Amyl alcohol	1105	D
sec-Amyl alcohol	1105	D
tert-Amyl alcohol	1105	III
Amyl alcohol, primary	1105	D
Animal and fish oils, n.o.s. including: Cod liver oil Lanolin Neatsfoot oil Pilchard oil Sperm oil	-	D
Animal and fish oils and distillates acids, n.o.s. including: Animal acid oil Fish acid oil Lard acid oil Mixed acid oil Mixed general acid oil Mixed hard acid oil Mixed soft acid oil	-	D
Apple juice	-	III
Aryl polyolefin (C ₁₁ -C ₅₀)	-	D

a	b	c
Benzene tricarboxylic acid, trioctyl ester	-	III
Brake fluid base mix: (Poly(2-8)alkylene (C ₂ -C ₃) glycols/ Polyalkylene (C ₂ -C ₁₀) glycols monoalkyl (C ₁ -C ₄) ethers and their borate esters) ^{1/}	-	D
sec-Butyl acetate	1123	D
n-Butyl alcohol	1120	III
sec-Butyl alcohol	1120	III
tert-Butyl alcohol	1120	III
Butylene glycol	-	D
Butyl stearate	-	III
gamma-Butyrolactone	-	D
Calcium carbonate slurry	-	III
Calcium hydroxide slurry	-	D
Calcium long chain alkaryl sulphonate (C ₁₁ -C ₅₀)	-	D
Calcium long chain alkyl phenate sulphide (C ₈ -C ₄₀)	-	D
Calcium long chain phenolic amine (C ₈ -C ₄₀)	-	III

^{1/} Use "Brake fluid base mix" as a proper name on the shipping document.

a	b	c
Calcium nitrate/Magnesium nitrate/ Potassium chloride solution	-	III
epsilon-Caprolactam (molten or aqueous solutions)	-	D
Chlorinated paraffins (C ₁₄ -C ₁₇) (with 52% chlorine)	-	III
Choline chloride solutions	-	D
Citric acid (70% or less)	-	D
Clay slurry	-	III
Coal slurry	-	III
Coconut oil fatty acid methyl ester	-	D
Cyclohexanol	-	D
Decahydronaphthalene	1147	(D)
Dextrose solution	-	III
Diacetone alcohol	1148	D
Dialkyl(C ₇ -C ₁₃) phthalates	-	D
Diethylene glycol	-	D
Diethylene glycol dibutyl ether	-	D
Diethylene glycol diethyl ether	-	III
Diethylene glycol phthalate	-	D

a	b	c
Diethylenetriamine pentaacetic acid, pentasodium salt solution	-	III
Di-(2-ethylhexyl) adipate	-	D
Diheptyl phthalate	-	III
Dihexyl phthalate	-	III
1,4-Dihydro-9,10-dihydroxy anthracene, disodium salt solution	-	D
Diisobutyl ketone	1157	D
Diisononyl adipate	-	D
Diisooctyl phthalate	-	III
Diisopropyl naphthalene (bb)	-	D
2,2-Dimethylpropane-1,3-diol	-	(D)
Dimethyl polysiloxane	-	III
Dinonyl phthalate	-	D
Dioctyl phthalate	-	III
Dipropylene glycol	-	III
Ditridecyl phthalate	-	D
Diundecyl phthalate	-	D
Dodecane (all isomers)	-	III

a	b	c
Dodeceny succinic acid, dipotassium salt solution	-	(D)
Dodecyl benzene	-	III
Dodecyl xylene	-	III
Drilling brines Including: Calcium bromide solution Calcium chloride solution Sodium chloride solution	-	III
2-Ethoxyethanol	1171	D
Ethyl acetate	1173	D
Ethyl acetoacetate	-	(D)
Ethyl alcohol	1170	III
Ethylene carbonate	-	III
Ethylenediamine tetraacetic acid, tetrasodium salt solution	-	D
Ethylene glycol	-	D
Ethylene glycol acetate	-	(D)
Ethylene glycol methyl butyl ether	-	D
Ethylene glycol phenyl ether	-	D
Ethylene glycol phenyl ether/ Diethylene glycol phenyl ether mixture	-	D

a	b	c
Ethylene-vinyl acetate copolymer (emulsion)	-	III
2-Ethylhexanoic acid	-	D
Ethyl propionate	1195	D
Fatty acid (saturated C ₁₃ +))	-	III
Ferric hydroxyethylethylene diamine triacetic acid, trisodium salt solution	-	D
Fish solubles*	-	III
Formamide	-	D
Glucose solution	-	III
Glycerine	-	III
Glycerine (83%), Dioxanedimethanol (17%) mixture	-	D
Glycerol polyalkoxylate	-	III
Glyceryl triacetate	-	(III)
Glycine, sodium salt solution	-	III
Glyoxal solution (40% or less)	-	D
n-Heptanoic acid	-	D

* Water-based fish meal extract.

a	b	c
Hexamethylenediamine adipate (50% in water)	-	D
Hexamethylene glycol	-	III
Hexamethylenetetramine solutions	-	D
Hexanoic acid	-	D
Hexanol	2282	D
Hexylene glycol	-	III
N-(Hydroxyethyl)ethylenediamine triacetic acid, trisodium salt solution	-	D
Isoamyl alcohol	1105	D
Isobutyl alcohol	1212	III
Isobutyl formate	2393	D
Iso- & cyclo-Alkanes (C ₁₀ -C ₁₁)	-	D
Iso- & cyclo-Alkanes (C ₁₂ +)	-	III
Isophorone	-	D
Isopropyl acetate	1220	III
Isopropyl alcohol	1219	III
Kaolin slurry	-	III
Lactic acid	-	D

a	b	c
Lard	-	III
Latex:		
Carboxylated styrene-butadiene copolymer	-	III
Styrene-Butadiene rubber	-	III
Latex, ammonia (1% or less) inhibited	-	D
Lignin sulphonic acid, sodium salt solution	-	III
Long chain alkaryl sulphonic acid (C ₁₆ -C ₆₀)	-	D
Long chain alkylphenate/phenol sulfide	-	III
Magnesium chloride solution	-	III
Magnesium hydroxide slurry	-	III
Magnesium long chain alkaryl sulphonate (C ₁₁ -C ₅₀)	-	D
3-Methoxy-1-butanol	-	III
3-Methoxybutyl acetate	-	D
Methyl acetate	1231	III
Methyl acetoacetate	-	D
Methyl alcohol	1230	D
Methyl amyl ketone	-	D

a	b	c
Methyl propyl ketone	-	D
N-Methyl-2-pyrrolidone	-	D
Methyl butenol	-	(D)
Methyl tert-butyl ether	2398	D
Methyl butyl ketone	-	D
Methyl butynol	-	D
Methyl ethyl ketone	1193	III
Methyl isobutyl ketone	1245	D
3-Methyl-3-methoxy butanol	-	III
3-Methyl-3-methoxy butyl acetate	-	III
Molasses	-	III
Myrcene	-	D
Naphthalene sulphonic acid/ Formaldehyde copolymer, sodium salt solution	-	D
Nitrilotriacetic acid, trisodium salt solution	-	D
Nonanoic acid (all isomers)	-	D
Nonyl methacrylate monomer	-	(D)

a	b	c
Noxious liquid, n.o.s. (17) (trade name ..., contains ...) Cat. D ^{1/}	-	D
Non-noxious liquid, n.o.s. (18) (trade name ..., contains ...) Appendix III ^{1/}	-	III
Octanoic acid (all isomers)	-	D
Octyl decyl adipate	-	III
Olefins (C ₁₃₊ , all isomers)	-	III
Olefin/alkyl ester copolymer (molecular weight 2000+)	-	D
Oleic acid	-	D
Palm oil fatty acid methyl ester	-	D
Palm stearin	-	D
Paraffin wax	-	III
Pentaethylenhexamine	-	D
Pentanoic acid	-	D
Petrolatum	-	(III)

^{1/} In case of a specific n.o.s. (not otherwise specified) cargo assessed as falling within this n.o.s. group that is carried on a ship, this entry, including the cargo's trade name and one or two principal components, should be provided in the shipping document.

a	b	c
Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether	-	D
Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether acetate	-	D
Polyaluminium chloride solution	-	III
Polybutene	-	III
Polyether (molecular weight 2000+)	-	D
Polyethylene glycol	-	III
Polyethylene glycol dimethyl ether	-	III
Polyglycerin, Sodium salt solution (containing less than 3% sodium hydroxide)	-	III
Polyglycerol	-	III
Poly(4+)isobutylene	-	III
Polyolefin (molecular weight 300+)	-	III
Polyolefin amide alkeneamine (C ₂₈ +))	-	D
Polyolefin amide alkeneamine borate (C ₂₈ -C ₂₅₀)	-	D
Polyolefin amide alkeneamine molybdenum oxysulfide	-	III
Polyolefin amide alkeneamine polyol	-	D

a	b	c
Polyolefin anhydride	-	D
Polyolefin ester (C ₂₈ -C ₂₅₀)	-	D
Polyolefin phenolic amine (C ₂₈ -C ₂₅₀)	-	D
Poly(20)oxyethylene sorbitan monooleate	-	III
Poly(5+)propylene	-	III
Polypropylene glycol	-	D
Polysiloxane	-	III
n-Propyl acetate	1276	D
n-Propyl alcohol	1274	III
Propylene/Butylene copolymer	-	III
Propylene glycol	-	III
Propylene glycol monoalkyl ether	-	(D)
Propylene glycol methyl ether acetate	-	D
Sodium acetate solutions	-	(D)
Sodium aluminosilicate slurry	-	III
Sodium benzoate	-	D
Sodium carbonate solution	-	D

a	b	c
Sodium poly(4+)acrylate solutions	-	III
Sodium sulphate solutions	-	III
Sorbitol solution	-	III
Sulphohydrocarbon (C ₃ -C ₈₈)	-	D
Sulpholane	-	D
Tallow	-	D
Tallow fatty acid	-	(D)
Tetraethylene glycol	-	III
Tridecane	-	III
Tridecyl acetate	-	III
Triethyl phosphate	-	D
Triethylene glycol	-	III
Triisopropanolamine	-	III
Trimethylol propane polyethoxylate	-	D
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	-	III
Tripropylene glycol	-	III

a	b	c
Urea/Ammonium mono- and di-hydrogen phosphate/Potassium chloride solution	-	(D)
Urea/Ammonium nitrate solution	-	D
Urea/Ammonium phosphate solution	-	D
Urea formaldehyde resin solution	-	III
Urea solution	-	III
Vegetable oils, n.o.s. Including: Beech nut oil, Castor oil, Cocoa butter, Coconut oil, Corn oil, Cotton seed oil, Groundnut oil, Hazelnut oil, Linseed oil, Nutmeg butter, Oiticica oil, Olive oil, Palm nut oil, Palm oil, Peel oil (oranges and lemons), Perilla oil, Poppy oil, Raisin seed oil, Rape seed oil, Rice bran oil, Safflower oil, Salad oil, Sesame oil, Soya Bean oil, Sunflower oil, Tucum oil, Tung oil, Walnut oil	-	D
Vegetable acid oils and distillates, n.o.s. Including: Corn acid oil, Cotton seed acid oil, Dark mixed acid oil, Groundnut acid oil, Mixed acid oil, Mixed general acid oil, Mixed hard acid oil, Mixed soft acid oil, Rapeseed acid oil, Safflower acid oil, Soya acid oil, Sunflower seed acid oil	-	D
Vegetable protein solution (hydrolysed)	-	III
Water	-	III
Waxes	-	D

New chapter 20 is added as follows:

CHAPTER 20 - TRANSPORT OF LIQUID CHEMICAL WASTES

20.1 Preamble

- 20.1.1 Maritime transport of liquid chemical wastes could present a threat to human health and to the environment.
- 20.1.2 Liquid chemical wastes should, therefore, be transported in accordance with relevant international conventions and recommendations and, in particular, where it concerns maritime transport in bulk, with the requirements of this Code.

20.2 Definitions

For the purpose of this chapter:

- 20.2.1 "Liquid chemical wastes" are substances, solutions or mixtures, offered for shipment, containing or contaminated with one or more constituents which are subject to the requirements of this Code and for which no direct use is envisaged but which are carried for dumping, incineration or other methods of disposal other than at sea.
- 20.2.2 "Transboundary movement" means maritime transport of wastes from an area under the national jurisdiction of one country to or through an area under the national jurisdiction of another country, or to or through an area not under the national jurisdiction of any country, provided at least two countries are concerned by the movement.

20.3 Applicability

- 20.3.1 The requirements of this chapter are applicable to the transboundary movement of liquid chemical wastes in bulk by seagoing ships and should be considered in conjunction with all other requirements of this Code.
- 20.3.2 The requirements of this chapter do not apply to:
- .1 wastes derived from shipboard operations which are covered by the requirements of MARPOL 73/78;
 - .2 liquid chemical wastes carried by ships engaged in the incineration of such wastes at sea which are covered by chapter 19 of this Code; and
 - .3 substances, solutions or mixtures containing or contaminated with radioactive materials which are subject to the applicable requirements for radioactive materials.

20.4 Permitted shipments

- 20.4.1 Transboundary movement of wastes is permitted to commence only when:

- .1 notification has been sent by the competent authority of the country of origin, or by the generator or exporter through the channel of the competent authority of the country of origin, to the country of final destination; and
- .2 the competent authority of the country of origin, having received the written consent of the country of final destination stating that the wastes will be safely incinerated or treated by other methods of disposal, has given authorization to the movement.

20.5 Documentation

- 20.5.1 In addition to the documentation specified in 16.2 of this Code ships engaged in transboundary movement of liquid chemical wastes should carry on board a waste movement document issued by the competent authority of the country of origin.

20.6 Classification of liquid chemical wastes

- 20.6.1 For the purpose of the protection of the marine environment all liquid chemical wastes transported in bulk should be treated as Category A noxious liquid substances, irrespective of the actual evaluated category.

20.7 Carriage and handling of liquid chemical wastes

- 20.7.1 Liquid chemical wastes should be carried in ships and cargo tanks in accordance with the minimum requirements for liquid chemical wastes specified in chapter 17, unless there are clear grounds indicating that the hazards of the wastes would warrant:
 - .1 carriage in accordance with the ship type 1 requirements; or
 - .2 any additional requirements of this Code applicable to the substance or, in case of a mixture, its constituent presenting the predominant hazard.
