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| Title | IBC 2004 Amend / Annex (Chapters) / 3.1 |
| Effective Date | 1/1/2007 |
| Note | This regulation enters into force on 1 January 2007. |
| For Ships Constructed | On or after 7/1/1986 |

Chapter 3

Ship arrangements

3.1 Cargo segregation

3.1.1 Unless expressly provided otherwise, tanks containing cargo or residues of cargo subject to the Code shall be segregated from accommodation, service and machinery spaces and from drinking water and stores for human consumption by means of a cofferdam, void space, cargo pump-room, pump-room, empty tank, oil fuel tank or other similar space.

3.1.2 Cargo piping shall not pass through any accommodation, service or machinery space other than cargo pump-rooms or pump-rooms.

3.1.3 Cargoes, residues of cargoes or mixtures containing cargoes, which react in a hazardous manner with other cargoes, residues or mixtures, shall:

.1 be segregated from such other cargoes by means of a cofferdam, void space, cargo pump-room, pump-room, empty tank, or tank containing a mutually compatible cargo;

.2 have separate pumping and piping systems which shall not pass through other cargo tanks containing such cargoes, unless encased in a tunnel; and

.3 have separate tank venting systems.

3.1.4 If cargo piping systems or cargo ventilation systems are to be separated. This separation may be achieved by the use of design or operational methods. Operational methods shall not be used within a cargo tank and shall consist of one of the following types:

.1 removing spool-pieces or valves and blanking the pipe ends;

.2 arrangement of two spectacle flanges in series, with provisions for detecting leakage into the pipe between the two spectacle flanges.

3.1.5 Cargoes subject to the Code shall not be carried in either the fore or aft peak tank.

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|------------------------------|--|
| Title | IBC 2004 Amend / Annex (Chapters) / 15.16 |
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15.16 Cargo contamination

15.16.1 Deleted.

15.16.2 Where column "o" in the table of chapter 17 refers to this section, water shall not be allowed to contaminate this cargo. In addition, the following provisions apply:

- 1 Air inlets to pressure/vacuum-relief valves of tanks containing the cargo shall be situated at least 2 m above the weather deck.
- 2 Water or steam shall not be used as the heat-transfer media in a cargo temperature control system required by chapter 7.
- 3 The cargo shall not be carried in cargo tanks adjacent to permanent ballast or water tanks unless the tanks are empty and dry.
- 4 The cargo shall not be carried in tanks adjacent to slop tanks or cargo tanks containing ballast or slops or other cargoes containing water which may react in a dangerous manner. Pumps, pipes or vent lines serving such tanks shall be separate from similar equipment serving tanks containing the cargo. Pipelines from slop tanks or ballast lines shall not pass through tanks containing the cargo unless encased in a tunnel.

KOREAN REGISTER

Checklist for Oil/Chemical Tanker

| Ship Name : | | | | |
|---|------|-----------------------------|--|--------------------------|
| Date : | | | | |
| This checklist has been developed to utilize for verifying the compliance with the additional requirements for oil/chemical tanker and it is required to use it in conjunction with the Checklist for ISM shipboard audit. | | | | |
| ◎ Check should be marked as follows: ☒ : Verified as a sampling basis ☐ : Not Applicable * If a check item is identified as a non-conformity on a sampling verification, it shall be recorded in the non-conformity report | | | | |
| No | Code | Reg. | Items to be checked | Result |
| 1. All Dept. | | | | |
| 1.1 | 6 | STCW A-V/1-1 | Are seafarers in possession of the certificate of specialized training as applicable to the type of cargo being carried? | <input type="checkbox"/> |
| 1.2 | 7 | IMO Res. A.1050(27) | Are the seafarers familiar with the procedure for entry into an enclosed space and pump room? | <input type="checkbox"/> |
| 1.3 | 7 | SOLAS II-2 Reg.4.5.7 | Is the ship in possession of the potable gas instrument, applicable to cargoes carrying and are they in good order? | <input type="checkbox"/> |
| 1.4 | 7 | IBC 16.2 | Are seafarers' familiar with the cargo operation manual, and is the manual available on board? | <input type="checkbox"/> |
| 1.5 | 7 | MARPOL Annex II Reg.14 | Are seafarers' familiar with the procedures and arrangements manual, and is the manual available on board? | <input type="checkbox"/> |
| 1.6 | 7 | IBC 16.5 | Are suitably stowed the cargo samples? | <input type="checkbox"/> |
| 1.7 | 8 | IBC 14.3 | Are seafarers' familiar with suitable stretchers which are for hoisting an injured person up from spaces such as the cargo(ballast) pump room, and are they in good order? | <input type="checkbox"/> |
| 1.8 | 8 | SOLAS 2007 Amendment VI 5-1 | Are Material Safety Data Sheets(MSDS) on board for all the cargoes, bunkers and other products being handled? | <input type="checkbox"/> |
| 1.9 | 10 | SOLAS II-2 Reg.4.5.10 | Is the protection of cargo pump rooms regularly tested and records maintained (500GT and above)? | <input type="checkbox"/> |
| 2. Deck | | | | |
| 2.1 | 6 | - | Are the information the cargo and training provided to seafarers prior to commence the cargo works (especially, Gas Free, Tank Cleaning) (if applicable)? | <input type="checkbox"/> |
| 2.2 | 6 | MARPOL Annex VI 15.6 | Is the ship(400GT and above) carrying crude oil in possession of an approved Volatile Organic Compounds(VOC) Management and the deck officers familiar with the plan? | <input type="checkbox"/> |
| 2.3 | 6 | MARPOL Annex I Reg.40,41,42 | Is the ship(150GT and above) carrying oil in possession of an approved ship to ship plan(STS) and the deck officers familiar with the plan? | <input type="checkbox"/> |
| 2.4 | 7 | MEPC.248(66) IBC 2.2 | Has the loading program been approved, tested regularly and is familiar with requirement of Intact & Damage stability? | <input type="checkbox"/> |
| 2.5 | 7 | MARPOL Annex I Reg. 36 | Is the oil record book Part II Cargo/Ballast operations) properly recorded, and is the latest listed? | <input type="checkbox"/> |
| 2.6 | 7 | MARPOL Annex I Reg. 35 | Is the crude oil washing carried out in accordance with the procedure?(if applicable) | <input type="checkbox"/> |
| 2.7 | 10 | - | Are cargo/ballast tanks, void spaces, trucks and cofferdams inspected regularly, and record maintained? | <input type="checkbox"/> |
| 2.8 | 10 | - | Is the flooding damper in the pump room good order, and record maintained? | <input type="checkbox"/> |
| 2.9 | 10 | IBC 11.3 | Is the fixed deck foam system inspected regularly, and record maintained? | <input type="checkbox"/> |

Checklist for Oil/Chemical Tanker

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| 2.10 | 10 | IBC 7 | Is heating system in cargo tanks inspected regularly, and record maintained? | <input type="checkbox"/> |
| 2.11 | 10 | IBC 14 | Is personnel protective equipment inspected regularly, and record maintained? | <input type="checkbox"/> |
| 2.12 | 10 | - | Are cargo handling and monitoring equipment tested, and inspected regularly?(if applicable) | <input type="checkbox"/> |
| 2.13 | 10 | IBC 8.3 | Are the seafarers familiar with the primary and secondary cargo tank venting systems, and inspected regularly? | <input type="checkbox"/> |
| 2.14 | 10 | SOLAS II-2 Reg. 4.5.5 | Are the inert gas system, including overhauls of non-return valves inspected regularly, and record maintained? (if applicable) | <input type="checkbox"/> |
| 2.15 | 10 | IBC 3.3 | Is the pump room clean and free of leaks from various equipment, piping and valves? | <input type="checkbox"/> |
| 2.16 | 10 | SOLAS II-1 Reg.3-4.1 | Are emergency towing arrangements (ETA) located at both end of the ship for easily use, regularly inspected and, record maintained?(if applicable) | <input type="checkbox"/> |
| 2.17 | 10 | SOLAS II-2 Reg.4.5.7 | Are the hydrocarbon gas concentrations in all ballast tanks and spaces in double hull and double bottom spaces, including fore tanks adjacent to cargo tanks and other tanks and spaces under bulkhead decks measured as use of portable and fixed hydrocarbon gas detectors? | <input type="checkbox"/> |
| 2.18 | 10 | MARPOL Annex I Reg. 15.3 | Is the oil discharging monitoring equipment (ODME) regularly inspected, and record maintained? | <input type="checkbox"/> |
| 2.19 | 11 | 2011 ESP Code Res.A.1049(27) | Are there any documents or evidences indicating structural defects in the ship? | <input type="checkbox"/> |
| 3. Engine | | | | |
| 3.1 | 7 | | Is the information on the cargo works shared with engine department and the means of emergency Contact established? | <input type="checkbox"/> |
| 3.2 | 10 | SOLAS II-1 Reg.29 | Is the system to recover the steering capacity in case of a single failure of the tanker's steering system regularly inspected, and record maintained(10,000GT and above)? | <input type="checkbox"/> |

Checklist for Oil/Chemical Tanker

Appendix

1. Are seafarers in possession of the certificate of specialized training as applicable to the type of cargo being carried?

- 1) Verify that the seafarers possess the relevant certificate accordingly
 - Basic training on tanker cargo operation(officer, rating)
 - Advanced training for oil tanker cargo operation (Master, chief engineer, chief officer and first engineer)
 - Advanced training for chemical tanker cargo operation (Master, chief engineer, chief officer and first engineer)

2. Are the seafarers familiar with the procedure for entry into an enclosed space and pump room?

- 1) Enclosed space means a space which has any of the following characteristics:
 - limited openings for entry and exit
 - Inadequate ventilation
 - It is not designed for continuous worker occupancy.

* Includes, but is not limited to, cargo spaces, double bottoms, fuel tanks, ballast tanks, cargo pump-rooms, cofferdams, chain lockers, void space, duct keels, boilers, engine crankcases, engine scavenge air receivers, sewage tanks, and adjacent connected spaces.

This list is not exhaustive and a list should be produced on a ship-by-ship basis to identify enclosed spaces.
- 2) Check the risk assessment to verify the effectiveness of it (if applicable)
- 3) Permission of entry to enclosed space
- 4) Check the seafarers' familiarization on enclosed space entry procedure
- 5) Safe entry procedure into pump room
 - Cargo pump rooms shall be mechanically ventilated and discharges from the exhaust fans shall be led to a safe place on deck.
 - In no case shall the ventilation system have a capacity of less than 30 changes of air per hour, based upon the total volume of the space.
 - For certain products, a capacity of less than 45 changes of air per hour for cargo pump-rooms are prescribed in IBC 15.17.

Ventilation systems shall be permanent and shall normally be of the extraction type

 - Extraction from above and below the floor plates shall be possible. In rooms housing motors driving cargo pumps, the ventilation shall be of the positive-pressure type.
 - Ventilation exhaust ducts from spaces within the cargo area shall discharge upwards in locations at least 10 m in the horizontal direction from ventilation intakes and openings to accommodation, service and machinery spaces and control stations and other spaces outside the cargo area.
 - The ventilation shall be of the suction type using fans of non-sparking type.
 - Notices should be displayed at the pump room entrance prohibiting entry without formal permission
 - Before anyone enters a pump room, it should be thoroughly ventilated, the oxygen content of the atmosphere should be verified and the atmosphere checked for the presence of hydrocarbons and any toxic gas associated with the cargo being handled.
 - A communications system should provide links between the pump room, navigation bridge, engine room and cargo control room.

3. Is the ship in possession of the potable gas instrument, applicable to cargoes carrying and are they in good order?

- 1) Check whether suitable portable instruments for measuring oxygen and flammable vapor concentrations has been provided (SOLAS II-2 Reg.4.5.7)
- 2) Ships carrying toxic or flammable products or both shall be equipped with at least two instruments designed and calibrated for testing for the specific vapours in question. If such instruments are not capable of testing for both toxic concentrations and flammable concentrations, then two separate sets of instruments shall be provided.
- 3) Vapour-detection instruments may be portable or fixed. If a fixed system is installed, at least one portable instrument shall be provided.
- 4) When toxic-vapour-detection equipment is not available for some products which require such detection, as indicated in column "k" in the table of chapter 17, the Administration may exempt the ship from the requirement, provided an appropriate entry is made on the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk. When granting such an exemption, the Administration shall recognize the necessity for additional breathing-air supply and an entry shall be made on the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk drawing attention to the provisions of 14.2.4 and 16.4.2.2.

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- 5) Check whether a sufficient set of spares is onboard
- 6) Suitable means shall be provided for the calibration of such instruments and the seafarers' familiarity (check the calibration date and the possession of test hose, Span Gas)

4. Are seafarers' familiar with the cargo operation manual, and is the manual available on board?

- 1) a full description of the physical and chemical properties, including reactivity, necessary for the safe containment of the cargo
- 2) action to be taken in the event of spills or leaks
- 3) countermeasures against accidental personal contact
- 4) fire-fighting procedures and fire-fighting media
- 5) procedures for cargo transfer, tank cleaning, gas-freeing and ballasting
- 6) for those cargoes required to be stabilized or inhibited, the cargo shall be refused if the certificate required by these paragraphs is not supplied

5. Are seafarers' familiar with the procedures and arrangements manual, and is the manual available on board?

- 1) Every ship certified to carry substances of category X, Y or Z shall have on board a Manual approved by the Administration.
- 2) In the case of a ship engaged in international voyages on which the language used is not English, French or Spanish, the text shall include a translation into one of these languages.
- 3) Description of ships equipment and arrangements
- 4) Cargo unloading procedures and tank stripping
- 5) Procedures relating to the cleaning of cargo tanks, the discharge of residues, ballasting and deballasting
- 6) The results of the stripping efficiency test shall be recorded in the P & A manual.

6. Are suitably stowed the cargo samples?

- 1) Samples which have to be kept on board shall be stowed in a designated space situated in the cargo area or, exceptionally, elsewhere, subject to the approval of the Administration
- 2) The stowage space shall be:
 - cell-divided in order to avoid shifting of the bottles at sea
 - made of material fully resistant to the different liquids intended to be stowed
 - equipped with adequate ventilation arrangements
- 3) Samples which react with each other dangerously shall not be stowed close to each other.
- 4) Samples shall not be retained on board longer than necessary.

7. Are seafarers' familiar with suitable stretchers which are for hoisting an injured person up from spaces such as the cargo(ballast) pump room, and are they in good order?

- 1) The pump room rescue harness and rope should be checked regularly to ensure it is fit for use and rigged for immediate operation.

8. Are Material Safety Data Sheets(MSDS) on board for all the cargo, bunkers and other products Being handled?

- 1) Check MSDS data sheets is on board for the followings
 - All grades of cargo being carried, all grades of fuel used on board, all chemicals used on board,
- 2) Check the seafarers' familiarity on MSDS
 - Understanding of the contents, countermeasure for cargo spill or leakage, how to response to contact with skin

9. Is the protection of cargo pump rooms regularly tested and records maintained (500GT and above)?

- 1) Temperature sensing devices and alarm signal
 - Cargo pumps, ballast pumps and stripping pumps, installed in cargo pump rooms and driven by shafts passing through pump-room bulkheads shall be fitted with temperature sensing devices for bulkhead shaft glands, bearings and pump casings. A continuous audible and visual alarm signal shall be automatically effected in the cargo control room or the pump control station.
- 2) Lighting interlock system

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- Lighting in cargo pump-rooms, except emergency lighting, shall be interlocked with ventilation such that the ventilation shall be in operation when switching on the lighting.

Failure of the ventilation system shall not cause the lighting to go out.

3) Hydrocarbon gases monitoring system

- A system for continuous monitoring of the concentration of hydrocarbon gases shall be fitted.
When the hydrocarbon gas concentration reaches a pre-set level which shall not be higher than 10% of the lower flammable limit, a continuous audible and visual alarm signal shall be automatically effected in the pump-room, engine control room, cargo control room and navigation bridge.

4) Bilge level monitor

- All pump-rooms shall be provided with bilge level monitoring devices together with appropriately located alarms.
- * Pump-rooms intended solely for ballast transfer need not comply with the requirements of regulation II-2/4.5.10.

10. Are the information on the cargo and training provided to seafarers prior to commence the cargo works (Gas Free, Tank Cleaning) (if applicable)?

- 1) Training for the cargo information, preparedness and process of cargo works, communication, safety procedure(use of the anti-static clothes, shoes & explosion proof lamps)
- 2) Check the information exchange between ship and terminal
 - Loading/Discharging rate, Sequence quantity, Topping/Stripping
 - Emergency plan
 - Maintain the communication
 - Ballasting/Deballasting
- 3) Loading/Discharging Plan, Ship-Shore Safety Checklist
- 4) Tank Cleaning plan/Tank Cleaning Checklist
 - Appropriate information on cargoes and tank cleaning (risk, static accumulation, etc.)
 - Report to the company before entering the tank for removal of cargo residues
 - Standard of proper time required for tank cleaning (especially, a ship which is engaging in short-term navigation, is capable of carrying mixed cargoes)
 - Implementation of risk assessment
- 5) Gas free procedure / Gas free Checklist
 - Implementation of risk assessment/Preparation of work permit of enclosed spaces
 - Proper time required for gas free (especially, a ship which is engaging in short-term navigation, is capable of carrying mixed cargoes)
- 6) De-slop, Crude Oil Washing Plan Arriving Discharge Port

11. Is the ship(400GT and above) carrying crude oil in possession of an approved Volatile Organic Compounds(VOC) Management and the deck officers familiar with the plan?

- 1) The plan shall be specific to each ship and shall at least:
 - provide written procedures for minimizing VOC emissions during the loading, sea passage and discharge of cargo
 - give consideration to the additional VOC generated by crude oil washing
 - identify a person responsible for implementing the plan
 - be written in the working language of the master and officers and, if the working language of the master and officers is not English, French, or Spanish, include a translation into one of these languages.

12. Is the ship(150GT and above) carrying oil in possession of an approved ship to ship plan(STS) and the deck officers familiar with the plan?

- 1) A copy of the STS operations plan shall be available at the bridge, cargo transfer control station and engine room.
- 2) Records of STS operations shall be recorded at Oil record book and retained on board for three years.
- 3) The person in overall advisory control of STS operations shall be qualified to perform all relevant duties, taking into account the qualifications contained in the best practice for STS operations.

13. Has the loading program been approved, tested regularly and is familiar with requirement of Intact

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& Damage stability?

1) For the case of ships, loading manual and longitudinal loading instruments are to be installed

| | Application | Oil tanker | | Chemical tanker | |
|---|---|----------------|----------------------------------|-----------------|----------------------------------|
| | | Loading Manual | Longitudinal loading instruments | Loading Manual | Longitudinal loading instruments |
| 1 | Ships under survey during (after) construction before 1992/11/1 | Lf≥100m | NA | Lf≥100m | NA |
| 2 | Ships under survey during (after) construction after 1992/11/1 | Lf≥100m | NA | Lf≥65m | NA |
| 3 | Ships under survey during (after) construction before 1993/5/1 | Lf≥100m | Lf≥120m | Lf≥65m | Lf≥65m |
| 4 | Ships under survey during (after) construction before 1998/7/1 | Lf≥65m | Lf≥100m | Lf≥65m | Lf≥100m |

2) Damage stability(MEPC.248(66)/IBC Chap. 2.2)

- All ships, subject to the Code, shall be fitted with a stability instrument, capable of verifying compliance with intact and damage stability requirements, approved by the Administration having regard to the performance standards recommended by the Organization
- Ships constructed before 1 January 2016 shall comply with this requirement at the first scheduled renewal survey of the ship on or after 1 January 2016 but not later than 1 January 2021
- A stability instrument fitted on a ship constructed before 1 January 2016 need not be replaced provided it is capable of verifying compliance with intact and damage stability, to the satisfaction of the Administration
- The Administration may waive the requirements for the following ships provided the procedures employed for intact and damage stability verification maintain the same degree of safety, as being loaded in accordance with the approved conditions. Any such waiver shall be duly noted on the International Certificate of Fitness.

14. Is the oil record book Part II Cargo/Ballast operations) properly recorded, and is the latest listed?

- 1) Check the error on the entry
- 2) Check the use of proper unit(m3)
- 3) Check the signature by responsible seafarer
- 4) Check the mistake be crossed out(strike out with one line)

* If the disposal of engine room oily water or sludge to a cargo or slop tank has taken place, has the event been recorded in both Oil Record Book 1, arrangements to transfer bilge water to the slop tank should be approved, recorded on IOPP supplement 2.5.3.

15. Is the crude oil washing carried out in accordance with the procedure? (if applicable)

- 1) Check approved C.O.W Manual
- 2) Check preparation and implementation for C.O.W. Plan prior to arriving discharge port checklist
- 3) Check maintenance of C.O.W. log
- 4) Check maintenance of C.O.W. checklist
- 5) Check maintenance of C.O.W. in Ship/Shore Safety Checklist

16. Are cargo/ballast tanks, void spaces, trucks and cofferdams inspected regularly, and record maintained?

- 1) Inspection should be carried out on a regular basis and included at least the following items.
 - Structural deterioration and failure / Extent of corrosion, pitting and wastage / Extent of deterioration of any coating / Any leakages in bulkheads or pipework / The condition of cargo handling and monitoring equipment / Extent of sediment build up.

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17. Is the flooding damper in the pump room good order, and record maintained?

- 1) The venting system is fitted with high level suction at or above the bottom gratings, the flaps of which are operable from the pump room top.

18. Is the fixed deck foam system inspected regularly, and record maintained?

- 1) The rate of supply of foam solution shall be not less than the greatest of the following:
 - 2 l/min per square metre of the cargo tanks deck area, where cargo tanks deck area means the maximum breadth of the ship times the total longitudinal extent of the cargo tank spaces
 - 20 l/min per square metre of the horizontal sectional area of the single tank having the largest such area
 - 10 l/min per square metre of the area protected by the largest monitor, such area being entirely forward of the monitor, but not less than 1,250 l/min.
 - General protein foam is prohibited and should be used with anti-alcohol foam.
 - Sufficient foam concentrate shall be supplied to ensure at least 30 min of foam generation when using the highest of the solution rates stipulated in 1).

19. Is heating system in cargo tanks inspected regularly, and record maintained?

- 1) When products for which 15.12, 15.12.1 or 15.12.3 are listed in column "o" in the table of chapter 17 are being heated or cooled, the heating or cooling medium shall operate in a circuit:
 - which is independent of other ship's services, except for another cargo heating or cooling system, and which does not enter the machinery space
 - which is external to the tank carrying toxic products
 - where the medium is sampled to check for the presence of cargo before it is recirculated to other services of the ship or into the machinery space. The sampling equipment shall be located within the cargo area and be capable of detecting the presence of any toxic cargo being heated or cooled. Where this method is used, the coil return shall be tested not only at the commencement of heating or cooling of a toxic product, but also on the first occasion the coil is used subsequent to having carried an unheated or uncooled toxic cargo.

20. Is personnel protective equipment inspected regularly, and record maintained?

- 1) Protective equipment
 - The ship shall have on board suitable protective equipment consisting of large aprons, special gloves with long sleeves, suitable footwear, coveralls of chemical-resistant material, and tight-fitting goggles or face shields or both.
 - Work clothes and protective equipment shall be kept in easily accessible places and in special lockers.
 - Such equipment shall not be kept within accommodation spaces, with the exception of new, unused equipment and equipment which has not been used since undergoing a thorough cleaning process.
- 2) Safety equipment
 - Ships carrying cargoes for which 15.12, 15.12.1 or 15.12.3 is listed in column "o" in the table of chapter 17 shall have on board sufficient but not less than three complete sets of safety equipment, each permitting personnel to enter a gas-filled compartment and perform work there for at least 20 min.
 - One complete set of safety equipment shall consist of:
 - * One self-contained air-breathing apparatus (not using stored oxygen)
 - * Protective clothing, boots, gloves and tight-fitting goggles
 - * Fireproof lifeline with belt resistant to the cargoes carried
 - * Explosion-proof lamp
 - At least one set of safety equipment shall be kept in a suitable clearly marked locker in a readily accessible place near the cargo pump-room.
 - The breathing apparatus shall be inspected at least once a month by a responsible officer, and the inspection recorded in the ship's log-book. The equipment shall be inspected and tested by an expert at least once a year.
 - A cargo pump-room on ships carrying cargoes which are subject to the requirements of 15.18 or cargoes for which in column "k" in the table of chapter 17 toxic-vapour-detection equipment is required but is not available shall have either;
 - * A low-pressure line system with hose connections suitable for use with the breathing apparatus required by 14.2.1. This system shall provide sufficient high-pressure air capacity to supply, through pressure-reduction devices, enough low-pressure air to enable two men to work in a gas-dangerous space for at least 1 h without using the air bottles of the breathing apparatus. Means shall be

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provided for recharging the fixed air bottles and the breathing apparatus air bottles from a special air compressor suitable for the supply of high-pressure air of the required purity

* An equivalent quantity of spare bottled air in lieu of the low-pressure air line

3) Emergency equipment

- Ships carrying cargoes, for which "Yes" is indicated in column "n" of chapter 17, shall be provided with suitable respiratory and eye protection sufficient for every person on board for emergency escape purposes, subject to the following:

* Filter-type respiratory protection is unacceptable

* Self-contained breathing apparatus shall have at least a duration of service of 15 min

* Emergency escape respiratory protection shall not be used for fire-fighting or cargo-handling purposes and shall be marked to that effect

- The ship shall have on board medical first-aid equipment, including oxygen resuscitation equipment and antidotes for cargoes to be carried

- A stretcher which is suitable for hoisting an injured person up from spaces such as the cargo pump-room shall be placed in a readily accessible location.

- Suitably marked decontamination showers and an eyewash shall be available on deck in convenient locations. The showers and eyewash shall be operable in all ambient conditions.

21. Are cargo handling and monitoring equipment tested, and inspected regularly?(if applicable)

- 1) Cargo pump
- 2) Ballast pump
- 3) Cargo Stripping pump
- 4) Cargo Stripping Eductor
- 5) Cargo piping for loading and discharging system
- 6) Cargo & Ballast valves
- 7) Cargo heating system
 - Piping system (supply main line & condensate return main line)
- 8) Cargo tank venting system
 - Common venting system as primary – combined inert gas/vent main line and a vent riser
 - Independent venting system as secondary – PV valves or High Velocity P/V valves
- 9) Portable gas-freeing fans
- 10) Inert gas piping for cargo tanks & ballast tanks
- 11) Cargo tank vapor emission control system
- 12) Cargo tank level gauging system
- 13) Cargo tank overfill (98%) and high level (95%) alarm system
- 14) Cargo tank temperature measuring system
- 15) Cargo tank vapor pressure measuring system
- 16) Valve remote control system including emergency operation
- 17) Loading Rate & Maximum loading rate
- 18) Oil/water interface detector
- 19) Cargo tank cleaning system
- 21) Tank cleaning heater
- 22) Fixed tank cleaning machines
- 23) Portable tank cleaning machines
- 24) Cargo pump emergency stop
- 25) Vapor locks
- 26) Cargo pipe joint bonded
- 27) Bulkhead seal gas tight
- 28) Gas monitoring system in pump room
- 29) Cargo hose

22. Are the seafarers familiar with the primary and secondary cargo tank venting systems, and inspected regularly?

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- 1) Regular inspection of PV valve, mast risers, flame screen
- 2) Controlled tank venting systems shall consist of a primary and a secondary means of allowing full flow relief of vapour to prevent over-pressure or under-pressure in the event of failure of one means. Alternatively, the secondary means may consist of pressure sensors fitted in each tank with a monitoring system in the ship's cargo control room or position from which cargo operations are normally carried out. Such monitoring equipment shall also provide an alarm facility which is activated by detection of over-pressure or under-pressure conditions within a tank.

23. Are the inert gas system, including overhauls of non-return valves inspected regularly, and record maintained?(if applicable)

- 1) FSS code Chap.15.2.2.1 :
 - Inerting empty cargo tanks and maintaining the atmosphere in any part of the tank with an oxygen content not exceeding 8% by volume and at a positive pressure in port and at sea except when it is necessary for such a tank to be gas-free
 - Blower capacity volume / Cargo pump max. discharge volume \geq 125%
 - Delivering inert gas with an oxygen content of not more than 5% by volume to the cargo tanks at any required rate of flow.
- 2) FSS code Chap.15.2.2.2 :
 - The system shall be designed to ensure that if the oxygen content exceeds 5% by volume, the inert gas shall be automatically vented to atmosphere.
 - If blowers are to be used for gas-freeing, their air inlets shall be provided with blanking arrangements.
 - Where a double block and bleed valve is installed, the system shall ensure upon loss of power, the block valves are automatically closed and the bleed valve is automatically open.
- 3) FSS code Chap.15.2.2.3.1 :
 - At least two non-return devices shall be fitted in order to prevent the return of vapour and liquid to the inert gas plant, or to any gas-safe spaces.
 - The first non-return device shall be a deck seal of the wet, semi-wet, or dry type or a double-block and bleed arrangement.
 - The second non-return device shall be a non-return valve or equivalent capable of preventing the return of vapours and liquids and fitted between the deck water seal (or equivalent device) and the first connection from the inert gas main to a cargo tank.
 - As an alternative to positive means of closure, an additional valve having such means of closure may be provided between the non-return valve and the first connection to the cargo tanks to isolate the deck water seal, or equivalent device, from the inert gas main to the cargo tanks.
 - A water seal, if fitted, shall be capable of being supplied by two separate pumps, and audible and visual alarm on the low level of water in the water seal shall operate at all times.
- 4) FSS code Chap. 15.2.2.4 :
 - Indicators and alarms
 - * Scrubber water pressure low
 - * Scrubber water level high
 - * Inert gas high temp. from blower outlet of IGS
 - * Motor failure of blowers
 - * Oxygen content high(in excess of 5% by volume) – Check of fixed O₂ analyzer calibration
 - * Power failure – Notice to ECR & CCR
 - * Deck main line pressure low(less than 100mm water gauge)
 - * Deck main line pressure high
 - * Automatic shutdown of cargo pumps shall be provided to operate on predetermined limits of low pressure in the inert gas main being reached
 - * Failure of the power supply to the automatic control system
- 5) PV Breaker : Water filled pressure/vacuum breakers should be filled to the appropriate level with anti-freeze liquid & should not be set to a lower pressure than that of the secondary venting system.

24. Is the pump room clean and free of leaks from various equipment, piping and valves?

- 1) Means shall be provided to deal with drainage and any possible leakage from cargo pumps and valves in cargo pump-rooms. The bilge system serving the cargo pump-room shall be operable from outside the cargo pump-room.

25. Are emergency towing arrangements (ETA) located at both end of the ship for easily use, regularly

Checklist for Oil/Chemical Tanker

inspected and, record maintained?(if applicable)

- 1) Emergency towing arrangements shall be fitted at both ends on board every tanker of not less than 20,000 tonnes deadweight
 - 2) The arrangements shall, at all times, be capable of rapid deployment in the absence of main power on the ship to be towed and easy connection to the towing ship. At least one of the emergency towing arrangements shall be pre-rigged ready for rapid deployment
 - 3) Performance standard
 - For tankers of 20,000 DWT and over but less than 50,000 DWT : working strength of at least 1,000KN
 - For tankers of 50,000 DWT and over : working strength of at least 2,000KN
 - 4) Ships shall be provided with a ship-specific emergency towing procedure. Such a procedure shall be carried aboard the ship for use in emergency situations and shall be based on existing arrangements and equipment available on board the ship.
 - Drawings of fore and aft deck showing possible emergency towing arrangements
 - Inventory of equipment on board that can be used for emergency towing
 - Means and methods of communication
 - Sample procedures to facilitate the preparation for and conducting of emergency towing operations
 - Forward Emergency towing system
- * Chain stopper
 - * Fairlead
 - * Pedestal roller
 - * Chafing chain
 - Aft Emergency towing system
 - * One towing bracket welded into the ship's structure
 - * One storage drum with towing wire
 - * One pick-up gear with marking buoys stowed in a separate container
 - * Towing wire

26. Are the hydrocarbon gas concentrations in all ballast tanks and spaces in double hull and double bottom spaces, including fore tanks adjacent to cargo tanks and other tanks and spaces under bulkhead decks measured as use of portable and fixed hydrocarbon gas detectors?

- 1) Suitable portable instruments for measuring oxygen and flammable vapour concentrations in double-hull spaces and double-bottom spaces shall be provided. In selecting these instruments, due attention shall be given to their use in combination with the fixed gas sampling line systems
- 2) Oil tankers of 20,000 tonnes deadweight and above, constructed on or after 1 January 2012, shall be provided with a fixed hydrocarbon gas detection system complying with the Fire Safety Systems Code for measuring hydrocarbon gas concentrations in all ballast tanks and void spaces of double-hull and double-bottom spaces adjacent to the cargo tanks, including the forepeak tank and any other tanks and spaces under the bulkhead deck adjacent to cargo tanks.

27. Is the oil discharging monitoring equipment (ODME) regularly inspected, and record maintained?

- 1) Check the approved ODME manual
- 2) Check the record of maintenance and the condition of it
 - Oil content monitor
 - Flow meter system
 - Central control system
 - Sampling system
 - Discharging control system
- 3) If use it recently, check the record of it
- 4) If no record of use, check the discharging to shore and close of overboard valve
- 5) Any failure of this monitoring and control system shall stop the discharge. In the event of failure of the oil discharge monitoring and control system a manually operated alternative method may be used. Subject to allowance by the port State authority a tanker with a defective oil discharge monitoring and control system may undertake one ballast voyage before proceeding to a repair port.
- 6) If applicable, the date and time when any failure occurred and the date and time when the system was made operational, together with the reason for the failure should be recorded in the Oil Record Book 2.

Checklist for Oil/Chemical Tanker

28. Are there any documents or evidences indicating structural defects in the ship?

- 1) Documentation on board
 - Reports of structural surveys
 - Executive hull summary
 - Thickness measurement reports
- 2) Supporting documents
 - Main structural plans of cargo and ballast tanks
 - Previous repair history
 - Cargo and ballast history
 - Extent of use of inert gas plant and tank cleaning procedures
 - The Owners inspection report with reference to
 - * Structural deterioration in general
 - * Leakages in bulkheads and piping
 - * Condition of corrosion prevention system, if any
 - * Any other information that will help identify critical structural areas and/or suspect areas requiring inspection
 - Survey programme

29. Is the information on the cargo works shared with engine department and the means of emergency contact established?

- 1) Information on cargo handling is shared between cargo control room and engine department
- 2) Maintain the emergency communication for rapid responding to the emergency situation

30. Is the system to recover the steering capacity in case of a single failure of the tanker's steering system regularly inspected, and record maintained(10,000GT and above)?

- 1) Steering capability shall be regained in not more than 45 s after the loss of one power actuating system
- 2) Loss of hydraulic fluid from one system shall be capable of being detected and the defected system shall be isolated automatically

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|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|---|
| Acetic acid | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | F | AC | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.17, 15.19, 16.2.9 |
| Acetic anhydride | Z | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.19.6 |
| Acetochlor | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.6, 16.2.9 |
| Acetone cyanohydrin | Y | S/P | 1 | 1G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.13, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3 |
| Acetonitrile | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Acetonitrile (Low purity grade) | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Acid oil mixture from soya bean, corn (maize) and sunflower oil refining | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Acrylamide solution (50% or less) | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | No | 15.12, 15.13, 15.17, 15.19, 16.2.9, 16.6.1 |
| Acrylic acid | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.13, 15.17, 15.19, 16.2.9, 16.6.1 |
| Acrylic acid/ethenesulphonic acid copolymer with phosphonate groups, sodium salt solution | Z | P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | |
| Acrylonitrile | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No | C | FT | AC | Yes | 15.12, 15.13, 15.17, 15.19 |
| Acrylonitrile-Styrene copolymer dispersion in polyether polyol | Y | P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Adiponitrile | Z | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|---|
| Alachlor technical (90% or more) | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Alcohol (C9-C11) poly (2.5-9) ethoxylate | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Alcohol (C6-C17) (secondary) poly(3-6) ethoxylates | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Alcohol (C6-C17) (secondary) poly(7-12) ethoxylates | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Alcohol (C10-C18) poly(7) ethoxylate | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Alcohol (C12-C16) poly(1-6) ethoxylates | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Alcohol (C12-C16) poly(20+) ethoxylates | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Alcohol (C12-C16) poly(7-19) ethoxylates | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Alcohols (C13+) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Alcohols (C12+), primary, linear | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Alcohols (C8-C11), primary, linear and essentially linear | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Alcohols (C12-C13), primary, linear and essentially linear | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Alcohols (C14-C18), primary, linear and essentially linear | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Alkanes (C6-C9) | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | C | FT | AC | No | 15.12, 15.17, 15.19.6 |
| Iso- and cyclo-alkanes (C10-C11) | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Iso- and cyclo-alkanes (C12+) | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| n-Alkanes (C9-C11) | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| n-Alkanes (C10 – C20) | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|---|
| Alkaryl polyethers (C9-C20) | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.6 |
| Alkenoic acid, polyhydroxy ester borated | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Alkenyl (C11+) amide | X | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Alkenyl (C16-C20) succinic anhydride | Z | S/P | 3 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Alkyl acrylate/vinylpyridine copolymer in toluene | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No | C | FT | ABC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Alkylaryl phosphate mixtures (more than 40% Diphenyl tolyl phosphate, less than 0.02% ortho-isomers) | X | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6 |
| Alkylated (C4-C9) hindered phenols | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Alkylbenzene, alkylindane, alkylindene mixture (each C12-C17) | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Alkyl benzene distillation bottoms | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Alkylbenzene mixtures (containing at least 50% of toluene) | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19.6 |
| Alkylbenzenes mixtures (containing naphthalene) | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6 |
| Alkyl (C3-C4) benzenes | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Alkyl (C5-C8) benzenes | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Alkyl (C9+)benzenes | Y | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6 |
| Alkyl (C11-C17) benzene sulphonic acid | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |

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| Alkylbenzene sulphonic acid, sodium salt solution | Y | S/P | 2 | 2G | Cont | No | - | - | NF | C | T | No | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Alkyl/cyclo (C4-C5) alcohols | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Alkyl (C10-C15, C12 rich) phenol poly (4-12) ethoxylate | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Alkyl (C12+) dimethylamine | X | S/P | 1 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Alkyl dithiocarbamate (C19-C35) | Y | P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Alkyldithiothiadiazole (C6-C24) | Y | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6, 16.2.6 |
| Alkyl ester copolymer (C4-C20) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Alkyl (C7-C9) nitrates | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 15.20, 16.6.1, 16.6.2, 16.6.3 |
| Alkyl (C8-C10)/(C12-C14):(40% or less/60% or more) polyglucoside solution (55% or less) | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Alkyl (C8-C10)/(C12-C14):(60% or more/40% or less) polyglucoside solution(55% or less) | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Alkyl (C7-C11)phenol poly(4-12) ethoxylate | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Alkyl (C8-C40) phenol sulphide | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | |
| Alkyl (C8-C9) phenylamine in aromatic solvents | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Alkyl (C9-C15) phenyl propoxylate | Z | S/P | 3 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Alkyl (C8-C10) polyglucoside solution (65% or less) | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|---|
| Alkyl (C8-C10)/(C12-C14):(50%/50%) polyglucoside solution (55% or less) | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Alkyl (C12-C14) polyglucoside solution (55% or less) | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Alkyl (C12-C16) propoxyamine ethoxylate | X | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.6 |
| Alkyl (C10-C20, saturated and unsaturated) phosphite | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Alkyl sulphonic acid ester of phenol | Y | P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Alkyl (C18+) toluenes | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Alkyl (C18-C28) toluenesulphonic acid | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Alkyl (C18-C28) toluenesulphonic acid, calcium salts, borated | Y | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Alkyl (C18-C28) toluenesulphonic acid, calcium salts, low overbase | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Alkyl (C18-C28) toluenesulphonic acid, calcium salts, high overbase | Y | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Allyl alcohol | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| Allyl chloride | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | No | 15.12, 15.17, 15.19 |
| Aluminium chloride/Hydrogen chloride solution | Y | S/P | 2 | 2G | Cont | No | - | - | NF | C | T | No | Yes | 15.11, 15.12, 15.17, 15.19 |
| Aluminium hydroxide, sodium hydroxide, sodium carbonate solution (40% or less) | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19 |
| Aluminium sulphate solution | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19 |
| 2-(2-Aminoethoxy) ethanol | Z | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AD | Yes | 15.12, 15.17, 15.19 |

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| Aminoethyldiethanolamine/Aminoethylethanolamine solution | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Aminoethyl ethanolamine | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| N-Aminoethylpiperazine | Z | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| 2-Amino-2-methyl-1-propanol | Z | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Ammonia aqueous (28% or less) | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19 |
| Ammonium chloride solution (less than 25%) (*) | Z | S/P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | |
| Ammonium hydrogen phosphate solution | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Ammonium lignosulphonate solutions | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 16.2.9 |
| Ammonium nitrate solution (93% or less) (*) | Z | S/P | 2 | 1G | Cont | No | | | NF | R | T | No | No | 15.2, 15.11.4, 15.11.6, 15.12.3, 15.12.4, 15.18, 15.19.6, 16.2.9 |
| Ammonium polyphosphate solution | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |
| Ammonium sulphate solution | Z | P | 3 | 2G | Open | No | | | NF | O | No | No | No | |
| Ammonium sulphide solution (45% or less) (*) | Y | S/P | 2 | 2G | Cont | Inert | T4 | IIB | No | C | FT | AC | No | 15.12, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3 |
| Ammonium thiosulphate solution (60% or less) | Z | S/P | 3 | 2G | Open | No | | | NF | O | No | No | No | |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|---|
| Amyl acetate (all isomers) | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.19.6 |
| n-Amyl alcohol | Z | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | ABC | Yes | 15.12, 15.17, 15.19 |
| Amyl alcohol, primary | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| sec-Amyl alcohol | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| tert-Amyl alcohol | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| tert-Amyl ethyl ether | Z | P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| tert-Amyl methyl ether | X | S/P | 2 | 2G | Cont | No | T2 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Aniline | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Aryl polyolefins (C11-C50) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Aviation alkylates (C8 paraffins and iso-paraffins BPT 95 - 120°C) | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| Barium long chain (C11-C50) alkaryl sulphonate | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19, 16.2.6, 16.2.9 |
| Benzene and mixtures having 10% benzene or more (i) | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Benzene sulphonyl chloride | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Benzenetricarboxylic acid, trioctyl ester | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Benzyl acetate | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Benzyl alcohol | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|--------------------------------|
| Benzyl chloride | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | C | FT | ABC | Yes | 15.12, 15.13, 15.17, 15.19 |
| Bio-fuel blends of Diesel/gas oil and FAME (>25% but <99% by volume) | X | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6 |
| Bio-fuel blends of Diesel/gas oil and vegetable oil (>25% but <99% by volume) | X | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6 |
| Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume) | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | FT | AC | No | 15.12, 15.17, 15.19.6 |
| Bis (2-ethylhexyl) terephthalate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Brake fluid base mix: Poly(2-8)alkylene (C2-C3) glycols/Polyalkylene (C2-C10) glycols monoalkyl (C1-C4) ethers and their borate esters | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |
| Bromochloromethane | Z | P | 3 | 2G | Open | No | | | NF | O | No | No | No | |
| Butene oligomer | X | P | 2 | 2G | Cont | No | T4 | IIB | No | R | F | ABC | No | 15.19.6 |
| 2-Butoxyethanol (58%)/Hyperbranched polyesteramide (42%) (mixture) | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12.3, 15.12.4, 15.19 |
| Butyl acetate (all isomers) | Y | P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| Butyl acrylate (all isomers) | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | R | F | ABC | No | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| tert-Butyl alcohol | Z | P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | AC | No | 15.19.6 |
| Butylamine (all isomers) | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| Butylbenzene (all isomers) | X | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Butyl benzyl phthalate | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |

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|--|---|-----|---|----|------|-------|----|-----|------|---|----|-----|----|---|
| Butyl butyrate (all isomers) | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6 |
| Butyl/Decyl/Cetyl/Eicosyl methacrylate mixture | Y | S/P | 2 | 2G | Open | No | T3 | IIA | No | R | F | ABC | No | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Butylene glycol | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| 1,2-Butylene oxide | Y | S/P | 3 | 2G | Cont | Inert | T2 | IIB | No | C | FT | AC | No | 15.8.1 to 15.8.7, 15.8.12, 15.8.13, 15.8.16, 15.8.17, 15.8.18, 15.8.19, 15.8.21, 15.8.25, 15.8.27, 15.8.29, 15.12, 15.17, 15.19.6 |
| n-Butyl ether | Y | S/P | 3 | 2G | Cont | Inert | T4 | IIB | No | R | F | AC | No | 15.4.6, 15.19 |
| Butyl methacrylate | Z | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| n-Butyl propionate | Y | P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.19.6 |
| Butyraldehyde (all isomers) | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Butyric acid | Y | S/P | 3 | 2G | Cont | No | | | Yes | O | No | AC | No | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6 |
| gamma-Butyrolactone | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6 |
| Calcium alkaryl sulphonate (C11-C50) | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | |
| Calcium alkyl (C10-C28) salicylate | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Calcium hydroxide slurry | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |

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|---|---|-----|------|----|------|-----------|----|-----|------|---|----|-----|-----|----------------------------------|
| Calcium hypochlorite solution (15% or less) | Y | S/P | 2 | 2G | Cont | No | | | NF | R | T | No | No | 15.12.3, 15.12.4, 15.19.6 |
| Calcium hypochlorite solution (more than 15%) | X | S/P | 1 | 2G | Cont | No | | | NF | R | T | No | No | 15.12.3, 15.12.4, 15.19 |
| Calcium lignosulphonate solutions | Z | P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 16.2.9 |
| Calcium long-chain alkyl (C5-C10) phenate | Y | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |
| Calcium long-chain alkyl (C11-C40) phenate | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Calcium long-chain alkyl phenate sulphide (C8-C40) | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Calcium long-chain alkyl salicylate (C13+) | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Calcium long-chain alkyl (C18-C28) salicylate | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Calcium nitrate/Magnesium nitrate/Potassium chloride solution | Z | S/P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 16.2.9 |
| Calcium nitrate solution (50% or less) | Z | S | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 16.2.9 |
| Camelina oil | Y | S/P | 2(k) | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7 |
| epsilon-Caprolactam (molten or aqueous solutions) | Z | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Carbolic oil | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | FT | ABC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Carbon disulphide | Y | S/P | 1 | 1G | Cont | Pad+inert | T6 | IIC | No | C | FT | C | Yes | 15.3, 15.12, 15.17, 15.18, 15.19 |
| Carbon tetrachloride | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | No | 15.12, 15.17, 15.19.6 |

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|---|---|-----|------|----|------|----|----|-----|------|---|----|-----|-----|--|
| Cashew nut shell oil (untreated) | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Castor oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Cesium formate solution (*) | Y | S/P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 15.19.6 |
| Cetyl/Eicosyl methacrylate mixture | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.13, 15.19.6, 16.2.9, 16.6.1, 16.6.2 |
| Chlorinated paraffins (C10-C13) | X | S/P | 1 | 2G | Cont | No | | | NF | C | T | No | No | 15.12, 15.17, 15.19, 16.2.6 |
| Chlorinated paraffins (C14-C17) (with 50% chlorine or more, and less than 1% C13 or shorter chains) | X | S/P | 1 | 2G | Cont | No | - | - | Yes | C | T | AC | No | 15.12, 15.17, 15.19 |
| Chloroacetic acid (80% or less) | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.17, 15.18, 15.19, 16.2.9 |
| Chlorobenzene | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Chloroform | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | No | 15.12, 15.17, 15.19.6 |
| Chlorohydrins (crude) | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| 4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt solution | Y | S/P | 2 | 2G | Cont | No | | | NF | R | T | No | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| o-Chloronitrobenzene | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12.3, 15.12.4, 15.19, 16.2.6, 16.2.9 |
| 1-(4-Chlorophenyl)-4,4- dimethyl-pentan-3-one | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABD | No | 15.19.6, 16.2.6, 16.2.9 |
| 2- or 3-Chloropropionic acid | Z | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.19, 16.2.9 |

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|---|---|-----|------|----|------|----|----|-----|------|---|----|------|-----|--|
| Chlorosulphonic acid | Y | S/P | 1 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.5, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.16.2, 15.17, 15.18, 15.19 |
| m-Chlorotoluene | Y | S/P | 2 | 2G | Cont | No | T4 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19 |
| o-Chlorotoluene | Y | P | 2 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6 |
| p-Chlorotoluene | Y | P | 2 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6, 16.2.9 |
| Chlorotoluenes (mixed isomers) | Y | P | 2 | 2G | Cont | No | T4 | IIA | No | R | F | ABC | No | 15.19.6 |
| Choline chloride solutions | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Citric acid (70% or less) | Z | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Coal tar | X | S/P | 2 | 2G | Cont | No | T2 | IIA | Yes | C | T | BD | No | 15.12, 15.17, 15.19.6, 16.2.6, 16.2.9 |
| Coal tar naphtha solvent | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Coal tar pitch (molten) (*) | X | S/P | 2 | 1G | Cont | No | T2 | IIA | Yes | C | T | ABCD | No | 15.12, 15.17, 15.19.6, 16.2.6, 16.2.9 |
| Cocoa butter | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Coconut oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Coconut oil fatty acid | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Coconut oil fatty acid methyl ester | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6 |
| Copper salt of long chain (C17+) alkanolic acid | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Corn Oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Cotton seed oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |

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|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|---------------------------------------|
| Creosote (coal tar) | X | S/P | 1 | 2G | Cont | No | T2 | IIA | Yes | C | T | AD | No | 15.12, 15.17, 15.19.6, 16.2.6, 16.2.9 |
| Cresols (all isomers) | Y | S/P | 1 | 2G | Cont | No | T1 | IIA | Yes | C | T | ABC | Yes | 15.12, 15.18, 15.19, 16.2.9 |
| Cresol/Phenol/Xylenol mixture | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Cresylic acid, dephenolized | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Cresylic acid, sodium salt solution | Y | S/P | 2 | 2G | Cont | No | T4 | IIB | No | C | FT | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Crotonaldehyde | X | S/P | 1 | 1G | Cont | No | T3 | IIB | No | C | FT | AC | Yes | 15.12, 15.17, 15.18, 15.19 |
| 1,5,9-Cyclododecatriene | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Cycloheptane | X | S/P | 2 | 2G | Cont | No | T4 | IIA | No | R | F | AC | No | 15.19.6 |
| Cyclohexane | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6, 16.2.9 |
| Cyclohexane-1,2-dicarboxylic acid, diisononyl ester | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Cyclohexane oxidation products, sodium salts solution | Z | P | 3 | 2G | Open | No | | | NF | O | No | No | No | |
| Cyclohexanol | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Cyclohexanone | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| Cyclohexanone, Cyclohexanol mixture | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | F | AC | No | 15.19.6 |
| Cyclohexyl acetate | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Cyclohexylamine | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|-----|----|--|
| 1,3-Cyclopentadiene dimer (molten) | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19, 16.2.6, 16.2.9 |
| Cyclopentane | Y | P | 2 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| Cyclopentene | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| p-Cymene | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| Decahydronaphthalene | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Decanoic acid | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Decene | X | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Decyl acrylate | X | S/P | 1 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.13, 15.19, 16.6.1, 16.6.2 |
| Decyl alcohol (all isomers) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9(e) |
| Decyl/Dodecyl/Tetradecyl alcohol mixture | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Decyloxytetrahydrothiophene dioxide | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| Diacetone alcohol | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Dialkyl (C8-C9) diphenylamines | Z | P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | |
| Dialkyl (C7-C13) phthalates | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6, 16.2.6 |
| Dialkyl (C9-C10) phthalates | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Dialkyl thiophosphates sodium salts solution | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |

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|---|---|-----|---|----|------|-----|----|-----|------|---|----|-----|-----|--|
| 2,6-Diaminohexanoic acid phosphonate mixed salts solution | Z | S/P | 3 | 2G | Cont | No | | | NF | R | No | No | No | 15.11, 15.17, 15.19.6 |
| Dibromomethane | Y | S/P | 2 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6 |
| Dibutylamine | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | ABC | Yes | 15.12, 15.17, 15.19 |
| Dibutyl hydrogen phosphonate | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| 2,6-Di-tert-butylphenol | X | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Dibutyl phthalate | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |
| Dibutyl terephthalate | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Dichlorobenzene (all isomers) | X | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes | C | T | ABD | No | 15.12, 15.17, 15.19.6 |
| 3,4-Dichloro-1-butene | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| 1,1-Dichloroethane | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| Dichloroethyl ether | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.18, 15.19 |
| 1,6-Dichlorohexane | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6 |
| 2,2'-Dichloroisopropyl ether | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19 |
| Dichloromethane | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19.6 |
| 2,4-Dichlorophenol | Y | S/P | 2 | 2G | Cont | Dry | | | Yes | C | T | AD | Yes | 15.12, 15.16.2, 15.17, 15.19, 16.2.6, 16.2.9 |
| 2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| 2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution (70% or less) | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19, 16.2.9 |

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|---|---|-----|---|----|------|-------|----|-----|------|---|----|-----|-----|---|
| 2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| 1,1-Dichloropropane | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6 |
| 1,2-Dichloropropane | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| 1,3-Dichloropropene | X | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | ABC | Yes | 15.12, 15.17, 15.19 |
| Dichloropropene/Dichloropropane mixtures | X | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | ABD | No | 15.12, 15.17, 15.19 |
| 2,2-Dichloropropionic acid | Y | S/P | 2 | 2G | Cont | Dry | | | Yes | C | T | AD | Yes | 15.11.2, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.16.2, 15.17, 15.19, 16.2.9 |
| Dicyclopentadiene, Resin Grade, 81-89% | Y | S/P | 2 | 2G | Cont | Inert | T2 | IIB | No | C | FT | ABC | Yes | 15.12, 15.13, 15.17, 15.19 |
| Diethanolamine | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6, 16.2.6, 16.2.9 |
| Diethylamine | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| Diethylaminoethanol | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| 2,6-Diethylaniline | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Diethylbenzene | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Diethylene glycol | Z | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Diethylene glycol dibutyl ether | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |
| Diethylene glycol diethyl ether | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |

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|---|---|-----|---|----|------|-------|----|-----|------|---|----|-----|-----|---|
| Diethylene glycol phthalate | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Diethylenetriamine | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T | ABC | No | 15.12, 15.17, 15.19 |
| Diethylenetriaminepentaacetic acid, pentasodium salt solution | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |
| Diethyl ether (*) | Z | S/P | 2 | 1G | Cont | Inert | T4 | IIB | No | R | F | AC | No | 15.4, 15.14, 15.19 |
| Di-(2-ethylhexyl) adipate | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6 |
| Di-(2-ethylhexyl) phosphoric acid | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AD | No | 15.12.3, 15.12.4, 15.19.6 |
| Diethyl phthalate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |
| Diethyl sulphate | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Diglycidyl ether of bisphenol A | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Diglycidyl ether of bisphenol F | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6, 16.2.6 |
| Diheptyl phthalate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| Di-n-hexyl adipate | X | S/P | 1 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19 |
| Dihexyl phthalate | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6 |
| Diisobutylamine | Y | S/P | 2 | 2G | Cont | No | T4 | IIB | No | C | FT | ABC | No | 15.12.3, 15.12.4, 15.19 |
| Diisobutylene | Y | P | 2 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| Diisobutyl ketone | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Diisobutyl phthalate | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |
| Diisononyl adipate | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6 |
| Diisooctyl phthalate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Diisopropanolamine | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 16.2.9 |
| Diisopropylamine | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.17, 15.19.6 |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|--------------------------------|
| Diisopropylbenzene (all isomers) | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Diisopropylnaphthalene | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6 |
| N,N-Dimethylacetamide | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| N,N-Dimethylacetamide solution (40% or less) | Z | S/P | 3 | 2G | Cont | No | | | NF | R | T | No | No | 15.12.3, 15.12.4, 15.19.6 |
| Dimethyl adipate | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Dimethylamine solution (45% or less) | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19 |
| Dimethylamine solution (greater than 45% but not greater than 55%) | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19 |
| Dimethylamine solution (greater than 55% but not greater than 65%) | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.14, 15.19 |
| N,N-Dimethylcyclohexylamine | Y | S/P | 2 | 2G | Cont | No | T3 | IIB | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| Dimethyl disulphide | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| N,N-Dimethyldodecylamine | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Dimethylethanolamine | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Dimethylformamide | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | No | 15.12, 15.17, 15.19.6 |
| Dimethyl glutarate | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |

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|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|----|--|
| Dimethyl hydrogen phosphite | Y | S/P | 3 | 2G | Cont | No | T4 | IIB | No | R | F | AC | No | 15.19.6 |
| Dimethyl octanoic acid | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Dimethyl phthalate | Y | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| Dimethylpolysiloxane | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| 2,2-Dimethylpropane-1,3-diol (molten or solution) | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 16.2.9 |
| Dimethyl succinate | Y | P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| Dinitrotoluene (molten) | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19, 15.21, 16.2.6, 16.2.9, 16.6.4 |
| Dinonyl phthalate | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6 |
| Diocetyl phthalate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| 1,4-Dioxane | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Dipentene | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | C | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Diphenyl | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Diphenylamine (molten) | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Diphenylamine, reaction product with 2,2,4-Trimethylpentene | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19, 16.2.6 |
| Diphenylamines, alkylated | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19, 16.2.6, 16.2.9 |
| Diphenyl/Diphenyl ether mixtures | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Diphenyl ether | X | P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| Diphenyl ether/Diphenyl phenyl ether mixture | X | P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |

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|--|---|-----|---|----|------|-----|----|-----|--------|---|------|--------|-----|--|
| Diphenylmethane diisocyanate | Y | S/P | 2 | 2G | Cont | Dry | - | - | Yes(a) | C | T(a) | AB(b)D | Yes | 15.12, 15.16.2, 15.17, 15.19, 16.2.6, 16.2.9 |
| Diphenylol propane-epichlorohydrin resins | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Di-n-propylamine | Y | S/P | 2 | 2G | Cont | No | T3 | IIB | No | C | FT | AC | Yes | 15.12.3, 15.12.4, 15.17, 15.19.6 |
| Dipropylene glycol | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Dithiocarbamate ester (C7-C35) | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| Ditridecyl adipate | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Ditridecyl phthalate | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6 |
| Diundecyl phthalate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Dodecane (all isomers) | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| tert-Dodecanethiol | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| 1-Dodecene | Y | S/P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| Dodecene (all isomers) | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Dodecyl alcohol | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| n-Dodecyl mercaptan | X | S/P | 1 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Dodecylamine/Tetradecylamine mixture | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Dodecylbenzene | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Dodecyl diphenyl ether disulphonate solution | X | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19, 16.2.6 |

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|--|---|-----|---|----|------|-------|----|-----|------|---|----|-----|-----|--|
| Dodecyl hydroxypropyl sulphide | X | P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |
| Dodecyl methacrylate | Y | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.13, 15.19.6 |
| Dodecyl/Octadecyl methacrylate mixture | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.13, 15.19.6, 16.2.6, 16.6.1, 16.6.2 |
| Dodecyl/Pentadecyl methacrylate mixture | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Dodecyl phenol | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.6 |
| Dodecyl Xylene | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Drilling brines (containing zinc chloride) | X | S/P | 2 | 2G | Open | No | | | NF | O | No | No | Yes | 15.19.6 |
| Drilling brines (containing calcium bromide) | Z | S/P | 3 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6 |
| Epichlorohydrin | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| Ethanolamine | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | Yes | C | FT | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| 2-Ethoxyethyl acetate | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | No | 15.12, 15.17, 15.19.6 |
| Ethoxylated long chain (C16+) alkyloxyalkylamine | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Ethoxylated tallow amine (>95%) | X | S/P | 2 | 2G | Cont | Inert | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Ethyl acetate | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.19.6 |
| Ethyl acetoacetate | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Ethyl acrylate | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | No | 15.12, 15.13, 15.17, 15.19, 16.6.1, 16.6.2 |
| Ethylamine (*) | Y | S/P | 2 | 1G | Cont | No | T2 | IIA | No | C | F | AC | No | 15.12.3.2, 15.14, 15.19 |
| Ethylamine solutions (72% or less) | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | F | AC | No | 15.12.3.2, 15.14, 15.19 |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|-----------------------------------|
| Ethyl amyl ketone | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Ethylbenzene | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | No | 15.12, 15.17, 15.19.6 |
| Ethyl tert-butyl ether | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Ethyl butyrate | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Ethylcyclohexane | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| N-Ethylcyclohexylamine | Y | S/P | 2 | 2G | Cont | No | T3 | IIB | No | C | FT | AC | No | 15.12.3, 15.12.4, 15.19 |
| S-Ethyl dipropylthiocarbamate | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Ethylene carbonate | Z | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Ethylene chlorohydrin | Y | S/P | 1 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.18, 15.19 |
| Ethylene cyanohydrin | Y | S/P | 2 | 2G | Cont | No | | IIB | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Ethylenediamine | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Ethylenediaminetetraacetic acid, tetrasodium salt solution | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Ethylene dibromide | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | No | 15.12, 15.17, 15.19, 16.2.9 |
| Ethylene dichloride | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19 |
| Ethylene glycol | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |
| Ethylene glycol acetate | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Ethylene glycol butyl ether acetate | Y | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |
| Ethylene glycol diacetate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |

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|--|---|-----|---|----|------|-------|----|-----|------|---|----|-----|-----|--|
| Ethylene glycol methyl ether acetate | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |
| Ethylene glycol monoalkyl ethers | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | No | 15.12.3, 15.12.4, 15.19, 16.2.9 |
| Ethylene glycol phenyl ether | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 16.2.9, |
| Ethylene glycol phenyl ether/Diethylene glycol phenyl ether mixture | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Ethylene glycol (>75%)/sodium alkyl carboxylates/borax mixture | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |
| Ethylene glycol (>85%)/sodium alkyl carboxylates mixture | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6 |
| Ethylene oxide/Propylene oxide mixture with an ethylene oxide content of not more than 30% by mass | Y | S/P | 2 | 1G | Cont | Inert | T2 | IIB | No | C | FT | AC | Yes | 15.8, 15.12, 15.14, 15.17, 15.19 |
| Ethylene-vinyl acetate copolymer (emulsion) | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Ethyl-3-ethoxypropionate | Y | P | 2 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| 2-Ethylhexanoic acid | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| 2-Ethylhexyl acrylate | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.13, 15.19.6, 16.6.1, 16.6.2 |
| 2-Ethylhexylamine | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19.6 |
| 2-Ethyl-2-(hydroxymethyl) propane-1,3-diol (C8-C10) ester | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Ethylidene norbornene | Y | S/P | 2 | 2G | Cont | No | T3 | IIB | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |

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|---|---|-----|------|----|------|----|----|-----|------|---|----|-----|-----|---|
| Ethyl methacrylate | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| N-Ethylmethylallylamine | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | No | 15.12.3, 15.12.4, 15.19 |
| Ethyl propionate | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| 2-Ethyl-3-propylacrolein | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6, 16.2.9 |
| Ethyl toluene | Y | P | 2 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6 |
| Fatty acid (saturated C13+) | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Fatty acid methyl esters (m) | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Fatty acids, (C8-C10) | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Fatty acids, (C12+) | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Fatty acids, (C16+) | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Fatty acids, essentially linear (C6-C18) 2-ethylhexyl ester | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| Ferric chloride solutions | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.17, 15.19, 16.2.9 |
| Ferric nitrate/Nitric acid solution | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.17, 15.19 |
| Fish oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Fish silage protein concentrate (containing 4% or less formic acid) | Y | P | 2 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6, 16.2.6 |
| Fish protein concentrate (containing 4% or less formic acid) | Z | P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | |
| Fluorosilicic acid solution (20-30%) | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.17, 15.19 |

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|--|---|-----|---|----|------|----|----|-----|------|---|-------|-----|-----|--|
| Formaldehyde solutions (45% or less) | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Formamide | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Formic acid (85% or less acid) | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T(g) | AC | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.17, 15.19, 16.2.9 |
| Formic acid (over 85%) | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT(g) | AC | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.17, 15.19, 16.2.9 |
| Formic acid mixture (containing up to 18% propionic acid and up to 25% sodium formate) | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T(g) | AC | No | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.19.6 |
| Furfural | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| Furfuryl alcohol | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Glucitol/glycerol blend propoxylated (containing less than 10% amines) | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Glucitol/glycerol blend propoxylated (containing 10% or more amines) | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Glutaraldehyde solutions (50% or less) | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19 |
| Glycerine | Z | S | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 16.2.9 |
| Glycerol monooleate | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6, 16.2.6, 16.2.9 |
| Glycerol propoxylated | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Glycerol, propoxylated and ethoxylated | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | |

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|--|---|-----|------|----|------|----|----|-----|------|---|----|-----|-----|---|
| Glycerol/sucrose blend propoxylated and ethoxylated | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | |
| Glyceryl triacetate | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| Glycidyl ester of C10 trialkylacetic acid | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Glycine, sodium salt solution | Z | S/P | 3 | 2G | Open | No | | | NF | O | No | No | No | |
| Glycolic acid solution (70% or less) | Z | S/P | 3 | 2G | Cont | No | - | - | NF | C | T | No | Yes | 15.12.3, 15.12.4, 15.17, 15.19, 16.2.9 |
| Glyoxal solution (40% or less) | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Glyoxylic acid solution (50% or less) | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T | ACD | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.17, 15.19, 16.2.9, 16.6.1, 16.6.2, 16.6.3 |
| Glyphosate solution (not containing surfactant) | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Grape Seed Oil | Y | S/P | 2(k) | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7 |
| Groundnut oil | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Heptane (all isomers) | X | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| n-Heptanoic acid | Z | S/P | 3 | 2G | Cont | No | | | Yes | R | No | ABC | No | 15.19.6, 15.17 |
| Heptanol (all isomers) (d) | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Heptene (all isomers) | Y | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| Heptyl acetate | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| 1-Hexadecylnaphthalene / 1,4-bis(hexadecyl)naphthalene mixture | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Hexamethylenediamine (molten) | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |

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|--|---|-----|---|----|------|-----|----|-----|------|---|----|--------|-----|--|
| Hexamethylenediamine adipate (50% in water) | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Hexamethylenediamine solution | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Hexamethylene diisocyanate | Y | S/P | 2 | 2G | Cont | Dry | T1 | IIB | Yes | C | T | AC(b)D | Yes | 15.12, 15.16.2, 15.17, 15.18, 15.19 |
| Hexamethylene glycol | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Hexamethyleneimine | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19 |
| Hexamethylenetetramine solutions | Z | S | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |
| Hexane (all isomers) | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | C | FT | AC | No | 15.12, 15.17, 15.19.6 |
| 1,6-Hexanediol, distillation overheads | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Hexanoic acid | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Hexanol | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Hexene (all isomers) | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Hexyl acetate | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| Hexylene glycol | Z | S | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Hydrocarbon wax | X | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6, 16.2.6, 16.2.9 |
| Hydrochloric acid (*) | Z | S/P | 3 | 1G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.17, 15.19 |
| Hydrogen peroxide solutions (over 60% but not over 70% by mass) | Y | S/P | 2 | 2G | Cont | No | | | NF | R | T | No | No | 15.5.1, 15.12.3, 15.12.4, 15.19.6 |
| Hydrogen peroxide solutions (over 8% but not over 60% by mass) | Y | S/P | 3 | 2G | Cont | No | | | NF | R | T | No | No | 15.5.2, 15.18, 15.12.3, 15.12.4, 15.19.6 |
| 2-Hydroxyethyl acrylate | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.13, 15.17, 15.19, 16.6.1, 16.6.2 |
| N-(Hydroxyethyl)ethylenediaminetriacetic acid, trisodium salt solution | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |

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|---------------------------------------|---|-----|------|----|------|-------|----|-----|------|---|----|-----|-----|---|
| 2-Hydroxy-4-(methylthio)butanoic acid | Z | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Illipe oil | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Isoamyl alcohol | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Isobutyl alcohol | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.19.6 |
| Isobutyl formate | Z | P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.19.6 |
| Isobutyl methacrylate | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Isophorone | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Isophoronediamine | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Isophorone diisocyanate | Y | S/P | 2 | 2G | Cont | Dry | | | Yes | C | T | ABD | Yes | 15.12, 15.16.2, 15.17, 15.19 |
| Isoprene | Y | S/P | 2 | 2G | Cont | No | T3 | IIB | No | C | FT | ABC | No | 15.12, 15.13, 15.14, 15.17, 15.19.6, 16.6.1, 16.6.2 |
| Isopropanolamine | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | Yes | R | No | AC | No | 15.19.6, 16.2.6, 16.2.9 |
| Isopropyl acetate | Z | P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6 |
| Isopropylamine | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | No | 15.12.3.2, 15.14, 15.19 |
| Isopropylamine (70% or less) solution | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | No | 15.12.3.2, 15.19 |
| Isopropylcyclohexane | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6, 16.2.9 |
| Isopropyl ether | Y | S/P | 3 | 2G | Cont | Inert | T2 | IIA | No | R | F | AC | No | 15.4.6, 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Jatropha oil | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7 |
| Lactic acid | Z | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |

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|---|---|-----|------|----|------|----|----|-----|------|---|----|-----|-----|---|
| Lactonitrile solution (80% or less) | Y | S/P | 1 | 1G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.13, 15.17, 15.18, 15.19, 16.6.1, 16.6.2, 16.6.3 |
| Lard | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Latex, ammonia (1% or less)- inhibited | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6, 16.2.6, 16.2.9 |
| Latex: Carboxylated styrene-Butadiene copolymer; Styrene-Butadiene rubber | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 16.2.9 |
| Lauric acid | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Ligninsulphonic acid, magnesium salt solution | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |
| Ligninsulphonic acid, sodium salt solution | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 16.2.9 |
| Linseed oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Liquid chemical wastes | X | S/P | 2 | 2G | Cont | No | | | No | C | FT | AC | No | 15.12, 15.17, 15.19, 20.5.1, 20.7 |
| Long-chain alkaryl polyether (C11-C20) | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Long-chain alkaryl sulphonic acid (C16-C60) | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Long-chain alkylphenate/Phenol sulphide mixture | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Long-chain alkylphenol (C14-C18) | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Long-chain alkylphenol (C18-C30) | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |

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|--|---|-----|------|----|------|----|----|-----|------|---|----|-------|-----|--|
| L-Lysine solution (60% or less) | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Magnesium chloride solution | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Magnesium hydroxide slurry | Z | S | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 16.2.9 |
| Magnesium long-chain alkaryl sulphonate (C11-C50) | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Magnesium long-chain alkyl salicylate (C11+) | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Maleic anhydride | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC(f) | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Maleic anhydride-sodium allylsulphonate copolymer solution | Z | P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | |
| Mango kernel oil | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Mercaptobenzothiazol, sodium salt solution | X | S/P | 2 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6, 16.2.9 |
| Mesityl oxide | Z | S/P | 3 | 2G | Cont | No | T2 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Metam sodium solution | X | S/P | 2 | 2G | Cont | No | - | - | NF | C | T | No | No | 15.12.3, 15.12.4, 15.19 |
| Methacrylic acid | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.13, 15.12.3, 15.12.4, 15.19, 16.2.9, 16.6.1 |
| Methacrylic acid - alkoxy poly (alkylene oxide) methacrylate copolymer, sodium salt aqueous solution (45% or less) | Z | S/P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 16.2.9 |
| Methacrylic resin in ethylene dichloride | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19, 16.2.9 |
| Methacrylonitrile | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | C | FT | AC | Yes | 15.12, 15.13, 15.17, 15.19 |

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|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|---|
| 3-Methoxy-1-butanol | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6 |
| 3-Methoxybutyl acetate | Y | S/P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| N-(2-Methoxy-1-methyl ethyl)-2-ethyl-6-methyl chloroacetanilide | X | S/P | 1 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19, 16.2.6 |
| Methyl acetate | Z | P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | AC | No | 15.19.6 |
| Methyl acetoacetate | Z | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Methyl acrylate | Y | S/P | 3 | 2G | Cont | No | T1 | IIB | No | C | FT | AC | No | 15.12, 15.17, 15.13, 15.19 |
| Methyl alcohol (*) | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | AC | No | 15.12.1, 15.12.2, 15.12.3.2, 15.12.3.3, 15.12.4, 15.17, 15.19 |
| Methylamine solutions (42% or less) | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| Methylamyl acetate | Y | P | 2 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.19.6 |
| Methylamyl alcohol | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Methyl amyl ketone | Z | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.19.6 |
| N-Methylaniline | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| alpha-Methylbenzyl alcohol with acetophenone (15% or less) | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Methylbutenol | Y | S/P | 3 | 2G | Cont | No | T4 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Methyl tert-butyl ether | Z | P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6 |
| Methyl butyl ketone | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19.6 |
| Methylbutynol | Z | S/P | 3 | 2G | Cont | No | T4 | IIB | No | R | F | AC | No | 15.19.6 |

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|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|------------------------------------|
| Methyl butyrate | Y | S/P | 3 | 2G | Cont | No | T4 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Methylcyclohexane | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Methylcyclopentadiene dimer | Y | S/P | 2 | 2G | Cont | No | T4 | IIB | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Methylcyclopentadienyl manganese tricarbonyl | X | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.18, 15.19, 16.2.9 |
| Methyl diethanolamine | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| 2-Methyl-6-ethyl aniline | Y | S/P | 3 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Methyl ethyl ketone | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | AC | No | 15.19.6 |
| 2-Methyl-5-ethyl pyridine | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Methyl formate | Z | S/P | 2 | 2G | Cont | No | T1 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.14, 15.19.6 |
| 2-Methylglutaronitrile with 2-Ethylsuccinonitrile (12% or less) | Z | S/P | 3 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| 2-Methyl-2-hydroxy-3-butyne | Z | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6, 16.2.9 |
| Methyl isobutyl ketone | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Methyl methacrylate | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.13, 15.19.6 |
| 3-Methyl-3-methoxybutanol | Z | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Methyl naphthalene (molten) | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| N-Methylglucamine solution (70% or less) | Z | S | 3 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| 2-Methyl-1,3-propanediol | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |

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|--|---|-----|---|----|------|-------|----|-----|------|---|----|-------|-----|--|
| 2-Methylpyridine | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | F | AC | No | 15.12.3.2, 15.19 |
| 3-Methylpyridine | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | AC | No | 15.12.3, 15.12.4, 15.19 |
| 4-Methylpyridine | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | AC | No | 15.12.3, 15.12.4, 15.19, 16.2.9 |
| N-Methyl-2-pyrrolidone | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |
| Methyl propyl ketone | Z | S | 3 | 2G | Cont | No | T1 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Methyl salicylate | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |
| alpha-Methylstyrene | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No | C | FT | AD(j) | No | 15.12, 15.13, 15.17, 15.19.6, 16.6.1, 16.6.2 |
| 3-(methylthio)propionaldehyde | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | FT | ABC | No | 15.12, 15.17, 15.19.6 |
| Molybdenum polysulphide long chain alkyl dithiocarbamide complex | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Morpholine | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | No | 15.12.3, 15.12.4, 15.19 |
| Motor fuel anti-knock compound (containing lead alkyls) | X | S/P | 1 | 1G | Cont | Inert | T4 | IIA | No | C | FT | AC | Yes | 15.6, 15.12, 15.17, 15.18, 15.19 |
| Myrcene | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Naphthalene (molten) | X | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Naphthalene crude (molten) | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6, 16.2.6, 16.2.9 |
| Naphthalenesulphonic acid-Formaldehyde copolymer, sodium salt solution | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 16.2.9 |
| Neodecanoic acid | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Nitrating acid (mixture of sulphuric and nitric acids) | Y | S/P | 1 | 1G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.16.2, 15.17, 15.18, 15.19 |

| a | c | d | e | f | g | h | i' | i'' | i''' | j | k | l | n | o |
|--|---|-----|---|----|------|----|----|-----|------|---|----|--------|-----|---|
| Nitric acid (70% and over) | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.16.2, 15.17, 15.19 |
| Nitric acid (less than 70%) | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.17, 15.19 |
| Nitrilotriacetic acid, trisodium salt solution | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | AC | No | 15.12, 15.17, 15.19.6 |
| Nitrobenzene | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | No | 15.12, 15.17, 15.19, 16.2.9 |
| Nitroethane | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | R | FT | ABC(f) | No | 15.12.3, 15.12.4, 15.19.6, 16.6.1, 16.6.2, 16.6.4 |
| Nitroethane (80%)/ Nitropropane(20%) | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | R | FT | ABC(f) | No | 15.12.3, 15.12.4, 15.19.6, 16.6.1, 16.6.2, 16.6.3 |
| Nitroethane, 1-Nitropropane (each 15% or more) mixture | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | R | FT | ABC(f) | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.6.1, 16.6.2, 16.6.3 |
| o-Nitrophenol (molten) | Y | S/P | 2 | 2G | Cont | No | T4 | IIB | No | R | F | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| 1- or 2-Nitropropane | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | No | 15.12, 15.17, 15.19 |
| Nitropropane (60%)/Nitroethane (40%) mixture | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | C | FT | ABC(f) | No | 15.12, 15.17, 15.19.6 |
| o- or p-Nitrotoluenes | Y | S/P | 2 | 2G | Cont | No | | IIB | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6 |
| Nonane (all isomers) | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| Nonanoic acid (all isomers) | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Non-edible industrial grade palm oil | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Nonene (all isomers) | Y | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Nonyl alcohol (all isomers) | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |

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|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|-------------------------------------|
| Nonyl methacrylate monomer | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Nonylphenol | X | S/P | 1 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Nonylphenol poly(4+)ethoxylate | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Noxious liquid, NF, (1) n.o.s. (trade name, contains) ST1, Cat. X | X | P | 1 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19, 16.2.6 |
| Noxious liquid, F, (2) n.o.s. (trade name, contains) ST1, Cat. X | X | P | 1 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19, 16.2.6 |
| Noxious liquid, NF, (3) n.o.s. (trade name, contains) ST2, Cat. X | X | P | 2 | 2G | Open | No | - | | Yes | O | No | AC | No | 15.19, 16.2.6 |
| Noxious liquid, F, (4) n.o.s. (trade name, contains) ST2, Cat. X | X | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19, 16.2.6 |
| Noxious liquid, NF, (5) n.o.s. (trade name, contains) ST2, Cat. Y | Y | P | 2 | 2G | Open | No | - | | Yes | O | No | AC | No | 15.19, 16.2.6, 16.2.9(I) |
| Noxious liquid, F, (6) n.o.s. (trade name, contains) ST2, Cat. Y | Y | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19, 16.2.6, 16.2.9(I) |
| Noxious liquid, NF, (7) n.o.s. (trade name, contains) ST3, Cat. Y | Y | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19, 16.2.6, 16.2.9(I) |

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|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|----------------------------|
| Noxious liquid, F, (8) n.o.s. (trade name, contains) ST3, Cat. Y | Y | P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19, 16.2.6, 16.2.9(l) |
| Noxious liquid, NF, (9) n.o.s. (trade name, contains) ST3, Cat. Z | Z | P | 3 | 2G | Open | No | - | | Yes | O | No | AC | No | |
| Noxious liquid, F, (10) n.o.s. (trade name, contains) ST3, Cat. Z | Z | P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Octamethylcyclotetrasiloxane | Y | P | 2 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.19.6, 16.2.9 |
| Octane (all isomers) | X | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Octanoic acid (all isomers) | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Octanol (all isomers) | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Octene (all isomers) | Y | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| n-Octyl acetate | Y | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| Octyl aldehydes | Y | S/P | 2 | 2G | Cont | No | T4 | IIB | No | R | F | AC | No | 15.19.6, 16.2.9 |
| Octyl decyl adipate | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| n-Octyl mercaptan | X | S/P | 1 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19 |
| Offshore contaminated bulk liquid P (o) | X | P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6 |
| Offshore contaminated bulk liquid S (o) | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | C | FT | AC | Yes | 15.12, 15.15, 15.17, 15.19 |
| Olefin-Alkyl ester copolymer (molecular weight 2000+) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Olefin Mixture (C7-C9) C8 rich, stabilised | X | P | 2 | 2G | Cont | No | T3 | IIB | No | R | F | ABC | No | 15.13, 15.19.6 |
| Olefin mixtures (C5-C7) | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Olefin mixtures (C5-C15) | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |

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|--|---|-----|------|----|------|-----|----|-----|------|---|----|-----|-----|--|
| Olefins (C13+, all isomers) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| alpha-Olefins (C6-C18) mixtures | X | S/P | 2 | 2G | Cont | No | T4 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Oleic acid | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Oleum | Y | S/P | 2 | 2G | Cont | Dry | - | - | NF | C | T | No | Yes | 15.11.2 to 15.11.8, 15.12, 15.16.2, 15.17, 15.19, 16.2.6 |
| Oleylamine | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Olive oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Oxygenated aliphatic hydrocarbon mixture | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | |
| Palm acid oil | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm fatty acid distillate | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm kernel acid oil | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm kernel fatty acid distillate | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm kernel oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm kernel olein | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm kernel stearin | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm mid-fraction | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm oil | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |

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|---|---|-----|------|----|------|-------|----|-----|------|---|----|-----|-----|---|
| Palm oil fatty acid methyl ester | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| Palm olein | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Palm stearin | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Paraffin wax, highly-refined | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Paraffin wax, semi-refined | X | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6, 16.2.6, 16.2.9 |
| Paraldehyde | Z | S/P | 3 | 2G | Cont | No | T3 | IIB | No | R | F | AC | No | 15.19.6, 16.2.9 |
| Paraldehyde-ammonia reaction product | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No | C | FT | ABC | Yes | 15.12, 15.17, 15.19 |
| Pentachloroethane | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | No | 15.12, 15.17, 15.19.6 |
| 1,3-Pentadiene | Y | P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.13, 15.19.6, 16.6.1, 16.6.2, 16.6.3 |
| 1,3-Pentadiene (greater than 50%), cyclopentene and isomers, mixtures | Y | S/P | 2 | 2G | Cont | Inert | T3 | IIB | No | C | FT | ABC | Yes | 15.12, 15.13, 15.17, 15.19 |
| Pentaethylenhexamine | X | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Pentane (all isomers) | Y | P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | 15.14, 15.19.6 |
| Pentanoic acid | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| n-Pentanoic acid (64%)/2-Methyl butyric acid (36%) mixture | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.17, 15.19 |
| Pentene (all isomers) | Y | P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.14, 15.19.6 |
| n-Pentyl propionate | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Perchloroethylene | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | No | 15.12, 15.17, 15.19.6 |

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|--|---|-----|---|----|------|---------------------|----|-----|-------|---|----|-----|-----|--|
| Phenol | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| 1-Phenyl-1-xylyl ethane | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| Phosphate esters, alkyl (C12-C14) amine | Y | S/P | 2 | 2G | Cont | No | T4 | IIB | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Phosphoric acid | Z | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11.1, 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.17, 15.19, 16.2.9 |
| Phosphorus, yellow or white (*) | X | S/P | 1 | 1G | Cont | Pad+(vent or inert) | | | No(c) | C | No | ABC | No | 15.7, 15.19, 16.2.9 |
| Phthalic anhydride (molten) | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| alpha-Pinene | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| beta-Pinene | X | S/P | 2 | 2G | Cont | No | T1 | IIB | No | R | F | ABC | No | 15.19.6 |
| Pine oil | X | S/P | 2 | 2G | Open | No | | | Yes | O | | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Piperazine, 68% solution | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Polyacrylic acid solution (40% or less) | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |
| Polyalkyl (C18-C22) acrylate in xylene | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Polyalkylalkenaminesuccinimide, molybdenum oxysulphide | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |
| Poly(2-8)alkylene glycol monoalkyl (C1-C6) ether acetate | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6 |
| Polyalkyl (C10-C20) methacrylate | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |

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|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|-------------------------------------|
| Polyalkyl (C10-C18) methacrylate/ethylene-propylene copolymer mixture | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Polyaluminium chloride solution | Z | S | 3 | 2G | Open | No | | | NF | O | No | No | No | |
| Polybutene | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Polybutenyl succinimide | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Poly(2+)cyclic aromatics | X | S/P | 1 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Polyether (molecular weight 1350+) | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Polyethylene glycol | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Polyethylene glycol dimethyl ether | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Poly(ethylene glycol) methylbutenyl ether (MW>1000) | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 16.2.9 |
| Polyethylene polyamines | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.6, 16.2.9 |
| Polyethylene polyamines (more than 50% C5 -C20 paraffin oil) | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Polyferric sulphate solution | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19 |
| Poly(iminoethylene)-graft-N-poly(ethyleneoxy) solution (90% or less) | Z | S/P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 16.2.9 |
| Polyisobutenamine in aliphatic (C10-C14) solvent | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| (Polyisobutene) amino products in aliphatic hydrocarbons | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |

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|---|---|-----|---|----|------|-----|----|-----|--------|---|------|-----|-----|---|
| Polyisobutenyl anhydride adduct | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | |
| Poly(4+)isobutylene (MW>224) | X | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Polyisobutylene (MW≤224) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Polyglycerin, sodium salt solution (containing less than 3% sodium hydroxide) | Z | S | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19. 16.2.9 |
| Polymethylene polyphenyl isocyanate | Y | S/P | 3 | 2G | Cont | Dry | | | Yes(a) | C | T(a) | AD | Yes | 15.12, 15.16.2, 15.17, 15.19.6, 16.2.9 |
| Polyolefin (molecular weight 300+) | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Polyolefin amide alkeneamine (C17+) | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Polyolefin amide alkeneamine borate (C28-C250) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Polyolefin amide alkeneamine polyol | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Polyolefinamine (C28-C250) | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Polyolefinamine in alkyl (C2-C4) benzenes | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Polyolefinamine in aromatic solvent | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Polyolefin aminoester salts (molecular weight 2000+) | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Polyolefin anhydride | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Polyolefin ester (C28-C250) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |

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|---|---|-----|---|----|------|-------|----|-----|------|---|----|-----|-----|---|
| Polyolefin phenolic amine (C28-C250) | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Polyolefin phosphorusulphide, barium derivative (C28-C250) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Poly(20)oxyethylene sorbitan monooleate | Y | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.6, 16.2.9 |
| Poly(5+)propylene | Y | P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Polypropylene glycol | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |
| Polysiloxane | Y | P | 2 | 2G | Cont | No | T2 | IIB | No | R | F | ABC | No | 15.19.6, 16.2.9 |
| Potassium chloride solution | Z | P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 16.2.9 |
| Potassium hydroxide solution (*) | Y | S/P | 3 | 2G | Open | No | | | NF | C | No | No | No | 15.12.3.2, 15.19 |
| Potassium formate solutions (*) | Z | S | 3 | 2G | Open | No | | | NF | R | No | No | No | 15.19.6 |
| Potassium oleate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.6, 16.2.9 |
| Potassium thiosulphate (50% or less) | Y | S/P | 3 | 2G | Cont | No | | | NF | R | T | No | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| n-Propanolamine | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| 2-Propene-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer solution | Y | P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 15.19.6 |
| beta-Propiolactone | Y | S/P | 1 | 2G | Cont | No | | IIA | Yes | C | T | AC | Yes | 15.12, 15.17, 15.18, 15.19 |
| Propionaldehyde | Y | S/P | 3 | 2G | Cont | Inert | T4 | IIB | No | R | F | AC | No | 15.19.6 |
| Propionic acid | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | AC | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.17, 15.19 |

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|---|---|-----|------|----|------|-------|----|-----|------|---|----|-----|-----|----------------------------------|
| Propionic anhydride | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Propionitrile | Y | S/P | 1 | 1G | Cont | No | T1 | IIB | No | C | FT | AC | Yes | 15.12, 15.17, 15.18, 15.19 |
| n-Propyl acetate | Y | P | 3 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6 |
| n-Propyl alcohol | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | AC | No | 15.12, 15.17, 15.19.6 |
| n-Propylamine | Z | S/P | 2 | 2G | Cont | Inert | T2 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19 |
| Propylbenzene (all isomers) | Y | P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | ABC | No | 15.19.6 |
| Propylene carbonate | Z | S | 3 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19 |
| Propylene glycol methyl ether acetate | Z | P | 3 | 2G | Cont | No | T2 | IIA | No | R | F | AC | No | |
| Propylene glycol monoalkyl ether | Z | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | F | AC | No | 15.19.6 |
| Propylene glycol phenyl ether | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | |
| Propylene oxide | Y | S/P | 2 | 2G | Cont | Inert | T2 | IIB | No | C | FT | AC | No | 15.8, 15.12, 15.14, 15.17, 15.19 |
| Propylene tetramer | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| Propylene trimer | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | F | ABC | No | 15.19.6 |
| Pyridine | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Pyrolysis gasoline (containing benzene) | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19.6 |
| Rapeseed oil | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Rapeseed oil (low erucic acid containing less than 4% free fatty acids) | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Rape seed oil fatty acid methyl esters | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6 |
| Resin oil, distilled | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | C | FT | ABC | No | 15.12, 15.17, 15.19.6 |
| Rice bran oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |

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|--|---|-----|------|----|------|-------------------|----|-----|------|---|----|-----|-----|--|
| Rosin | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Safflower oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Shea butter | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Sodium alkyl (C14-C17) sulphonates (60-65% solution) | Y | S/P | 2 | 2G | Cont | No | | | NF | R | T | No | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Sodium aluminosilicate slurry | Z | P | 3 | 2G | Open | No | | | NF | O | No | No | No | 16.2.9 |
| Sodium benzoate | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 16.2.9 |
| Sodium borohydride (15% or less)/Sodium hydroxide solution (*) | Y | S/P | 3 | 2G | Open | No | | | NF | C | No | No | No | 15.19, 16.2.6, 16.2.9 |
| Sodium bromide solution (less than 50%) (*) | Y | S/P | 3 | 2G | Open | No | - | - | NF | R | No | No | No | 15.19.6 |
| Sodium carbonate solution (*) | Z | S/P | 3 | 2G | Open | No | | | NF | R | No | No | No | 15.19.6 |
| Sodium chlorate solution (50% or less) (*) | Z | S/P | 3 | 2G | Open | No | | | NF | R | No | No | No | 15.9, 15.12, 15.19, 16.2.9 |
| Sodium dichromate solution (70% or less) | Y | S/P | 1 | 1G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.18, 15.19 |
| Sodium hydrogen sulphide (6% or less)/Sodium carbonate (3% or less) solution | Z | S/P | 3 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6, 16.2.9 |
| Sodium hydrogen sulphite solution (45% or less) | Z | P | 3 | 2G | Open | No | | | NF | O | No | No | No | 16.2.9 |
| Sodium hydrosulphide/Ammonium sulphide solution (*) | Y | S/P | 2 | 2G | Cont | No | T4 | IIB | No | C | FT | AC | Yes | 15.12, 15.15, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3 |
| Sodium hydrosulphide solution (45% or less) (*) | Z | S/P | 3 | 2G | Cont | Vent or pad (gas) | | | NF | R | T | No | Yes | 15.12, 15.15, 15.19.6, 16.2.9 |
| Sodium hydroxide solution (*) | Y | S/P | 3 | 2G | Open | No | | | NF | C | No | No | No | 15.19, 16.2.6, 16.2.9 |

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|--|---|-----|------|----|------|-------------------|----|-----|------|---|----|-----|-----|--|
| Sodium hypochlorite solution (15% or less) | Y | S/P | 2 | 2G | Cont | No | - | - | NF | R | No | No | No | 15.17, 15.19.6 |
| Sodium methylate 21-30% in methyl alcohol | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | C | FT | AC | Yes | 15.12, 15.17, 15.19, 16.2.6 (only if >28%), 16.2.9 |
| Sodium nitrite solution | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | No | 15.12.3, 15.12.4, 15.19, 16.2.6, 16.2.9 |
| Sodium petroleum sulphonate | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | Yes | 15.12.3, 15.12.4, 15.19.6, 16.2.6 |
| Sodium poly(4+)acrylate solutions | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | 16.2.9 |
| Sodium silicate solution | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Sodium sulphate solutions | Z | S | 3 | 2G | Open | No | | | NF | O | No | No | No | 16.2.9, |
| Sodium sulphide solution (15% or less) | Y | S/P | 3 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Sodium sulphite solution (25% or less) | Y | S/P | 3 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6, 16.2.9 |
| Sodium thiocyanate solution (56% or less) | Y | S/P | 3 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6, 16.2.9 |
| Soyabean oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Soybean Oil Fatty Acid Methyl Ester | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Styrene monomer | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | ABC | No | 15.12, 15.13, 15.17, 15.19.6, 16.6.1, 16.6.2 |
| Sulphohydrocarbon (C3-C88) | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Sulpholane | Y | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| Sulphur (molten) (*) | Z | S | 3 | 1G | Open | Vent or pad (gas) | T3 | | Yes | O | FT | No | No | 15.10, 16.2.9 |

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|---|---|-----|------|----|------|----|----|-----|------|---|----|-----|-----|---|
| Sulphuric acid | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.16.2, 15.17, 15.19, 16.2.9 |
| Sulphuric acid, spent | Y | S/P | 2 | 2G | Cont | No | | | NF | C | T | No | Yes | 15.11, 15.12, 15.16.2, 15.17, 15.19 |
| Sulphurized fat (C14-C20) | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | |
| Sulphurized polyolefinamide alkene (C28-C250) amine | Z | P | 3 | 2G | Open | No | - | - | Yes | O | No | AC | No | |
| Sunflower seed oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Tall oil, crude | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Tall oil, distilled | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Tall oil fatty acid (resin acids less than 20%) | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6 |
| Tall oil pitch | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Tall oil soap, crude | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.6 |
| Tallow | Y | P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Tallow fatty acid | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | AC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Tetrachloroethane | Y | S/P | 2 | 2G | Cont | No | | | NF | R | T | No | No | 15.12.3, 15.12.4, 15.19 |
| Tetraethylene glycol | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Tetraethylene pentamine | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19 |
| Tetrahydrofuran | Z | S | 3 | 2G | Cont | No | T3 | IIB | No | R | F | AC | No | 15.19.6 |
| Tetrahydronaphthalene | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Tetramethylbenzene (all isomers) | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.9 |
| Titanium dioxide slurry | Z | P | 3 | 2G | Open | No | | | NF | O | No | No | No | |

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|--|---|-----|---|----|------|-----|----|-----|------|---|----|---------|-----|---|
| Toluene | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No | C | FT | AC | No | 15.12, 15.17, 15.19.6 |
| Toluenediamine | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.18, 15.19, 16.2.6, 16.2.9 |
| Toluene diisocyanate | Y | S/P | 2 | 2G | Cont | Dry | - | - | Yes | C | T | ABC(b)D | Yes | 15.12, 15.16.2, 15.17, 15.18, 15.19, 16.2.9 |
| o-Toluidine | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19 |
| Tributyl phosphate | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| 1,2,3-Trichlorobenzene (molten) | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| 1,2,4-Trichlorobenzene | X | S/P | 1 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19, 16.2.9 |
| 1,1,1-Trichloroethane | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| 1,1,2-Trichloroethane | Y | S/P | 3 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6 |
| Trichloroethylene | Y | S/P | 2 | 2G | Cont | No | - | - | NF | C | T | No | No | 15.12, 15.17, 15.19.6 |
| 1,2,3-Trichloropropane | Y | S/P | 3 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19 |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | Y | P | 2 | 2G | Open | No | | | NF | O | No | No | No | 15.19.6 |
| Tricresyl phosphate (containing 1% or more ortho-isomer) | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | ABC | No | 15.12, 15.17, 15.19, 16.2.6 |
| Tricresyl phosphate (containing less than 1% ortho-isomer) | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6, 16.2.6 |
| Tridecane | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| Tridecanoic acid | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Tridecyl acetate | Y | S/P | 3 | 2G | Cont | No | - | - | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Triethanolamine | Z | S/P | 3 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Triethylamine | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | ABC | No | 15.12.3, 15.12.4, 15.19 |

| a | c | d | e | f | g | h | i' | i'' | i''' | j | k | l | n | o |
|---|---|-----|---|----|------|----|----|-----|------|---|----|-----|-----|--|
| Triethylbenzene | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Triethylenetetramine | Y | S/P | 2 | 2G | Cont | No | - | - | Yes | C | T | AC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Triethyl phosphate | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6 |
| Triethyl phosphite | Z | S/P | 3 | 2G | Cont | No | T3 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Triisopropanolamine | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.9 |
| Triisopropylated phenyl phosphates | X | P | 2 | 2G | Open | No | | | Yes | O | No | AC | No | 15.19.6, 16.2.6 |
| Trimethylacetic acid | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.11, 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| Trimethylamine solution (30% or less) | Z | S/P | 2 | 2G | Cont | No | T3 | IIB | No | R | FT | AC | No | 15.12.3, 15.12.4, 15.14, 15.19.6 |
| Trimethylbenzene (all isomers) | X | S/P | 2 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6 |
| Trimethylol propane propoxylated | Z | S/P | 3 | 2G | Open | No | - | - | Yes | O | No | ABC | No | |
| 2,2,4-Trimethyl-1,3-pentanediol diisobutyrate | Y | S/P | 3 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| 2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| 1,3,5-Trioxane | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No | C | FT | AC | No | 15.12, 15.17, 15.19.6, 16.2.9 |
| Tripropylene glycol | Z | P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | |
| Trixylyl phosphate | X | S/P | 1 | 2G | Cont | No | | | Yes | C | T | ABC | No | 15.12, 15.17, 15.19.6, 16.2.6 |

| a | c | d | e | f | g | h | i' | i'' | i''' | j | k | l | n | o |
|---|---|-----|------|----|------|-------|----|-----|------|---|----|-----|----|--|
| Tung oil | Y | S/P | 2(k) | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Turpentine | X | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | FT | AC | No | 15.19.6 |
| Undecanoic acid | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9 |
| 1-Undecene | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6 |
| Undecyl alcohol | X | S/P | 2 | 2G | Cont | No | | | Yes | R | T | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Urea/Ammonium nitrate solution | Y | S/P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | 15.19.6 |
| Urea/Ammonium phosphate solution | Y | S/P | 2 | 2G | Cont | No | | | Yes | R | T | AC | No | 15.12.3, 15.12.4, 15.19.6 |
| Urea solution | Z | S/P | 3 | 2G | Open | No | | | Yes | O | No | AC | No | 16.2.9, |
| Used cooking oil (m) | X | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Used cooking oil (Triglycerides, C16-C18 and C18 unsaturated) (m) (n) | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Valeraldehyde (all isomers) | Y | S/P | 3 | 2G | Cont | Inert | T3 | IIB | No | R | F | ABC | No | 15.4.6, 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Vegetable acid oils (m) | Y | S/P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Vegetable fatty acid distillates (m) | Y | P | 2 | 2G | Open | No | - | - | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Vegetable oil mixtures, containing less than 15% free fatty acid (m) | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.7, 16.2.9 |
| Vinyl acetate | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No | C | FT | ABC | No | 15.12, 15.13, 15.17, 15.19.6, 16.6.1, 16.6.2 |
| Vinyl ethyl ether | Z | S/P | 2 | 2G | Cont | Inert | T3 | IIB | No | R | F | ABC | No | 15.4, 15.13, 15.14, 15.19.6, 16.6.1, 16.6.2 |

| a | c | d | e | f | g | h | i' | i'' | i''' | j | k | l | n | o |
|--|---|-----|---|----|------|-------|----|-----|------|---|----|-----|-----|---|
| Vinylidene chloride | Y | S/P | 2 | 2G | Cont | Inert | T2 | IIA | No | C | FT | ABC | No | 15.12, 15.13, 15.14, 15.17, 15.19, 16.6.1, 16.6.2 |
| Vinyl neodecanoate | Y | S/P | 2 | 2G | Cont | No | | | Yes | C | T | ABC | Yes | 15.12, 15.13, 15.17, 15.19, 16.6.1, 16.6.2 |
| Vinyltoluene | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | No | C | FT | ABC | No | 15.12, 15.13, 15.17, 15.19.6, 16.6.1, 16.6.2 |
| White spirit, low (15-20%) aromatic | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6, 16.2.9 |
| Wood lignin with sodium acetate/oxalate | Z | S/P | 3 | 2G | Open | No | - | - | NF | O | No | No | No | |
| Xylenes | Y | P | 2 | 2G | Cont | No | T1 | IIA | No | R | F | ABC | No | 15.19.6, 16.2.9 (h) |
| Xylenes/ethylbenzene (10% or more) mixture | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No | R | FT | ABC | No | 15.12.3, 15.12.4, 15.19.6 |
| Xylenol | Y | S/P | 2 | 2G | Cont | No | - | IIA | Yes | C | T | ABC | Yes | 15.12, 15.17, 15.19, 16.2.9 |
| Zinc alkaryl dithiophosphate (C7-C16) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6, 16.2.9 |
| Zinc alkenyl carboxamide | Y | S/P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |
| Zinc alkyl dithiophosphate (C3-C14) | Y | P | 2 | 2G | Open | No | | | Yes | O | No | ABC | No | 15.19.6, 16.2.6 |

Footnotes to products in chapter 17

Some entries in chapter 17 contain footnotes, as either letters or symbols in parentheses following the name of the product, in *column a* of the tables. These provide additional information about the carriage requirements for the product. The definitions of these footnotes are included below.

- a If the product to be carried contains flammable solvents such that the flashpoint does not exceed 60°C, then special electrical systems and a flammable-vapour detector shall be provided.
- b Although water is suitable for extinguishing open-air fires involving chemicals to which this footnote applies, water shall not be allowed to contaminate closed tanks containing these chemicals because of the risk of hazardous gas generation.
- c 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.
- d Requirements are based on those isomers having a flashpoint of 60°C or less; some isomers have a flashpoint greater than 60°C and therefore the requirements based on flammability would not apply to such isomers.
- e Applies to n-decyl alcohol only.
- f Dry chemical shall not be used as fire-extinguishing media.
- g Confined spaces shall be tested for both formic acid vapours and carbon monoxide gas, a decomposition product.
- h Applies to p-xylene only.
- i For mixtures containing no other components with safety hazards and where the pollution category is Y or less.
- j Only certain alcohol-resistant foams are effective.
- k Requirements for Ship Type identified in *column e* might be subject to regulation 4.1.3 of Annex II of MARPOL.
- l Applicable when the melting point is equal to or greater than 0°C.
- m From vegetable oils, animal fats and fish oils specified in the IBC Code.
- n Confirmation that the product is composed of Triglycerides, C16-C18 and C18 unsaturated shall be required in order for the entry to be used. Otherwise, the more generic entry "Used cooking oil (m)" must be used.
- o Indicates that the entries are to be used solely for backloading of contaminated bulk liquids from offshore installations used in the search and exploitation of seabed mineral resources.
- * Indicates that with reference to chapter 21 of the IBC Code (paragraph 21.1.3), deviations from the normal assignment criteria used for some carriage requirements have been implemented.

| | |
|------------------------------|--|
| Title | IBC / IBC 2019 Amendment / Summary of minimum requirements |
| Effective Date | 1/1/2021 |
| For Ships Constructed | On or after 1/1/1986 |

Chapter 17

Summary of minimum requirements

([KR](#) : Chapter 17 replaced as a whole by [Res.MEPC.318\(74\)](#))

17.1 Mixtures of noxious liquid substances presenting pollution hazards only, and which are assessed or provisionally assessed under regulation 6.3 of MARPOL Annex II, may be carried under the requirements of the Code applicable to the appropriate position of the entry in this chapter for Noxious Liquid Substances, not otherwise specified (n.o.s.).

17.2 EXPLANATORY NOTES

| | |
|--|---|
| Product name (column a) | The product name shall be used in the shipping document for any cargo offered for bulk shipments. Any additional name may be included in brackets after the product name. In some cases, the product names are not identical with the names given in previous issues of the Code. |
| UN Number (column b) | Deleted |
| Pollution Category (column c) | The letter X, Y, Z means the Pollution Category assigned to each product under MARPOL Annex II. |
| Hazards (column d) | "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. |
| Ship Type (column e) | 1: Ship Type 1 (2.1.2.1) 2: Ship Type 2 (2.1.2.2) 3: Ship Type 3 (2.1.2.3) |
| Tank type (column f) | 1: independent tank (4.1.1) 2: integral tank (4.1.2) G: gravity tank (4.1.3) P: pressure tank (4.1.4) |
| Tank vents (column g) | Cont.: controlled venting Open: open venting Inert: inerting (9.1.2.1) |
| Tank environmental control (column h) | Pad: liquid or gas padding (9.1.2.2) Dry: drying (9.1.2.3) Vent: natural or forced ventilation (9.1.2.4) No: no special requirements under this Code (inerting may be required under SOLAS) |
| Electrical equipment (column i) | Temperature classes T1 to T6 (i) - indicates no requirements blank no information IIA, IIB or IIC: Apparatus group (i") - indicates no requirements blank no information Flash point (i") Yes: flashpoint exceeding 60°C (10.1.6) No: flashpoint not exceeding 60°C (10.1.6) NF: non-flammable product (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) |
| Vapour detection (column k) | F: flammable vapours T: toxic vapours No: indicates no special requirements under this Code |
| 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) | Deleted |
| Emergency equipment (column n) | Yes: see 14.3.1 No: no special requirements under this Code |
| Specific and operational requirements (column o) | When specific reference is made to chapters 15 and/or 16, these requirements shall be additional to the requirements in any other column. |

KR : [Click here to see Chapter 17 in PDF format](#)

Footnotes to products in chapter 17

Some entries in chapter 17 contain footnotes, as either letters or symbols in parentheses following the name of the product, in column a of the tables. These provide additional information about the carriage requirements for the product. The definitions of these footnotes are included below.

a If the product to be carried contains flammable solvents such that the flashpoint does not exceed 60°C, then special electrical systems and a flammable-vapour detector shall be provided.

b Although water is suitable for extinguishing open-air fires involving chemicals to which this footnote applies, water shall not be allowed to contaminate closed tanks containing these chemicals because of the risk of hazardous gas generation.

c 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.

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

e Applies to n-decyl alcohol only.

f Dry chemical shall not be used as fire-extinguishing media.

g Confined spaces shall be tested for both formic acid vapours and carbon monoxide gas, a decomposition product.

h Applies to p-xylene only.

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

j Only certain alcohol-resistant foams are effective.

k Requirements for Ship Type identified in column e might be subject to regulation 4.1.3 of Annex II of MARPOL.

l Applicable when the melting point is equal to or greater than 0°C.

m From vegetable oils, animal fats and fish oils specified in the IBC Code.

n Confirmation that the product is composed of Triglycerides, C16-C18 and C18 unsaturated shall be required in order for the entry to be used. Otherwise, the more generic entry "Used cooking oil (m)" must be used.

o Indicates that the entries are to be used solely for backloading of contaminated bulk liquids from offshore installations used in the search and exploitation of seabed mineral resources.

* Indicates that with reference to chapter 21 of the IBC Code (paragraph 21.1.3), deviations from the normal assignment criteria used for some carriage requirements have been implemented.

KOREAN REGISTER