

# **The Merchant Shipping (Control of Pollution by Noxious Liquid Substances in Bulk) Rules, 2010**

UNION OF INDIA

India

## **The Merchant Shipping (Control of Pollution by Noxious Liquid Substances in Bulk) Rules, 2010**

### **Rule**

### **THE-MERCHANT-SHIPING-CONTROL-OF-POLLUTION-BY-NOXIOUS- of 2010**

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The Merchant Shipping (Control of Pollution by Noxious Liquid Substances in Bulk) Rules, 2010 Published vide Notification No. G.S.R. 15(E), dated 7th January, 2010 Ministry of Shipping, Road Transport and Highways (Department of Shipping) G.S.R. 15(E). - In exercise of the powers conferred by clause (h) of section 356B, section 356C, clause (ee) of section 356-O and section 457 of the Merchant Shipping Act, 1958 (44 of 1958), the Central Government hereby makes the following rules, namely:-

#### **1. Short title and commencement.**

(1) These rules may be called the Merchant Shipping (Control of Pollution by Noxious Liquid Substances in Bulk) Rules, 2010. (2) They shall come into force on the date of their publication in the Official Gazette.

## **Chapter I General**

### **1A. Definitions.**

(1) In these rules, unless the context otherwise requires, - (a) "Act" means the Merchant Shipping Act, 1958; (b) "anniversary date" means the day and the month of each year which will correspond to the date of expiry of the International Pollution Prevention Certificate for the Carriage of Noxious

Liquid Substances in Bulk;(c)"associated-piping" means the pipeline from the suction point in a cargo tank to the shore connection used for unloading the cargo and includes ship's piping, pumps and filters which are in open connection with the cargo unloading line;(d)"ballast water" includes,-(i)"clean ballast" which means ballast water carried in a tank which, since it was last used to carry a cargo containing a substance in Category X, Y or Z, referred to in rule 6, has been thoroughly cleaned and the residues resulting therefrom have been discharged and the tank emptied in accordance with the provisions of these rules;(ii)"segregated ballast" means ballast water introduced into a tank permanently allocated to the carriage of ballast or cargoes other than oil or noxious liquid substances and which is completely separated from the cargo and oil fuel system;(e)"Category X, Y or Z" means the categories specified in clauses (a), (b) and (c) respectively of rule 6;(f)"certifying authority" means the Central Government;(g)"Chemical Codes" includes-(i)"Bulk Chemical Code" which means the Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk adopted by the Marine Environment Protection Committee of the Organization;(ii)"International Bulk Chemical Code" which means the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk adopted by the Marine Environment Protection Committee of the Organisation;(h)"Convention" shall have the same meaning as assigned to it in clause (e) of section 356B;(i)"Depth of water" means the charted depth;(j)"En route" means that the ship is under way at sea on a course or courses, including deviation from the shortest direct route, which as far as practicable for navigational purposes, shall cause any discharge to be spread over as great an area of the sea as reasonable and practicable;(k)"Government ship" means the ship owned by the Central Government or the State Government;(l)"Liquid substances" means such liquid substances having a vapour pressure not exceeding 0.28 MPa absolute at a temperature of 37.8°C;(m)"Manual" means the Procedures and Arrangements Manual as per Schedule-11;(n)"nearest land", with all grammatical variations, means the baseline from which the territorial sea of the territory in question is established in accordance with international law except that, for the purposes of the off north-eastern coast of Australia, it shall mean from a line drawn from a point on the coast of Australia in-latitude 11°00'S, longitude 142°08'E to a point in latitude 10°35'S, longitude 141°55'E,thence to a point latitude 10°00'S, longitude 142°00'E,thence to a point latitude 09°10'S, longitude 143°52'E,thence to a point latitude 09°00'S, longitude 144°30'E,thence to a point latitude 10°41'S, longitude 145°00'E,thence to a point latitude 13°00'S, longitude 145°00'E,thence to a point latitude 15°00'S, longitude 146°00'E,thence to a point latitude 17°30'S, longitude 147°00'E,thence to a point latitude 21°00'S, longitude 152°55'E,thence to a point latitude 24°30'S, longitude 154°00'E,thence to a point on the coast of Australia in latitude 24°42' S, longitude 153°15'E(o)"noxious liquid substance" means the substance indicated in the pollution category column of chapter 17 or 18 of the International Bulk Chemical Code or falling under any of the categories specified in clauses (a), (b), and (c) of paragraph 6;(p)"Organization" means International Maritime Organization;(q)"ppm" means ml/m<sup>3</sup>;(r)"residue" means any noxious liquid substance which remains for disposal;(s)"residue/water mixture" means residue to which water has been added for any purpose including tank cleaning, ballasting or bilge slops;(t)"Schedule" means the Schedule annexed to these rules;(u)"Ship construction" includes 'ship constructed' and 'similar stage of construction',-Explanation. - (i) "ship constructed" means a ship the keel of which is laid or which is at a similar stage of construction and a ship converted to a chemical tanker, irrespective of the date of construction, shall be treated as chemical tanker constructed on the date on which such

conversion commenced but it does not include modification of a ship which complies with all of the following conditions:(A)the ship is constructed before 1st July 1986; and(B)the ship is certified under the Bulk Chemical Code to carry only those products identified by that Code as substances with pollution hazards only:(ii)"similar stage of construction" means the stage at which:(A)construction identifiable with a specific ship begins; and(B)assembly of that ship has commenced comprising at least fifty tonnes or one per cent of the estimated mass of all structural material, whichever is less.(v)"solidifying/non-solidifying substance" includes solidifying substance and non-solidifying substance.Explanation. - (i) "solidifying substance" means a noxious liquid substance which in the case of a substance with a melting point -(A)of less than 15°C, is at a temperature of less than 5°C above its melting point at the time of unloading; or(B)equal to or greater than 15°C, is at a temperature of less than 10°C above its melting point at the time of unloading;(ii)"non-solidifying substance" means a noxious liquid substance, which is not a solidifying substance;(w)"State Party" means the State which is a party to the Convention;(x)"tanker" includes Chemical tanker and NLS tanker.Explanation. - (i) "Chemical tanker" means a ship constructed or adapted for the carriage in bulk of any liquid product listed in chapter 17 of the International Bulk Chemical Code;(ii)"NLS tanker" means a ship constructed or adapted to carry a cargo of noxious liquid substances in bulk and includes an oil tanker as defined in clause (l) of section 356B when certified to carry a cargo or part cargo of noxious liquid substances in bulk.(y)"viscosity" includes High-viscosity substance and Low-viscosity substance.Explanation. - (i) "high-viscosity substance" means a noxious liquid substance in category X or Y with a viscosity equal to or greater than 50 mPa.s at the unloading temperature;(ii)"low-viscosity substance" means a noxious liquid substance which is not a high-viscosity substance

## **2. Obligation to prevent pollution of sea by noxious liquid substances.**

(1)Unless otherwise expressly provided, all ships certified to carry Noxious Liquid Substances in Bulk shall be under obligation to prevent pollution of sea by noxious liquid substances and for that purpose comply with the provisions of these rules.(2)Where a cargo subject to the provisions of the Merchant Shipping (Prevention of Pollution by Oil from Ships) Rules, 2009 is carried in a cargo space of an NLS tanker, the requirements provided under the said Merchant Shipping (Prevention of Pollution by Oil from Ships) Rules shall also apply.

## **3. Exceptions.**

(1)The requirements relating to discharge under these rules shall not apply to the discharge into the sea of noxious liquid substances or mixtures containing such substances when such discharge -(a)is necessary for the purpose of securing the safety of a ship or saving life at sea;(b)results from damage to a ship or its equipment provided that all reasonable precautions for the purpose of preventing or minimizing such discharge have been taken after the occurrence of the damage or discovery of the discharge and except where the owner or the master has acted either with intent to cause the damage, or recklessly with knowledge that the damage would probably result; or(c)is approved by the Central Government, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution:Provided that any such discharge shall be subject to the approval of any Government in whose jurisdiction it is contemplated such discharge shall occur.

## 4. Exemptions.

(1) Where the provisions relating to carriage are required to be amended on account of upgrading of the categorization of a substance, the following shall apply, namely:-(a) where any amendment to these rules and the International Bulk Chemical Code or the Bulk Chemical Code involves changes to the structure, equipment and fittings due to the upgrading of the requirements for the carriage of certain substances, the Central Government may, having regard to each substance, either modify the requirements for their carriage or delay application of such requirements, to ships constructed before such amendment has come into force, for a specified period, if it deems that application of such amendments is unreasonable or impracticable; (b) when the Central Government relaxes application of amended rules under clause (a), it shall submit a report giving details of the ship or ships concerned, the cargoes certified to carry, the trade in which each ship is engaged and the justification for such relaxation, to the Organization for circulation to the State Parties for their information and appropriate action, if any, and reflect such relaxation on the Certificate referred to in rules 7 or 9; (c) Notwithstanding anything contained in clauses (a) and (b), the Central Government may exempt ships from the carriage requirements under rule 11 for ships certified to carry individually identified vegetable oils, identified by relevant footnote in chapter 17 of the International Bulk Chemical Code, provided the ships comply with the following conditions, namely:-(i) subject to the provisions of this rule, the NLS tanker shall meet all requirements for ship type 3 as identified in the International Bulk Chemical Code except for cargo tank location; (A) wing tanks or spaces shall be arranged such that cargo tanks are located inboard of the moulded line of the side shell plating not less than 760 mm; (B) double bottom tanks or spaces shall be arranged such that the distance between the bottom of the cargo tanks and the moulded line of the bottom shell plating measured at right angles to the bottom shell plating is not less than  $B/15$  (m) or 2.0 m at the centerline, whichever is the less, and the minimum distance shall be 1.0 m; (C) the relevant certificate shall indicate the exemptions so granted. (ii) under this rule, cargo tanks shall be located at the following distances inboard and the entire cargo tank length shall be protected by ballast tanks or spaces other than tanks that carry oil as follows, namely:-(2) Subject to the provisions of sub-rule (3), the provisions of sub-rule (1) of rule 12 shall not apply to ship constructed before 1st July, 1986 which is engaged in restricted voyages as determined by the Central Government between: (a) ports or terminals within a State Party; or (b) ports or terminals of States Parties. (3) The provisions of sub-rule (2) shall only apply to a ship constructed before 1st July 1986, if:-(a) each time a tank containing category X, Y or Z substances or mixtures is to be washed or ballasted, the tank is washed in accordance with a pre-wash procedure in accordance with Schedule-IV and the tank washings are discharged to a reception facility; (b) subsequent washings or ballast water are discharged to a reception facility or at sea in accordance with other provisions of these rules; (c) the adequacy of the reception facilities at the ports or terminals referred to in clauses (a) and (b) of sub-rule (2), for the purpose of this rule, is approved by the Central Government within India or, as the case may be, by the Government of State Party within which such ports or terminals are situated; (d) in the case of ships engaged in voyages to ports or terminals under the jurisdiction of other States Parties, the Central Government communicates to the Organization, for circulation to the State Parties, particulars of the exemption, for their information and appropriate action, if any; and (e) the certificate required under these rules is endorsed to the effect that the ship is solely engaged in such restricted voyages. (4) For a ship whose constructional and operational features are such that

ballasting of cargo tanks is not required and cargo tank washing is only required for repair or dry-docking, the Central Government may allow exemption from the provisions of rule 12, provided that all of the following condition are complied with, namely:-(a)the design, construction and equipment of the ship are approved by the Central Government, having regard to the service for which it is intended;(b)any effluent from tank washings which may be carried out before a repair or dry-docking is discharged to a reception facility, the adequacy of which is ascertained by the Central Government;(c)the certificate required under these rule indicates-(i)that each cargo tank is certified for the carriage of a restricted number of substances which are comparable and can be carried alternately in the same tank without intermediate cleaning; and(ii)the particulars of the exemption;(d)the ship carries a Manual approved by the Central Government; and(e)in the case of ships engaged in voyages to ports or terminals under the jurisdiction of other States Parties, the Central Government communicates to the Organization, for circulation to the State Parties, particulars of the exemption, for their information and appropriate action, if any.

## **5. Equivalents.**

(1)The Central Government may allow any fitting, material, appliance or apparatus to be fitted in a ship as an alternative to that required by these rules if such fitting, material, appliance or apparatus is at least as effective as that required by these rules:Provided that this authority of the Central Government shall not extend to the substitution of operational methods to effect the control of discharge of Noxious Liquid Substances as equivalent to those design and construction features which are prescribed by these rules.(2)Where the Central Government allows a fitting, material, appliance or apparatus as an alternative Under Sub-rule (1), it shall communicate to the Organization particulars thereof, for circulation to the State Parties, for their information and appropriate action, if any:(3)Notwithstanding the provisions of sub-rules (1) and (2), the construction and equipment of liquefied gas Carriers certified to carry Noxious Liquid Substances listed in the applicable Gas Carrier Code, shall be deemed to be equivalent to the construction and equipment requirements under rules 11 and 12, provided that the gas carrier meets alt of the following conditions, namely;-(a)hold a Certificate of Fitness in accordance with the appropriate Gas Carrier Code for ships certified to carry liquefied gases in bulk;(b)hold an International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk, in which it is certified that the gas carrier may carry only those Noxious Liquid Substances identified and listed in the appropriate Gas Carrier Code;(c)be provided with segregated ballast arrangements;(d)be provided with pumping and piping arrangements, which, to the satisfaction of the Central Government, ensure that the quantity of cargo residue remaining in the tank and its associated piping after unloading does not exceed the applicable quantity of residue as required by sub-rules (1), (2), (3) of rule 12; and(e)be provided with a Manual, approved by the Central Government or by a certifying authority duly authorized, ensuring that no operational mixing of cargo residues and water shall occur and that no cargo residues shall remain in the tank after applying the ventilation procedures prescribed in the Manual,

## **Chapter II**

### **Categorization of Noxious Liquid Substances**

#### **6. Categorization and listing of Noxious Liquid Substances and other substances.**

(1) For the purpose of these rules, noxious liquid substances shall be divided into four categories as follows, namely;-(a)Category X: Category X is the category of noxious liquid substances which, if discharged into the sea from tank cleaning or de-ballasting operations, are deemed to present a major hazard to either marine resources or human health and justify its prohibition from discharge into the marine environment;(b)Category Y: Category Y is the category of noxious liquid substances which, if discharged into the sea from tank cleaning or de-ballasting operations, are deemed to present a hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea and justify a limitation on the quality and quantity of its discharge into the marine environment;(c)Category Z: Category Z is the category of noxious liquid substances which, if discharged into the sea from tank cleaning or de-ballasting operations, are deemed to present a minor hazard to either marine resources or human health and justify less stringent restrictions on the quality and quantity of its discharge into the marine environment;(d)Other Substances: Other substances include substances indicated as os (Other Substances) in the pollution category column of chapter 18 of the International Bulk Chemical Code which have been evaluated and found to fall outside Category X, Y or Z because, at present, they are considered to present no harm to marine resources, human health, amenities or other legitimate uses of the sea when discharged into the sea from tank cleaning or de-ballasting operations and the discharge of bilge or ballast water or other residues or mixtures containing only substances referred to as 'Other Substances' shall not be subject to any requirements of these rules.(2)Guidelines for use in the categorization of noxious liquid substances are given in Schedule-I.(3)Where it is proposed to carry a liquid substance in bulk which has not been categorized under sub-rule (1), the Central Government, in co-operation with the Governments of other State Parties involved in such proposed operation, shall establish and agree on a provisional assessment for the proposed operation on the basis of the Guidelines as per Schedule-I and no such substance shall be carried until full agreement has been reached amongst all the Governments involved:Provided that the Central Government shall as soon as may be but not later than thirty days after such agreement has been reached, notify the Organization and provide details of the substance and the provisional assessment for annual circulation to all State Parties for their information.

## **Chapter III**

### **Surveys and Certification**

#### **7. Survey and certification of chemical tankers.**

- Notwithstanding the provisions of rules 8, 9, and 10, chemical tankers which have been surveyed by the Surveyors or, as the case may be, authorised persons and certified by the Central Government

or, as the case may be, the State Parties, in accordance with the provisions of the International Bulk Chemical Code or the Bulk Chemical Code, as applicable, shall be deemed to have complied with the provisions of the said rules, and the certificate issued under that Code shall have the same force and receive the same recognition as the certificate issued under rule 9.

## 8. Surveys.

(1) Ships carrying noxious liquid substances in bulk shall be subject to the surveys specified below, namely:-(a)an initial survey shall be conducted before the ship is put in service or before the Certificate required under rule 9 is issued for the first time and such survey shall include a complete survey of its structure, equipment, systems, fittings, arrangements and material so as to ensure that they fully comply with the requirements of these rules;(b)a renewal survey shall be conducted at an interval not exceeding five years except where the provisions of sub-rules (2), (5), (6) or (7) of rule 10 are applicable and the renewal survey shall be such as to ensure that the structure, equipment, systems, fittings, arrangements and materials fully comply with the requirements of these rules.(c)an intermediate survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the Certificate which shall take the place of one of the annual surveys specified in clause (d) and the intermediate survey shall be such as to ensure that the equipment and the associated pump and piping systems fully comply with the requirements of these rules and are in good working order:Provided that such intermediate survey shall be endorsed on the Certificate issued under rule 9.(d)an annual survey shall be conducted within three months before or after each anniversary date of the Certificate, including a general inspection of the structure, equipment, fittings, arrangements and materials referred to in clause (a) to ensure that they have been maintained in accordance with the provisions of sub-rule (6) and that they remain satisfactory for this service for which the ship is intended:Provided that such annual surveys shall be endorsed on the Certificate issued under rule 9.(e)an additional survey, either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in sub-rule (8) or whenever important repairs or renewals are made and such survey shall be such as to ensure that necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory and that the ship complies in all respects with the requirements of these rules.(2) Surveys of ships for the purposes of enforcement of the provisions of these rules shall be carried out by a surveyor appointed under section 9 or, as the case may be, a person authorised for that purpose under sub-section (1) of section 356G of the Act, by the Central Government, in accordance with the provisions of the said section 356G and the Central Government shall empower such surveyor or authorised person to -(a)require repairs to a ship;(b)carry out surveys if requested by the appropriate authorities of a port State:(3)The Central Government shall inform the Organisation of the specific responsibilities and conditions of the authority delegated to such surveyor or authorised person for circulation to the State Parties for the information of their officers.(4)When the surveyor or the authorised person determines that the condition of the ship or its equipment does not correspond substantially with the particulars of the Certificate or is such that, the ship is not fit to proceed to sea without presenting an unreasonable threat of harm to the marine environment, such surveyor or authorised person shall immediately ensure that corrective action is taken and shall also, in due course, notify the Central Government:Provided that if such corrective action is not taken, the Certificate shall be

withdrawn and the Central Government shall be notified immediately: Provided further that if the ship is in a port of another State Party, the appropriate authorities of that Port State shall also be notified immediately: Provided also that when any officer of the Central Government or surveyor or the authorised person has notified the appropriate authorities of the port State, the Government of that port State shall give such officer, surveyor or authorised person necessary assistance to carry out their obligations under these rules and shall take such steps as to ensure that such ship shall not sail until it can proceed to sea or leave the port for the purpose of proceeding to the nearest appropriate repair yard available, without presenting any unreasonable threat of harm to the marine environment. (5) In every case, the Central Government shall fully guarantee the completeness and efficiency of each such survey and shall take necessary steps to satisfy such obligation. (6) The condition of the ship and its equipment shall be maintained to conform to the provisions of the Convention to ensure that the ship shall remain, in all respects, fit to proceed to sea without presenting any unreasonable threat of harm to the marine environment. (7) After any survey of the ship under sub-rule (1) has been completed, no change shall be made in the structure, equipment, systems, fittings, arrangements or material covered by such survey, without the sanction of the Central Government except the direct replacement of such equipment and fittings. (8) Whenever an accident occurs to a ship or a defect is discovered which substantially affects the integrity of the ship or the efficiency or completeness of its equipment as covered by these rules, the master or owner of the ship shall report at the earliest opportunity to the Central Government responsible for issuing the Certificate, who shall cause investigations to be initiated by the surveyor or the authorised person to determine whether a survey as required by sub-rule (1) is necessary: Provided that if the ship is in the port of another State Party, the master or owner shall also report immediately to the appropriate authorities of that Port State and the surveyor or the authorised person shall also ascertain that such report has been made.

## **9. Issue, or endorsement of Certificate.**

(1) After satisfactory completion of an initial or renewal survey in accordance with the provisions of rule 8, the Central Government shall issue an International Pollution Prevention Certificate for Carriage of Noxious Liquid Substances in Bulk in Form-I to any ship intending to carry noxious liquid substances in bulk and which is engaged in voyages to Ports and terminals under its jurisdiction. (2) Where a Certificate is issued under sub-rule (1), the Central Government shall, in every case, assume full responsibility for that Certificate. (3) The Central Government may, on the request of the Government of a State Party, cause survey of the ship and if satisfied that the provisions of these rules are complied with, issue an International Oil Pollution Prevention Certificate for Carriage of Noxious Liquid Substances in Bulk to that ship and the copy of the Certificate and of the survey report shall be transmitted as soon as possible to the requesting Government of the State Party: Provided that the Certificate so issued shall contain a statement to the effect that it has been issued at the request of the Government of the State Party and it shall have the same force and receive the same recognition as the Certificate issued under sub-rule (1). (4) The Government of a State Party may, at the request of the Central Government, cause a ship to be surveyed and if satisfied that the provisions of these rules are complied with, shall issue or authorise the issue of an International Pollution Prevention Certificate for Carriage of Noxious Liquid Substances in Bulk to the ship and where appropriate, endorse or authorise the endorsement of that



Certificate on the ship, in accordance with these rules and a copy of the Certificate and of the survey report shall be transmitted as soon as possible to the Central Government making such request: Provided that a Certificate so issued shall contain a statement to the effect that it has been issued at the request of the Central Government and it shall have the same force and receive the same recognition as the Certificate issued under sub-rule (1). (5) No International Pollution Prevention Certificate for Carriage of Noxious Liquid Substances in Bulk shall be issued to a ship which is entitled to fly the flag of a State which is not a party to the Convention. (6) The Central Government shall issue an India Pollution Prevention Certificate for Carriage of Noxious Liquid Substances in Bulk in Form-II to any ship which is engaged in Voyages to ports or offshore terminals in Indian waters

## **10. Duration and validity of Certificate.**

(1) The International Pollution Prevention Certificate for the carriage of Noxious Liquid Substances in Bulk or, as the case may be, the Indian Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk issued under rule 9 shall be valid for a period of five years. (2) Notwithstanding anything contained in sub-rule (1), when the renewal survey is completed - (a) within three months before the expiry date of the existing certificate, the new certificate issued shall be valid from the date of completion of such renewal survey for a maximum period of five years from the date of expiry of the existing certificate; (b) after the expiry date of the existing certificate, the new certificate issued shall be valid from the date of completion of such renewal survey for a maximum period of five years from the date of expiry of the existing certificate; (c) more than three months before the expiry date of the existing certificate, the new certificate issued shall be valid from the date of completion of the renewal survey for a period of five years from the date of completion of such renewal survey. (3) If a Certificate is issued for a period of less than five years, the Central Government may extend the validity of the Certificate beyond the expiry date to the maximum period specified in sub-rule (1): Provided that the surveys referred in clause (c) and (d) of sub-rule (1) of rule 8, which are required to be carried out when a Certificate is issued for a period of five years, shall also be carried out as may be appropriate. (4) If a renewal survey has been completed and a new certificate cannot be issued or placed on board the ship before the expiry date of the existing certificate, the Central Government may endorse the existing certificate and such certificate shall be accepted as valid for a further period of five months from the expiry date. (5) If, at a time when the Certificate expires, a ship is not in the port in which it is to be surveyed, or in such other cases as it deems proper and reasonable so to do, the Central Government may, extend the period of validity of the certificate: Provided that such extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed: Provided further that such extension shall not be granted for a period longer than three months: Provided also that a ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled to leave that port without having a new Certificate and such new Certificate issued after the renewal survey is completed, shall be valid for a maximum period of five years from the date of expiry of the existing Certificate before the extension was granted. (6) Where a certificate issued to a ship engaged on short voyages has not been extended under the provisions of sub-rule (5), the Central Government may extend the period of grace up to one month from the date of its expiry and the new certificate issued after the renewal survey is completed shall be valid for a maximum period

of five years from the date of expiry of the existing certificate before the extension was granted.(7)Under such special circumstances as may be determined by the Central Government, the new certificate shall be issued for a maximum period of five years from the date of completion of the renewal survey and not from the date of expiry of the existing certificate as provided in clause (b) of sub-rule (2), sub-rule (5) and sub-rule (6).(8)If an annual or intermediate survey is completed before the period specified in rule 8, then-(a)the anniversary date shown on the Certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed;(b)the subsequent annual or intermediate survey required by rule 8 shall be completed at the intervals specified in that rule using the new anniversary date;(c)the expiry date may remain unchanged provided one or more annual or intermediate surveys, as appropriate, are carried out so that the maximum intervals between the surveys specified in rule 8 are not exceeded.(9)A certificate issued under rule 9 shall cease to be valid in any of the following cases, namely:-(a)where the relevant surveys are not completed within the periods specified under sub-rule (1) of rule 8;(b)where a Certificate is not endorsed in accordance with the provisions of clauses(c)and (d) of sub-rule (1) of rule 8;(c)upon a transfer of the ship to the flag of another State Party:Provided that no new certificate shall be issued by any Government required so to do unless it is fully satisfied that the ship is in full compliance of the requirements of sub-rules (6) and (7) of rule 8:Provided further that in the case of a transfer between State Parties, if a request is made within three months after such transfer has taken place, the Government of the State Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Central Government copies of the certificate carried by the ship before such transfer and copies of survey reports, if available.

## **Chapter IV**

### **Design, Construction, Arrangement and Equipment**

#### **11. Design, construction, equipment and operations.**

(1)The design, construction, equipment and operation of ships certified to carry noxious liquid substances in bulk identified in chapter 17 of the International Bulk Chemical Code, shall be in compliance with the following provisions to minimize the uncontrolled discharge into the sea of such substances, namely:-(a)the International Bulk Chemical Code when the chemical tanker is constructed on or after 1st July, 1986; or(b)the Bulk Chemical Code as referred to in paragraph 1.7.2 of that Code for-(i)ships for which the building contract is placed on or after 2nd November, 1973 but constructed before 1st July, 1986, and which are engaged on voyages to ports or terminals under the jurisdiction of other States Parties; and(ii)ships constructed on or after 1st July, 1983 but before 1st July, 1986, which are engaged solely on voyages between ports or terminals within the State the flag of which the ship is entitled to fly.(c)The Bulk Chemical Code as referred to in paragraph 1.7.3 of that Code for-(i)ships for which the building contract is placed before 2nd November, 1973 and which are engaged on voyages to ports or terminals under the jurisdiction of other States Parties; and,(ii)ships constructed before 1st July, 1983, which are solely engaged on, voyages between ports or terminals within the State the flag of which the ship is entitled to fly.(2)In respect of ships other than chemical tankers or liquefied gas carriers certified to carry noxious liquid substances in bulk

identified in chapter 17 of the International Bulk Chemical Code, the Central Government shall establish appropriate measures based on the Guidelines developed by the Organization in order to ensure that the provisions shall be such as to minimize the uncontrolled discharge into the sea of such substances.

## 12. Pumping, piping, unloading arrangements and slop tanks.

(1) Every ship constructed before 1st July, 1986 shall be provided with a pumping and piping arrangement to ensure that each tank certified for the carriage of substances in Category X or Y does not retain a quantity of residue in excess of three hundred litres in the tank and its associated piping and that each tank certified for the carriage of substances in Category Z does not retain a quantity of residue in excess of nine hundred litres in the tank and its associated piping and for this purpose, a performance test shall be carried out in accordance with the procedure specified in Schedule-III. (2) Every ship constructed on or after 1st July, 1986 but before 1st January, 2007 shall be provided with a pumping and piping arrangement to ensure that each tank certified for the carriage of substances in Category X or Y does not retain a quantity of residue in excess of one hundred litres in the tank and its associated piping and that each tank certified for the carriage of substances in Category Z does not retain a quantity of residue in excess of three hundred litres in the tank and its associated piping and for this purpose, a performance test shall be carried out in accordance with the procedure specified in Schedule-III. (3) Every ship constructed on or after 1st January, 2007 shall be provided with a pumping and piping arrangement to ensure that each tank certified for the carriage of substances in Category X, Y or Z does not retain a quantity of residue in excess of seventy-five litres in the tank and its associated piping and for this purpose, a performance test shall be carried out in accordance with the procedure specified in Schedule-III. (4) For a ship other than a chemical tanker constructed before 1st January, 2007 which cannot meet the requirements for the pumping and piping arrangements for substances in Category Z referred to in sub-rules (1) and (2) above, no quantity requirement shall apply and compliance is deemed to be reached if the tank is emptied to the most practicable extent. (5) Pumping performance tests referred to in sub-rules (1), (2) and (3) shall be approved by the Central Government and such pumping performance tests shall use water as the test medium. (6) Ships certified to carry substances of Category X, Y or Z shall have an underwater discharge outlet or outlets. (7) For ships constructed before 1st January, 2007 and certified to carry substances in Category Z, an underwater discharge outlet as required under sub-rule (6) is not mandatory. (8) The underwater discharge outlet or outlets shall be located within the cargo area in the vicinity of the turn of the bilge and shall be so arranged as to avoid the re-intake of residue/water mixtures by the ship's seawater intakes. (9) The underwater discharge outlet arrangement shall be such that the residue/water mixture discharged into the sea shall not pass through the ship's boundary layer and for this purpose, when the discharge is made normal to the ship's shell plating, the minimum diameter of the discharge outlet shall be governed by the following equation:

$$d = \sqrt[3]{Qd_5Ld}$$

where  $d$  = minimum diameter of the discharge outlet (m)  $Ld$  = distance from the forward perpendicular to the discharge outlet (m)  $Qd$  = the maximum rate selected at which the ship may discharge a residue/water mixture through the outlet (m<sup>3</sup>/h). (10) When the discharge is directed at

an angle to the ship's shell plating, the above relationship shall be modified by substituting for Qd the component of Qd which is normal to the ship's shell plating.<sup>(11)</sup> Although these rules do not require the fitting of dedicated slop tanks, slop tanks may be needed for certain washing procedures and cargo tanks may be used as slop tanks.

## **Chapter V**

# **Operational Discharges of Residues of Noxious Liquid Substances**

### **13. Control of discharges of residues of noxious liquid substances.**

- Subject to the provisions of rule 3, the control of discharges of residues of noxious liquid substances or ballast water, tank washings or other mixtures containing such substances shall be in compliance with the following requirements, namely:-(a) Discharge provisions-(i) the discharge into the sea of residues of substances assigned to Category X, Y or Z or of those provisionally assessed as such or ballast water tank washings or other mixtures containing such substances shall be prohibited unless such discharges are made in full compliance with the applicable operational requirements contained in these rules; (ii) before any pre-wash or discharge procedure is carried out in accordance with this rule, the relevant tank shall be emptied to the maximum extent in accordance with the procedures specified in the Manual; (iii) The carriage of substances which have not been categorised, provisionally assessed or evaluated as referred to in rule 6 or of ballast water, tank washings or other mixtures containing such residues shall be prohibited along with any consequential discharge of such substances into the sea; (b) Discharge standards-(i) where the provisions of this rule allow the discharge into the sea of residues of substances in Category X, Y or Z or of those provisionally assessed as such or ballast water, tank washings or other mixtures containing such substances, the following discharge standards shall apply, namely:-(A) the ship is proceeding en route at a speed of at least seven knots in the case of self-propelled ships or at least four knots in the case of ships which are not self-propelled; (B) the discharge is made below the waterline through the underwater discharge outlet not exceeding the maximum rate for which the underwater discharge outlet is designed; and (C) the discharge is made at a distance of not less than twelve nautical miles from the nearest land in a depth of water of not less than twenty-five metres; (ii) for ships constructed before 1st January, 2007, the discharge into the sea of residues of substances in Category Z or of those provisionally assessed as such or ballast water, tank washings or other mixtures containing such substances below the waterline is not mandatory; (iii) the Central Government may waive the requirements of item (C) of sub-clause (i) of clause (b) above, for substances in Category Z, regarding the distance of not less than twelve nautical miles from the nearest land for ships solely engaged in voyages within waters subject to the sovereignty or jurisdiction of the State the flag, of which, the ship is entitled to fly and the Central Government may also waive the same requirements regarding the discharge distance of not less than twelve nautical miles from the nearest land for a particular ship entitled to fly the flag of their State, when engaged in voyages within waters subject to the sovereignty or jurisdiction of one adjacent State after the establishment of an agreement, in writing, of a waiver between the two coastal States involved provided that no third party will be affected: Provided that information on such agreement shall be

communicated to the Organization within thirty days for further circulation to the State Parties for their information and appropriate action if any.

(c) Ventilation of cargo residues - Ventilation procedures approved by the Central Government may be used to remove cargo residues from a tank and such procedures shall be in accordance with Schedule-V: Provided that any water subsequently introduced into the tank shall be regarded as clean and shall not be subject to the discharge requirements of these rules.

(d) Exemption for a pre-wash - On request of the ship's master, an exemption for a pre-wash may be granted by the Central Government, where it is satisfied that-

- (i) the unloaded tank is to be reloaded with the same substance or another substance compatible with the previous one and that the tank will not be washed or ballasted prior to loading;
- or (ii) the unloaded tank is neither washed nor ballasted at sea and the pre-wash, in accordance with the applicable rule shall be carried out at another port provided that it has been confirmed in writing that a reception facility at that port is available and is adequate for such a purpose; or (iii) the cargo residues shall be removed by a ventilation procedure approved by the Central Government in accordance with Schedule-V;

(e) the use of cleaning agents or additives-

- (i) when a washing medium other than water, such as mineral oil or chlorinated solvent, is used instead of water to wash a tank, its discharge shall be governed by the provisions of the Merchant Shipping (Prevention of Pollution by Oil from Ships) Rules, 2009 or, as the case may be, these rules, which would apply to the medium had it been carried as cargo: Provided that tank washing procedures involving the use of such a medium shall be set out in the Manual approved by the Central Government;
- (ii) when small amounts of cleaning additives (detergent products) are added to, water in order to facilitate tank washing, no additives containing Pollution Category X components shall be used except those components that are readily biodegradable and present in a total concentration of less than ten per cent, of the cleaning additive: Provided that no restrictions, in addition to those applicable to the tank due to the previous cargo, shall apply;

(f) discharge of residues of Category X-

- (i) Subject to the provisions of clause (a), the following provisions shall apply, namely:-
  - (A) a tank from Which a substance in Category X has been unloaded, shall be prewashed before the ship leaves the port of unloading and the resulting residues shall be discharged to a reception facility until the concentration of the substance in the effluent to such facility, as indicated by analyses of samples of the effluent taken by the surveyor, is at or below 0.1% by weight and when the required concentration level has been achieved, remaining tank washings shall continue to be discharged to the reception facility until the tank is empty: Provided that appropriate entries of these operations shall be made in the Cargo Record Book and endorsed by the surveyor or the authorised person referred to in sub-rule (1) of rule 16;
  - (B) any water subsequently introduced into the tank may be discharged into the sea in accordance with the discharge standards in clause (b) above;
  - (C) where the Central Government is satisfied that it is impracticable to measure the concentration of the substance in the effluent without causing undue delay to the ship, then it may accept an alternative procedure as being equivalent to obtain the required concentration in item (A) of sub-clause (i) of clause (f) provided that-
  - (I) the tank is pre-washed in accordance with a procedure approved by the Central Government in compliance with Schedule-IV; and
  - (II) appropriate entries shall be made in the Cargo Record Book and endorsed by the surveyor or the authorised person referred to in sub-rule (1) of rule 16;
- (g) Discharge of residues of Category Y and Z-subject to the provision of clause (a), the following provisions shall apply-

- (A) with respect to the residue discharge procedures for substances in Category Y or Z, the discharge standards in clause (b) shall apply;
- (B) if the unloading of a substance of Category Y or Z is not carried out in accordance with the Manual, a pre-wash shall

be carried out before the ship leaves the port of unloading, unless alternative measures are taken to the satisfaction of the surveyor or the authorised person referred to in sub-rule (1) of rule 16 to remove the cargo residues from the ship to quantities specified in this rule and the resulting tank washings of the pre-wash shall be discharged to a reception facility at the port of unloading or another port with a suitable reception facility: Provided that it has been confirmed in writing that a reception facility at that port is available and is adequate for such a purpose; (C) for high-viscosity or solidifying substances in Category Y, the following shall apply, namely:—(I) a pre-wash procedure as specified in Schedule-IV shall be applied; (II) the residue/water mixture generated during the pre-wash shall be discharged to a reception facility until the tank is empty; and (III) any water subsequently introduced into the tank may be discharged into the sea in accordance with the discharge standards in clause (b); (h) Operational requirements for ballasting and de-ballasting (i) after unloading, and, if required, after a pre-wash, a cargo tank may be ballasted and procedures for the discharge of such ballast shall be as provided in clause (b); (ii) ballast introduced into a cargo tank which has been washed to such an extent that the ballast contains less than 1 ppm of the substance previously carried, may be discharged into the sea without regard to the discharge rate, ship's speed and discharge outlet location: Provided that the ship is not less than twelve nautical miles from the nearest land and in water that is not less than twenty-five metres deep and the required degree of cleanliness has been achieved when a pre-wash as specified in Schedule-IV has been carried out and the tank has been subsequently washed with a complete cycle of the cleaning machine for ships built before 1st July, 1994 or with a water quantity not less than that calculated with  $k = 1.0$ ; (iii) the discharge into the sea of clean or segregated ballast shall not be subject to the requirements of these rules; (i) Discharges in the Antarctic Area—(A) Antarctic Area means the sea area south of latitude  $60^{\circ}\text{S}$ ; (B) in the Antarctic Area any discharge into the sea of noxious liquid substances or mixtures containing such substances is prohibited.

## **14. Procedures and Arrangements Manual.**

(1) Every ship certified to carry substances of Category X, Y or Z shall have on board a Manual approved by the Central Government and such Manual shall have a standard format as in Schedule-II. (2) The main purpose of the Manual is to identify for the ship's officers the physical arrangements and all the operational procedures with respect to cargo handling, tank cleaning, slops handling and cargo tank ballasting and de-ballasting which must be followed in order to comply with the requirements of these rules.

## **15. Cargo record book.**

(1) Every ship to which these rules apply shall be provided with a Cargo Record Book, whether as part of the ship's official logbook or otherwise, in Form-III. (2) After completion of any operation specified in the Form-III, the operation shall be promptly recorded in the Cargo Record Book. (3) In the event of an accidental discharge of a noxious liquid substance or a mixture containing such a substance or a discharge under the provisions of rule 3, an entry shall be made in the Cargo Record Book stating the circumstances of and the reason for, such discharge. (4) Each entry, shall be signed by the officer or officers in charge of the operation concerned and each page shall be signed by the master of the ship, and the entries in the Cargo Record Book for ships holding an International

Certificate or an Indian Certificate referred to in rule 9 or a certificate referred to in rule 7 shall be in English at least: Provided that where entries in an official national language of the State whose flag the ship is entitled to fly is also used, this shall prevail in the case of a dispute or discrepancy. (5) The Cargo Record Book shall be kept in such a place as to be readily available for inspection and, except in the case of unmanned ships under tow, shall be kept on board the ship and it shall be retained for a period of three years after the last entry has been made. (6) The authority authorised by the Central Government may inspect the Cargo Record Book on board any ship to which these rules apply while the ship is in its port, and may make a copy of any entry in that book and may require the master of the ship to certify that the copy is a true copy of such entry and such copy shall be made admissible in any judicial proceedings as evidence of the facts stated therein: Provided that the inspection of a Cargo Record Book and the taking of a certified copy by the said authority shall be performed as expeditiously as possible without causing the ship to be unduly delayed.

## **Chapter VI**

### **Measures of Control by Port States**

#### **16. Measures of control.**

(1) The Central Government shall appoint surveyors or authorise any person for the purpose of implementing the provisions of these rules and such surveyor or, as the case may be, the authorised person shall execute control in accordance with control procedures developed by the Organization. (2) When a surveyor appointed or the person authorised by the Central Government has verified that an operation has been carried out in accordance with the requirements of the Manual, or has granted an exemption for a pre-wash, then, he shall make an appropriate entry in the Cargo Record Book. (3) The master of a ship certified to carry noxious liquid substances in bulk shall ensure that the provisions of rule 13 and of this rule have been complied with and that the Cargo Record Book is completed in accordance with rule 15 whenever operations as referred to in that rule take place. (4) A tank which has carried a Category X substance shall be pre-washed in accordance with clause (f) of rule 13 and appropriate entries of these operations shall be made in the Cargo Record Book and endorsed by the surveyor or the person referred to in Sub-rule (1). (5) Where the Central Government is satisfied that it is impracticable to measure the concentration of the substance in the effluent without causing undue delay to the ship, it shall accept an alternative procedure referred to in sub-clause i(C) of clause (f) of rule 13 provided that the surveyor or the authorised person referred to in sub-rule (1) certifies in the Cargo Record Book that-(a) the tank, its pump and piping systems have been, emptied; and (b) the pre-wash has been carried out in accordance with the provisions of Schedule IV; and (c) the tank washing resulting from such pre-wash have been discharged to a reception facility, and the tank is empty. (6) At the request of the ship's master, the Central Government may exempt the ship from the requirements for a pre-wash referred to in the applicable provisions of rule 13, when one of the conditions of clause (d) of rule 13 is met. (7) An exemption referred to in sub-rule (6) may only be granted by the Central Government to a ship engaged in voyages to ports or terminals under the jurisdiction of other State Parties and when such an exemption has been granted, the appropriate entry made in the Cargo Record Book shall be endorsed by the surveyor or the authorised person referred to in sub-rule (1). (8) If the

unloading is not carried out in accordance with the pumping conditions for the tank approved by the Central Governments and based on Schedule-III, alternative measures may be taken to the satisfaction of the surveyor or the authorised person referred to in sub-rule (1) to remove the cargo residues from the ship to quantities specified in rule 12 as applicable and appropriate entries shall be made in the Cargo Record Book.(9)Control on operational requirements.- (1) During inspection of a foreign ship in Indian port under section 356G, the surveyor, or as the case may be, any other person authorised thereunder, has clear grounds to believe that the master or crew of that ship are not familiar with operational requirements and procedures relating to the prevention of pollution by noxious liquid substances, the Director-General or any officer authorised by him, shall, on the recommendation of the surveyor or the authorised person, take such steps as provided in section 356H.(2)Nothing in this rule shall be construed to limit the rights and obligations of the Central Government carrying out control over operational requirements specifically provided for in the Convention.

## **Chapter VII**

### **Prevention of Pollution Arising from an Incident Involving Noxious Liquid Substances**

#### **17. Shipboard marine pollution emergency plan for noxious liquid substances.**

(1)Every ship of one hundred and fifty gross tonnage and above certified to carry noxious liquid substances in bulk shall carry on board a shipboard marine pollution emergency plan for noxious liquid substances approved by the Central Government.(2)The plan referred to in sub-rule (1) shall be based on the Guidelines developed by the Organization and written in a working language or languages understood by the master and officers and such plan shall consist at least of-(a)the procedure to be followed by the master or other persons having charge of the ship to report a Noxious Liquid Substances pollution incident, as required in article 8 and Protocol 1 of the Convention, based on the Guidelines developed by the Organization;(b)the list of authorities or persons to be contacted in the event of a noxious liquid substances pollution incident;(c)a detailed description of the action to be taken immediately by persons on board to reduce or control the discharge of noxious liquid substances following the incident; and(d)the procedures and point of contact on the ship for coordinating shipboard action with national and local authorities in combating the pollution.(3)In the case of ships to which the provisions of the Merchant Shipping (Prevention of Pollution by Oil from Ships) Rules, 2009 also applies, such a plan may be combined with the shipboard oil pollution emergency plan required thereunder and in such case, the title of such a plan shall be "Shipboard marine pollution emergency plan".

## **Chapter VIII**

### **Reception Facilities**



## 18. Reception facilities and cargo unloading terminal arrangements.

(1)The Central Government shall ensure the provision of reception facilities according to the needs of ships using its ports, terminals or repair ports as follows, namely:-(a)ports and terminals involved in ships cargo handling shall have adequate facilities for the reception of residues and mixtures containing such residues of noxious liquid substances resulting from compliance with these rules, without undue delay for the ships involved;(b)ship repair ports undertaking repairs to NLS tankers shall provide facilities adequate for the reception of residues and mixtures containing noxious liquid substances for ships calling at that port.(2)The Central Government shall determine the types of facilities provided for the purpose of sub-rule (1) at each cargo loading and unloading port, terminal and ship repair port in its territories and notify the Organization thereof.(3)The Central Government, collectively with the State Party or Parties, the coastlines of which border on any given special area, shall agree and establish a date, by which time, the requirement of sub-rule (1) shall be fulfilled and from which date the requirements of rule 13 in respect of such special area shall take effect, and notify the Organization of the date so established, at least six months in advance of that date, for enabling the Organization to promptly notify all State Parties of that date.(4)The Central Government shall undertake to ensure that cargo unloading terminals shall provide arrangements to facilitate stripping of cargo tanks of ships unloading noxious liquid substances at these terminals:Provided that cargo hoses and piping systems of the terminal, containing noxious liquid substances received from ships unloading these substances at the terminal, shall not be drained back to the ship.(5)The Central Government shall notify the Organization, for transmission to the State Parties concerned, of any case where facilities required under sub-rule (1) or arrangements required under sub-rule (3) are alleged to be inadequate.

## 19. Fees.

- The fees to be levied for the purposes of conducting survey under the provisions of the Act and the rules made thereunder shall be such as is specified in the Schedule-VI.

## 20. Penalty.

- Whoever contravenes any of the provisions of these rules shall be punished with fine in accordance with the provisions clause (b) of sub-rule 2 of section 458 of the Act.

Form-I[See rule 9(1) & (3)]Form of International Pollution Prevention Certificatefor the Carriage of Noxious Liquid Substances in BulkIssued under the provisions of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and as amended, (hereinafter referred to as "the Convention") under the authority of the Government of India.

By : Principal Officer-Cum-Joint Dg(Tech), Mercantile Marine Department

Particulars of ship\*Name of ship .....Distinctive number or letters .....IMO Number ☐.....Port of registry .....Gross tonnage .....

\*The NLS Certificate shall be at least in English, French or Spanish. Where entries in an official national language of the State whose flag the ship is entitled to fly are also used this shall prevail in case of a dispute or discrepancy.☐Refer to the IMO ship Identification

Number Scheme adopted by the Organisation by resolution A.600(15). This is to Certify:

- 1. That the ship has been surveyed in accordance with regulation 8 of Annex II of the Convention.**
- 2. That the survey showed that the structure, equipment, systems, fitting, arrangements and material of the ship and the condition thereof are in all respects satisfactory and that the ship complies with the applicable requirements of Annex II of the Convention:**
- 3. That the ship has been provided with a Procedures and Arrangements Manual as required by regulation 14 of Annex II of the Convention, and that the arrangements and equipment of the ship prescribed in the Manual are in all respects satisfactory.**
- 4. That the ship complies with the requirements of Annex II to MARPOL 73/78 for the carriage in bulk of the following Noxious Liquid Substances, provided that all relevant provisions of Annex II are observed.**

Noxious Liquid Substances	Conditions of carriage (tank numbers etc.)	Pollution Category
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Continued on additional signed and dated sheets

This certificate is valid until (dd/mm/yyyy).....subject to surveys in accordance with regulation 8 of Annex 11 of the Convention. Completion date of the survey on which this certificate is based (dd/mm/yyyy): ..... Issued at ..... (Place of issue of certificate) (dd/mm/yyyy)..... (Date of issue) (Signature of authorized official issuing the certificate) (Seal or stamp of the authority, as appropriate) Endorsement for Annual and Intermediate Surveys This is to certify that, at a survey required by regulation 8 of Annex II of the Convention, the ship was found to comply with the relevant provisions of the Convention:

Annual survey : (Signature of authorized official) Signed.....  
Place..... Date (dd/mm/yyyy) ..... (Seal or stamp of the authority, as appropriate)

Annual/Intermediate\* survey : (Signature of authorized official) Signed.....

Place .....Date (dd/mm/yyyy).....(Seal or stamp of the authority, as appropriate)

Annual/Intermediate\* survey :(Signature of authorized official) Signed.....

Place .....Date (dd/mm/yyyy).....(Seal or stamp of the authority, as appropriate)

Annual survey :(Signature of authorized official) Signed.....

Place.....Date (dd/mm/yyyy).....(Seal or stamp of the authority as appropriate)\* Delete as appropriate.

Annual/intermediate Survey in Accordance with Regulation 10.8.3 This is to Certify that, at an annual/intermediate\* survey in accordance with regulation 10.8.3 of Annex II of the Convention, the ship was found to comply with the relevant provisions of the Convention: Signed .....(Signature of authorized official) Place .....Date (dd/mm/yyyy) .....(Seal or stamp of the authority, as appropriate) Endorsement to extend the certificate if valid for less than 5 years where regulation 10.3 applies The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with regulation 10.3 of Annex II of the Convention, be accepted as valid until (dd/mm/yyyy): .....Signed

.....(Signature of authorized official) Place .....Date (dd/mm/yyyy) .....(Seal or stamp of the authority, as appropriate) Endorsement where the renewal survey has been completed and regulation 10.4 applies The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with regulation 10.4 of Annex II of the Convention, be accepted as valid until (dd/mm/yyyy): .....Signed .....(Signature of authorized official) Place .....Date (dd/mm/yyyy) .....(Seal or stamp of the authority, as appropriate)\* Delete as appropriate. Endorsement to extend the validity of the certificate until reaching the port of survey or for a period of grace where Regulation 10.5 or 10.6 Applies This Certificate shall, in accordance with regulation 10.5 or 10.6 of Annex II of the Convention, be accepted as valid until (dd/mm/yyyy): .....Signed

.....(Signature of authorized official) Place .....Date (dd/mm/yyyy).....(Seal or stamp of the authority, as appropriate) Endorsement for Advancement of anniversary date where Regulation 10.8 Applies In accordance with regulation 10.8 of Annex II of the Convention, the new anniversary date is (dd/mm/yyyy): .....Signed .....(Signature of authorized official) Place.....Date (dd/mm/yyyy).....(Seal or stamp of the authority, as appropriate) In accordance with regulation 10.8 of Annex II of the Convention, the new anniversary date is (dd/mm/yyyy):

.....Signed .....(Signature of authorized official) Place .....Date (dd/mm/yyyy).....(Seal or stamp of the authority, as appropriate) Form-II [See rule 9 (6)] Form of Indian Pollution Prevention Certificate For The Carriage of Noxious Liquid Substances in Bulk Indian Pollution Prevention Certificate For The carriage of Noxious Liquid Substances in Bulk Issued by the authority of the Government of India. By: Principal Officer-Cum-Joint Dg(Tech), Mercantile Marine Department Particulars of ship Name of ship.....Distinctive number or letters.....IMO Number.....Port of registry.....Gross tonnage.....Refer to the IMO ship Identification Number Scheme adopted by the Organisation by resolution A.600 (15). This is to Certify:

- 1. That the ship has been surveyed in accordance with Paragraph 9(1)(h)**
- 2. That the survey showed that the structure, equipment, systems, fitting, arrangements and material of the ship and the condition thereof are in all respects satisfactory and that the ship complies with the applicable requirements**
- 3. That the ship has been provided with a Procedures and Arrangements Manual**
- 4. That the ship complies with the requirements for the carriage in bulk of the following Noxious Liquid Substances.**

Noxious Liquid Substances	Conditions of carriage (tank numbers etc.)	Pollution Category
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Continued on additional signed and dated sheets

This certificate is valid until (dd/mm/yyyy).....Completion date of the survey on which this certificate is based(dd/mm/yyyy): .....Issued at .....(Place of issue of certificate)(Date of issue) (dd/mm/yyyy) .....(Signature of authorized officialissuing the certificate)(Seal or stamp of the authority, as appropriate)Endorsement for Annual and Intermediate SurveysThis is to certify that, at a survey required by regulation 8 of Annex II of the Convention, the ship was found to comply with the relevant provisions of the Convention:

Annual survey :(Signature of authorized official) Signed.....

Place .....Date (dd/mm/yyyy) .....(Seal or stamp of the authority, as appropriate)

Annual/Intermediate\* survey :(Signature of authorized official) Signed.....

Place .....Date (dd/mm/yyyy) .....\*Delete as appropriate(Seal or stamp of the authority, as appropriate)

Annual survey/Intermediate\* :(Signature of authorized official) Signed.....

Place .....Date (dd/mm/yyyy) .....(Seal or stamp of the authority, as appropriate)

Annual survey :(Signature of authorized official) Signed.....

Place .....Date (dd/mm/yyyy) .....(Seal or stamp of the authority, as appropriate)\_\_\_\_\_ \*Delete as appropriate.

Record Book for ships carrying noxious liquid substances in bulk  
Cargo Record Book for Ships Carrying Noxious Liquid Substances in Bulk

..... Distinctive number or letters

..... IMO

Number..... Gross

tonnage..... Period from..... to

..... Name of ship

..... Distinctive number or letters

..... Introduction The following pages show a comprehensive list of items of cargo and ballast operations which are, when appropriate, to be recorded in the Cargo Record Book on a tank to tank basis in accordance with regulation 15.2 of Annex II of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), as amended. The items have been grouped into operational sections, each of which is denoted by a letter. When making entries in the Cargo Record Book, the date, operational code and item number shall be inserted in the appropriate columns and the required particulars shall be recorded chronologically in the blank spaces. Each completed operation shall be signed for and dated by the officer or officers in charge and, if applicable, by a surveyor authorized by the competent authority of the State in which the ship is unloading. Each completed page shall be countersigned by the master of the ship. List of items to be recorded

Entries are required for operations involving all Categories of substances. (A) Loading of cargo

**1. Place of loading.**

**2. Identify tank(s), name of substance(s) and Category(ies).**

(B) Internal transfer of cargo

**3. Name and Category of cargo(es) transferred.**

**4. Identity of tanks:**

a. from: b. to:

**5. Was (were) tank(s) in 4 (a) emptied?**

**6. If not, quantity remaining in tank(s).**

(C) Unloading of cargo

**7. Place of unloading.**

**8. Identity of tank(s) unloaded.**

**9. Was (were) tank(s) emptied?**

a. If yes, confirm that the procedure for emptying and stripping has been performed in accordance with the ship's Procedures and Arrangements Manual (i.e. list, trim, stripping temperature).b. If not, quantity remaining in tank(s).

**10. Does the ship's Procedures and Arrangements Manual require a prewash with subsequent disposal to reception facilities?**

**11. Failure of pumping and/or stripping system:**

a. time and nature of failure;b. reasons for failure;c. time when system has been made operational.(D)Mandatory prewash in accordance with the ship's Procedures and Arrangements Manual

**12. Identify tank(s), substance(s) and Category(ies).**

**13. Washing method:**

a. number of cleaning machines per tank;b. duration of wash/washing cycles;c. hot/cold wash.

**14. Prewash slops transferred to:**

a. reception facility in unloading port (identify port)\*;b. reception facility otherwise (identify port)\*(E)Cleaning of cargo tanks except mandatory prewash (other prewash operations, final wash, ventilation etc.)

**15. State time, identify tank(s), substance(s) and Category(ies) and state:**

a. washing procedure used;b. cleaning agent(s) (identify agent(s) and quantities);c. ventilation procedure used (state number of fans used, duration of ventilation).

**16. Tank washings transferred:**

a. into the sea;b. to reception facility (identify port)\*;c. to slops collecting tank (identify tank).(F)Discharge into the sea of tank washings

**17. Identify tank(s):**

a. Were tank washings discharged during cleaning of tank(s)? If so at what rate?  
b. Were tank washing(s) discharged from a slops collecting tank? If so, state quantity and rate of discharge.

**18. Time pumping commenced and stopped.**

**19. Ship's speed during discharge.**

(G) Ballasting of cargo tanks

**20. Identity of tank(s) ballasted.**

**21. Time at start of ballasting.**

(H) Discharge of ballast water from cargo tanks

**22. Identity of tank(s).**

**23. Discharge of ballast:**

a. into the sea;  
b. to reception facilities (identify port)\*

**24. Time ballast discharge commenced and stopped.**

**25. Ship's speed during discharge.**

(I) Accidental or other exceptional discharge

**26. Time of occurrence.**

**27. Approximate quantity, substance(s) and Category(ies).**

**28. Circumstances of discharge or escape and general remarks.**

(J) Control by authorized surveyors

**29. Identify port.**

**30. Identify tank(s), substance(s), Category(ies) discharged ashore.**

**31. Have tank(s), pump(s), and piping system(s) been emptied?**

**32. Has a prewash in accordance with the ship's Procedures and Arrangements Manual been carried out?**

**33. Have tank washings resulting from the prewash been discharged ashore and is the tank empty?**

**34. An exemption has been granted from mandatory prewash.**

**35. Reasons for exemption.**

**36. Name and signature of authorized surveyor.**

Organization, company, government agency for which surveyor works. \_\_\_\_\_ \* Ship's masters should obtain from the operator of the reception facilities, which include barges and tank trucks, a receipt or certificate specifying the quantity of tank washings transferred, together with the time and date of the transfer. The receipt or certificate should be kept together with the Cargo Record Book. Additional operational procedures and remarks Name of ship..... Distinctive number or letters..... IMO Number..... Cargo/ballast Operations

Date	Code (letter)	Item (number)	Record of operations/signature of officer in charge/name of and signature of authorized surveyor
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Signature of master.....

|

[See rule 6]Guidelines for the categorization of noxious liquid substances\*Products are assigned to Pollution Categories based on an evaluation of their properties as reflected in the resultant GESAMP Hazard Profile as shown in the table below:

Paragraph	A1 Bioaccumulation	A2 Biodegradation	B1 Acute toxicity	B2 Chronic toxicity	D3 Long term health effects	E2 Effects on marine wildlife and on benthichabitats	Cat
1			□ <sub>5</sub>				X
2	□ <sub>4</sub>		4				
3		NR	4				
4	□ <sub>4</sub>	NR			CMRTNI		
5			4				Y
6			3				
7			2				
8	□ <sub>4</sub>	NR		Not o			
9				□ <sub>1</sub>			
10						Fp, F or S If not Inorganic	
11					CMRTNI		
12	Any product not meeting the criteria of paragraphs 1 to 11 and 13	Z					
13	All products identified as: □ <sub>2</sub> in column A1; R in column A2; blank in column D3; not Fp, F or S (if not organic) OS in column E2; and o (zero) in all other columns of the GESAMP Hazard Profile						

\*Reference is made to MEPC.1/Circ. 512 on the Revised Guidelines for provisional assessment of liquid substances transported in bulk.Abbreviated legend to the revised GESAMP Hazard Evaluation Procedure

Numerical Rating		Columns A and B - Aquatic Environment		
A		B		
Bioaccumulation and Biodegradation		Aquatic Toxicity		
A1 Bioaccumulation	A2* Biodegradation	B1* Acute Toxicity	B2* Chronic Toxicity	
log Pow	BCF	LC/EC/IC (mg/l)	NOEC(mg/l)	
0	<1 or > ca.7	not measurable	R: readily biodegradable NR: not readily biodegradable inorg: inorganic substance	
1	□1 - < 2	□1-<10	> 100 - □1000	
2	□2-<3	□10 - < 100	> 10 - □100	
3	□3- < 4	□100 - < 500	> 1- □10	
4	□4 - < 5	□500 - < 4000	> 0.1- □1	
5	□5 - < ca7	□4000	> 0.01-□0.1	
6			□0.01	

\*These columns are used to define pollution categories. Abbreviated legend to the revised GESAMP Hazard Evaluation Procedure

Numerical Rating		Columns C and D - Human health (Toxic effects to mammals)		
C		D		
Acute Mammalian Toxicity		Irrigation, Corrosion & Long term health effects		
C1 Oral toxicity LD50 (mg/kg)	C2 Percutaneous toxicity LD50 (mg/kg)	C3 Inhalation toxicity LD50(mg/l)	D1 Skin irritation & corrosion	D2 Eye irrigation & corrosion
			D3* Long-term health effect	

0	>2000	>2000	>20	not irritating	not irritating	C-Carcinogen M-Mutagenic hazard T- Target organs system Lung Injury N-Neurotoxic
1	>300-□2000	>1000-□2000	>10-□20	mildly irritating	mildly irritating	
2	>50-□300	>200-□1000	>2-□10	irritating	irritating	
				severely irritating or corrosive		
3	>5-□50	>50-□200	>0.5-□2	3A Corr.(□4h) 3B Corr.(□1h) 3C Corr. (□3min)	severely irritating	
4	□5	□50	□0.5			

\*These columns are used to define pollution categories. Abbreviated legend to the revised GESAMP Hazard Evaluation Procedure (continued)  
Column E Interferences with other Uses of the Sea

E1 Tainting	E2 *Physical effects on Wildlife & benthic habitats	E3 Interference with Coastal Amenities
Numerical Rating	Description & Action	

NT : not tainting (tested) T : tainting test positive  
FP : Persistent Floater  
F : Floater  
S : Sinking Substances  
O : no interference  
no warning

1	Slightly objectionable warning, no closure of amenity
2	moderately objectionable possible closure of amenity
3	highly objectionable closure of amenity

\*These columns are used to define pollution categories

II

(See rule 14) Standard format for the Procedures and Arrangements Manual  
Note 1: The format consists of a standardized introduction and index of the leading paragraphs to each section. This standardized part shall be reproduced in the Manual of each ship. It shall be followed by the

contents of each section as prepared for the particular ship. When a section is not applicable, "NA" shall be entered, so as not to lead to any disruption of the numbering as required by the standard format. Where the paragraphs of the standard format are printed in italics, the required information shall be described for that particular ship. The contents will vary from ship to ship because of design, trade and intended cargoes. Where the text is not in italics, that text of the standard format shall be copied into the Manual without any modification. Note 2: If the Central Government requires or accepts information and operational instructions in addition to those outlined in this Standard Format, they shall be included in Addendum D of the Manual. Standard Format Marpol 73/78 Annex II Procedures and Arrangements Manual

Name of ship:..... Distinctive number or letters:..... IMO Number..... Port of registry:..... Approval stamp of Central Government:.....

Introduction

**1. The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereinafter referred to as MARPOL 73/78) was established in order to prevent the pollution of the marine environment by discharges into the sea from ships of harmful substances or effluents containing such substances. In order to achieve its aim, MARPOL 73/78 contains six Annexes in which detailed regulations are given with respect to the handling on board ships and the discharge into the sea or release into the atmosphere of six main groups of harmful substances, i.e. Annex I (Mineral oils), Annex II (Noxious Liquid Substances carried in bulk), Annex III (Harmful substances carried in packaged forms), Annex IV (Sewage), Annex V (Garbage) and Annex VI (Air Pollution).**

**2. Regulation 13 of Annex II of MARPOL 73/78 (hereinafter referred to as Annex II) prohibits the discharge into the sea of Noxious Liquid Substances of Categories X, Y or Z or of ballast water, tank washings or other residues or mixtures containing such substances, except in compliance with specified conditions including procedures and arrangements based upon standards developed by the International Maritime Organization (IMO) to ensure that the criteria specified for each Category will be met.**

**3. Annex II requires that each ship which is certified for the carriage of noxious liquid substances in bulk shall be provided with a Procedures and Arrangements Manual, hereinafter referred to as the Manual.**

**4. This Manual has been written in accordance with Schedule-II and is concerned with the marine environmental aspects of the cleaning of cargo tanks and the discharge of residues and mixtures from these operations. The Manual is not a safety guide and reference shall be made to other publications specifically to evaluate safety hazards.**

**5. The purpose of the Manual is to identify the arrangements and equipment required to enable compliance with Annex II and to identify for the ship's officers all operational procedures with respect to cargo handling, tank cleaning, slops handling, residue discharging, ballasting and deballasting, which must be followed in order to comply with the requirements of Annex II.**

**6. In addition, this Manual, together with the ship's Cargo Record Book and the Certificate issued under Annex 11\*, will be used by Central Governments for control purposes in order to ensure full compliance with the requirements of Annex II by this ship.**

**7. The master shall ensure that no discharges into the sea of cargo residues or residue/water mixtures containing Category X, Y or Z substances shall take place, unless such discharges are made in full compliance with the operational procedures contained in this Manual.**

**8. This Manual has been approved by the Central Government and no alteration or revision shall be made to any part of it without the prior approval of the Central Government.**

\_\_\_\_\_ \* Include only the Certificate issued to the particular ship: i.e. The International Pollution Prevention Certificate for the carriage of Noxious Liquid Substances in bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk. Index of sections

Section 1 Main features of MARPOL 73/78, Annex II

Section 2 Description of the ship's equipment and arrangements

Section 3 Cargo unloading procedures and tank stripping

Section 4 Procedures relating to the cleaning of cargo tanks, the discharge of residues, ballasting and deballasting

Section 5 Information and Procedures

Section 1 - Main features of MARPOL 73/78, Annex IIa. The requirements of Annex II apply to all ships carrying Noxious Liquid Substances in bulk. Substances posing a threat of harm to the marine

environment are divided into three categories, X, Y and Z. Category X substances are those posing the greatest threat to the marine environment, whilst Category Z substances are those posing the smallest threat.

b. Annex II prohibits the discharge into the sea of any effluent containing substances falling under these categories, except when the discharge is made under conditions which are specified in detail for each Category. These conditions include, where applicable, such parameters as: (i) the maximum quantity of substances per tank which may be discharged into the sea; (ii) the speed of the ship during the discharge; (iii) the minimum distance from the nearest land during discharge; (iv) the minimum depth of water at sea during discharge; and (v) the need to effect the discharge below the waterline.

c. For certain sea areas identified as "special area" more stringent discharge criteria apply. Under Annex II the special area is the Antarctic area.

d. Annex II requires that every ship is provided with pumping and piping arrangements to ensure that each tank designated for the carriage of Category X, Y and Z substances does not retain after unloading a quantity of residue in excess of the quantity given in the Annex. For each tank intended for the carriage of such substances an assessment of the residue quantity has to be made. Only when the residue quantity as assessed is less than the quantity prescribed by the Annex a tank may be approved for the carriage of a Category X, Y or Z substances.

e. In addition to the conditions referred to above an important requirement contained in Annex II is that the discharge operations of certain cargo residues and certain tank cleaning and ventilation operations may only be carried out in accordance with approved procedures and arrangements.

f. To enable the requirement of paragraph e to be met, this Manual contains in section 2 all particulars of the ship's equipment and arrangements. In section 3 operational procedures for cargo unloading and tank stripping and in section 4 procedures for discharge of cargo residues, tank washing, slops collection, ballasting and deballasting as may be applicable to the substances the ship is certified to carry.

g. By following the procedures as set out in this Manual, it will be ensured that the ship complies with all relevant requirements of Annex II to MARPOL 73/78.

### Section 2 - Description of the ship's equipment and arrangements

a. This section contains all particulars of the ship's equipment and arrangements necessary to enable the crew to follow the operational procedures set out in sections 3 and 4.

b. General arrangement of ship and description of cargo tanks

This section shall contain a brief description of the cargo area of the ship with the main features of the cargo tanks and their positions. Line or schematic drawings showing the general arrangement of the ship and indicating the position and numbering of the cargo tanks and heating arrangements shall be included.

c. Description of cargo pumping and piping arrangements and stripping system

This section shall contain a description of the cargo pumping and piping arrangements and of the stripping system. Line or schematic drawings shall be provided showing the following and be supported by textual explanation where necessary: (i) cargo piping arrangements with diameters; (ii) cargo pumping arrangements with pump capacities; (iii) piping arrangements of stripping system with diameters; (iv) pumping arrangements of stripping system with pump capacities; (v) location of suction points of cargo lines and stripping lines inside every cargo tank; (vi) if a suction well is fitted, the location and cubic capacity thereof; (vii) line draining and stripping or blowing arrangements; and (viii) quantity and pressure of nitrogen or air required for line blowing if applicable.

d. Description of ballast tanks and ballast pumping and piping arrangements

This section shall contain a description of the ballast tanks and ballast pumping and piping arrangements. Line or schematic drawings and tables shall be provided showing the following: (i) a general arrangement showing the segregated ballast tanks and cargo tanks to be used as ballast tanks together with their capacities

(cubic metres);(ii)ballast piping arrangement;(iii)pumping capacity for those cargo tanks which may also be used as ballast tanks: and(iv)any interconnection between the ballast piping arrangements and the underwater outlet system.e. Description of dedicated slop tanks with associated pumping and piping arrangements This section shall contain a description of the dedicated slop tank(s), if any, with the associated pumping and piping arrangements. Line or schematic drawings shall be provided showing the following:(i)which dedicated slop tanks are provided together with the capacities of such tanks;(ii)pumping and piping arrangements of dedicated slop tanks with piping diameters and their connection with the underwater discharge outlet.f. Description of underwater discharge outlet for effluents containing Noxious Liquid SubstancesThis section shall contain information on position and maximum flow capacity of the underwater discharge outlet (or outlets) and the connections to this outlet from the cargo tanks and slop tanks. Line or schematic drawings shall be provided showing the following:-(i)location and number of underwater discharge outlets;(ii)connections to underwater discharge outlet;(iii)location of all seawater intakes in relation to underwater discharge outlets.g. Description of flow rate indicating and recording devices[Not Required]h. Description of cargo tank ventilation systemThis section shall contain a description of the cargo tank ventilation system.Line or schematic drawings and tables shall be provided showing the following and supported by textual explanation if necessary:(i)the Noxious Liquid Substances the ship is certified to carry having a vapour pressure over 5 kPa at 20°C suitable for cleaning by ventilation to be listed in paragraph 4.d.x of the Manual;(ii)ventilation piping and fans;(iii)position of the ventilation openings;(iv)the minimum flow rate of the ventilation system to adequately ventilate the bottom and all parts of the cargo tank;(v)the location of structures inside the tank affecting ventilation;(vi)the method of ventilating the cargo pipeline system, pumps, filters, etc: and(vii)means for ensuring that the tank is dry.i. Description of tank washing arrangements and wash water heating systemThis section shall contain a description of the cargo tank washing arrangements, wash water heating system and all necessary tank washing equipment.Line or schematic drawings and tables or charts showing the following:(i)arrangements of piping dedicated for tank washing with pipeline diameters;(ii)type of tank cleaning machines with capacities and pressure rating;(iii)maximum number of tank cleaning machines which can operate simultaneously;(iv)position of deck openings for cargo tank washing;(v)the number of cleaning machines and their location required for ensuring complete coverage of the cargo tank walls;(vi)maximum capacity of wash water which can be heated to 60°C by the installed heating equipment; and(vii)maximum number of tank cleaning machines which can be operated simultaneously at 60°C.Section 3 - Cargo unloading procedures and tank strippinga. This section contains operational procedures in respect of cargo unloading and tank stripping which must be followed in order to ensure compliance with the requirements of Annex II.b. Cargo unloadingThis section shall contain procedures to be followed including the pump and cargo unloading and suction line to be used for each tank. Alternative methods may be given.The method of operation of the pump or pumps and the sequence of operation of all valves shall be given.The basic requirement is to unload the cargo to the maximum extent.c. Cargo tank strippingThis section shall contain procedures to be followed during the stripping of each cargo tank.The procedures shall include the following:a. operation of stripping system;b. list and trim requirements;c. line draining and stripping or blowing arrangements if applicable; andd. duration of the stripping time of the water testd. Cargo temperatureThis section shall contain information on the heating requirements of cargoes which have been identified as being required to be at a certain minimum temperature

during unloading. Information shall be given on control of the heating system and the method of temperature measurement. e. Procedures to be followed when a cargo tank cannot be unloaded in accordance with the required procedures This section shall contain information on the procedures to be followed in the event that the requirements contained in sections 3.3 and/or 3.4 cannot be met due to circumstances such as the following: (i) failure of cargo tank stripping system; and (ii) failure of cargo tank heating system. f. Cargo Record Book The Cargo Record Book shall be completed in the appropriate places on completion of any cargo operation. Section 4 - Procedures relating to the cleaning of cargo tanks, the discharge of residues, ballasting and de-ballasting. This section contains operational procedures in respect of tank cleaning, ballast and slops handling which must be followed in order to ensure compliance with the requirements of Annex II. b. The following paragraphs outline the sequence of actions to be taken and contain the information essential to ensure that Noxious Liquid Substances are discharged without posing a threat of harm to the marine environment. c. [Not Required] d. The information necessary to establish the procedures for discharging the residue of the cargo, cleaning, ballasting and deballasting the tank, shall take into account the following: (i) Category of substance The category of the substance should be obtained from the relevant Certificate. (ii) Stripping efficiency of tank pumping system The contents of this section will depend on the design of the ship and whether it is a new ship or existing ship (See flow diagram and pumping/stripping requirements). (iii) Vessel within or outside Special Area This section shall contain instructions on whether the tank washings can be discharged into the sea within a special area (as defined in section (C)) or outside a special area. The different requirements shall be made clear and will depend on the design and trade of the ship. No discharges into the sea of residues of Noxious Liquid Substances, or mixtures containing such substances, are allowed within the Antarctic area (the sea area south of latitude 60° S). (iv) Solidifying or High-Viscosity Substance The properties of the substance should be obtained from the shipping document. (v) Miscibility with water Deleted (vi) Compatibility with slops containing other substances This section shall contain instructions on the permissible and non-permissible mixing of cargo slops. Reference should be made to compatibility guides. (vii) Discharge to reception facility This section shall identify those substances the residues of which are required to be prewashed and discharged to a reception facility. (viii) Discharging into the sea This section shall contain information on the factors to be considered in order to identify whether the residue/water mixtures are permitted to be discharged into the sea. (ix) Use of cleaning agents or additives This section shall contain information on the use and disposal of cleaning agents (e.g. solvents used for tank cleaning) and additives\* to tank washing water (e.g. detergents). (x) Use of ventilation procedures for tank cleaning This section shall make reference to all substances suitable for the use of ventilation procedures. e. Having assessed the above information, the correct operational procedures to be followed should be identified using the instructions and flow diagram of section 5. Appropriate entries shall be made in the Cargo Record Book indicating the procedure adopted. Section 5 - Information and procedures This section shall contain procedures, which will depend on the age of the ship and pumping efficiency. Examples of flow diagram referred to in this section are given at addendum A and incorporate comprehensive requirements applicable to both new and existing ships. The Manual for a particular ship shall only contain those requirements specifically applicable to that ship. Information relating to melting point and viscosity, for those substances which have a melting point equal to or greater than 0°C or a viscosity equal or greater than 50 mPa.s at 20°C, shall be obtained from the shipping document. For substances allowed to be



carried, reference is made to the relevant Certificate. The Manual shall contain:

Table 1 : Deleted

Table 2 : Cargo tank information.

Addendum A  
: Flow diagram.

Addendum B  
: Prewash procedures.

Addendum C  
: Ventilation procedures.

Addendum D Additional information and operational instructions when required or accepted by  
: the Central Government.

Outlines of the above table and addenda are shown below. Table 2 - Cargo tank information

Tank no.\* Capacity(m<sup>3</sup>) Stripping quantity(litres)

\_\_\_\_\_ \*Tank numbers should be identical to those in the ship's Certificate of Fitness  
Addendum A Flow diagrams - Cleaning of cargo tanks and disposal of Tank washings/ballast containing residues of category X, Y, and Z substances  
Note 1: This flow diagram shows the basic requirements applicable to all age groups of ships and is for guidance only.  
Note 2 : All discharges into the sea are regulated by Annex II.  
Note 3 : Within the Antarctic area, any discharge into the sea of noxious liquid substances or mixtures containing such substances is prohibited.

Ship details	Stripping requirements (in litres)		
Category X	Category Y	Category Z	
New Ships: keel laid after 1 January 2007	75	75	75
IBC ships until	100+50 tolerance	100+50 tolerance	300+50 tolerance
BCH ships	300+50 tolerance	300+50 tolerance	900+50 tolerance
Other ships: keel-laid before 1 January 2007	N/A	N/A	Empty to the most possible extent

Cleaning and disposal procedures (CDP)(Start at the top of the column under the CDP number specified and complete each item procedure in the sequence where marked)

Sr. No.	Operation	Procedure Number		
		2(a)	2(b) 3	
1	Strip tank and piping to maximum extent, at least in compliance with the procedures in section 3 of this Manual	X	X	X X X
2	Apply prewash in accordance with Addendum B of this Manual and discharge residue to reception facility.	X	X	
3	Apply subsequent wash, additional to the prewash, with: a complete cycle of the cleaning machine(s) for ships built before 1 July 1994 a water quantity not less than calculated with "k"=1.0 (for ships built on or after 1 July 1994)		X	
4	Apply ventilation procedure in accordance with Addendum C of this Manual			X
5	Ballast tanks or wash tank to commercial standards	X		X X X
6	Ballast added to tank		X	
7	Conditions for discharge of ballast/residue/water mixtures other than prewash:			
	1. distance from land > 12 nautical miles	X		X X
	2. ship's speed > 7 knots	X		X X
	3. water depth > 25 metres	X		X X
	4. Using underwater discharge (not exceeding permissible discharge rate)	X		X
8	Conditions for discharge of ballast:			
	1. distance from land > 12 nautical miles		X	
	2. water depth > 25 metres		X	
9	Any water subsequently introduced into a tank may be discharged into the sea without restrictions	X	X	X X X

**Addendum B** Pre-wash procedures This addendum to the Manual shall contain pre-wash procedures based on Schedule-IV. These procedures shall contain specific requirements for the use of the tank washing arrangements and equipment provided on the particular ship and include the following: a. cleaning machine positions to be used; b. slops pumping out procedure; c. requirements for hot washing; e. number of cycles of cleaning machine (or time); and f. minimum operating pressures.

**Addendum C** Ventilation procedures This addendum to the Manual shall contain ventilation procedures based on Schedule-V. The procedures shall contain specific requirements for the use of the cargo tank ventilation system or equipment, fitted on the particular ship and shall include till: following: a. ventilation positions to be used; b. minimum flow or speed of fans; c. procedures for ventilating cargo pipeline, pumps, filters. etc.: and d. procedures for ensuring that tanks are dry on completion.

**Addendum D** Additional information and operational instructions required or accepted by the Central Government This addendum to the Manual shall contain additional information and operational instructions required or accepted by the Central Government.

### III

(See rule 12 and 16) Assessment of residue quantities in cargo tanks, pumps and associated piping

## 1. Introduction

a. Purpose (i) The purpose of this Schedule is to provide the procedure for testing the efficiency of cargo pumping systems. b. Background (i) The ability of the pumping system of a tank to comply with regulation 12.1, 12.2 or 12.3 is determined by performing a test in accordance with the procedure set out in section 3 of this Schedule. The quantity measured is termed the "stripping quantity". The stripping quantity of each tank shall be recorded in the ship's Manual. (ii) After having determined the stripping quantity of one tank, the Central Government may use the determined quantities for a similar tank, provided the Central Government is satisfied that the pumping system in that tank is similar and operating properly.

## 2. Design criteria and performance test

a. The cargo pumping systems should be designed to meet the required maximum amount of residue per tank and associated piping as specified in regulation 12 of Annex II to the satisfaction of the Central Government. b. In accordance with regulation 12.5 the cargo pumping systems shall be tested with water to prove their performance. Such water tests shall, by measurement, show that the system meets the requirements of regulation 12. In respect of regulations 12.1 and 12.2 a tolerance of 50 litres per tank is acceptable.

## 3. Water performance test

a. Test condition (i) The ship's trim and list shall be such as to provide favourable drainage to the suction point. During the water test the ship's trim shall not exceed 3° by the stern, and the ship's list shall not exceed 1°. (ii) The trim and list chosen for the water test shall be recorded. This shall be

the minimum favourable trim and list used during the water test.(iii)During the water test means shall be provided to maintain a back-pressure of not less than 100 kPa at the cargo tank's unloading manifold (see figures 5-1 and 5-2).(iv)The time taken to complete the water test shall be recorded for each tank, recognizing that this may need to be amended as a result of subsequent tests.(i)Ensure that the cargo tank to be tested and its associated piping have been cleaned and that the cargo tank is safe for entry.(ii)Fill the cargo tank with water to a depth necessary to carry out normal end of unloading procedures.(iii)Discharge and strip water from the cargo tank and its associated piping in accordance with the proposed procedures.(iv)Collect all water remaining in the cargo tank and its associated piping into a calibrated container for measurement. Water residues shall be collected, inter alia, from the following points:

- 1. the cargo tank suction and its vicinity:**
- 2. any entrapped areas on the cargo tank bottom;**
- 3. the low point drain of the cargo pump; and**
- 4. all low point drains of piping associated with the cargo tank up to the manifold valve.**

(v)The total water volumes collected above determine the stripping quantity for the cargo tank.(vi)Where a group of tanks is served by a common pump or piping the water test residues associated with the common system(s) may be apportioned equally among the tanks provided that the following operational restriction is included in the ship's approved Manual: "For sequential unloading of tanks in this group, the pump or piping is not to be washed until all tanks in the group have been unloaded."----- Drawing Missing -----The above figures illustrate test arrangements that would provide a backpressure of not less than 100 kPa at the cargo tank's unloading manifold.

## **IV**

[See rule 13 and 16]Pre-wash proceduresA. For ships built before 1 July, 1994A pre-wash procedure is required in order to meet certain requirements under these rules. This Schedule explains how these pre-wash procedures shall be performed.Pre-wash procedures for non-Solidifying Substances

- 1. Tanks shall be washed by means of a rotary water jet, operated at sufficiently high water pressure. In the case of Category X substances cleaning machines shall be operated in such locations that all tank surfaces are washed. In the case of Category Y substances only one location need be used.**

- 2. During washing the amount of water in the tank shall be minimized by continuously pumping out slops and promoting flow to the suction point (positive list and trim). If this condition cannot be met the washing procedure shall be repeated three times, with thorough stripping of the tank between washings.**
- 3. Those substances which have a viscosity equal to or greater than 50 mPas at 20° C shall be washed with hot water (temperature at least 60° C), unless the properties of such substances make the washing less effective.**
- 4. The number of cycles of the cleaning machine used shall not be less than that specified in table 6-1. A cleaning machine cycle is defined as the period between two consecutive identical orientations of the tank cleaning machine (rotation through 360°).**
- 5. After washing, the tank cleaning machine(s) shall be kept operating long enough to flush the pipeline, pump and filter, and discharge to shore reception facilities shall be continued until the tank is empty.**

Pre-wash procedures for Solidifying Substances

- 1. Tanks shall be washed as soon as possible after unloading. If possible tanks shall be heated prior to washing.**
- 2. Residues in hatches and manholes shall preferably be removed prior to the prewash.**
- 3. Tanks shall be washed by means of a rotary water jet operated at sufficiently high water pressure and in locations to ensure that all tank surfaces are washed.**
- 4. During washing the amount of water in the tank shall be minimized by pumping out slops continuously and promoting flow to the suction point (positive list and trim). If this condition cannot be met, the washing procedure shall be repeated three times with thorough stripping of the tank between washings.**

**5. Tanks shall be washed with hot water (temperature at least 60° C) unless the properties of such substances make the washing less effective.**

**6. The number of cycles of the cleaning machine used shall not be less than that specified in table 6-1. A cleaning machine cycle is defined as the period between two consecutive identical orientations of the machine (rotation through 360°).**

**7. After washing, the cleaning machine(s) shall be kept operating long enough to flush the pipeline, pump and filter, and discharge to shore reception facilities shall be continues until the tank is empty.**

Table 6-1 -- Number of cleaning machine cycles to be used in each location

Category of substance	Number of cleaning machine cycles	
Non-Solidifying Substances	Solidifying Substances	
Category X	1	2
Category Y	1/2	1

B. For ships built on or after 1 July 1994 and recommendatory for ships built before 1 July 1994A pre-wash procedure is required in order to meet certain requirements under these rules. This Schedule explains how these pre-wash procedures shall be performed and how the minimum volumes of washing media to be used shaH be determined. Smaller volumes of washing media may be used based on actual verification testing to the satis1action of the Central Government. Where reduced volumes are approved an entry to that effect must be recorded in the Manual.If a medium other than water is used for the pre-wash, the provisions regulation 13.5.1 apply.Pre-wash procedures for non-Solidifying Substances without recycling

**1. Tanks shall be washed by means of a rotary jet(s), operated at sufficiently high water pressure. In the case of Category X substances cleaning machines shall he operated in such locations that all tank surfaces are washed. In the case of Category Y substances only one location need be used.**

**2. During washing the amount of liquid in the tank shall be minimized by continuously pumping out slops and promoting flow to the suction point. If this condition cannot be met, the washing procedure shall be repeated three times, with thorough stripping of the tank between washings.**

- 3. Those substances which have a viscosity equal to or greater than 50 mPa.s at 20° C shall be washed with hot water (temperature at least 60° C), unless the properties of such substances make the washing less effective.**
- 4. The quantities of wash water used shall not be less than those specified in paragraph 20 or determined according to paragraph 21.**
- 5. After pre-washing the tanks and lines shall be thoroughly stripped.**

Pre-wash procedures for Solidifying Substances without recycling

- 6. Tanks shall be washed as soon as possible after unloading. If possible, tanks should be heated prior to washing.**
- 7. Residues in hatches and manholes should preferably be removed prior to the prewash.**
- 8. Tanks shall be washed by means of a rotary jet(s) operated at sufficiently high water pressure and in locations to ensure that all tank surfaces are washed.**
- 9. During washing the amount of liquid in the tank shall be minimized by pumping out slops continuously and promoting flow to the suction point. If this condition cannot be met, the washing procedure shall be repeated three times with thorough stripping of the tank between washings.**
- 10. Tanks shall be washed with hot water (temperature at least 60° C), unless the properties of such substances make the washing less effective.**
- 11. The quantities of wash water used shall not be less than those specified in paragraph 20 or determined according to paragraph 21.**
- 12. After pre-washing the tanks and lines shall be thoroughly stripped.**

Pre-wash procedures with recycling of washing medium

- 13. Washing with a recycled washing medium may be adopted for the purpose of washing more than one cargo tank. In determining the quantity, due regard must be given to the expected amount of residues in the tanks**

**and the properties of the washing medium and**

whether any initial rinse or flushing is employed. Unless sufficient data are provided, the calculated end concentration of cargo residues in the washing medium shall not exceed 5% based on nominal stripping quantities.

**14. The recycled washing medium shall only be used for washing tanks having contained the same or similar substance.**

**15. A quantity of washing medium sufficient to allow continuous washing shall be added to the tank or tanks to be washed.**

**16. All tank surfaces shall be washed by means of a rotary jet(s) operated at sufficiently high pressure. The recycling of the washing medium may either be within the tank to be washed or via another tank, e.g. a slop tank.**

**17. The washing shall be continued until the accumulated throughput is not less than that corresponding to the relevant quantities given in paragraph 20 or determined according to paragraph 21.**

**18. Solidifying Substances and substances with viscosity equal to or greater than 50 mPas at 20°C shall be washed with hot water (temperature at least 60°C) when water is used as the washing medium, unless the properties of such substances make the washing less effective.**

**19. After completing the tank washing with recycling to the extent specified in paragraph 17, the washing medium shall be discharged and the tank thoroughly stripped. Thereafter, the tank shall be subjected to a rinse, using clean washing medium, with continuous drainage and discharged to a reception facility. The rinse shall as a minimum cover the tank bottom and be sufficient to flush the pipelines, pump and filter.**

Minimum quantity of water to be used in a pre-wash

**20. The minimum quantity of water to be used in a pre-wash is determined by the residual quantity of noxious liquid substance in the tank, the tank size, the cargo properties, the permitted concentration in any subsequent wash water effluent, and the area of operation. The minimum quantity is given by the following formula:**



$Q = k (15r^{0.8} + 5r^{0.7} \times V/1000)$  where  $Q$  = the required minimum quantity in  $m^3$ ,  $R$  = the residual quantity per tank in  $m^3$ . The value of  $r$  shall be the value demonstrated in the actual stripping efficiency test, but shall not be taken lower than 0.100  $m^3$  for a tank volume of 500  $m^3$  and above and 0.040  $m^3$  for a tank volume of 100  $m^3$  and below. For tank sizes between 100  $m^3$  and 500  $m^3$  the minimum value of  $r$  allowed to be used in the calculations is obtained by linear interpolation. For Category X substances the value of  $r$  shall either be determined based on stripping tests according to the Manual, observing the lower limits as given above, or be taken to be 0.9  $m^3$ .  $V$  = tank volume in  $m^3$ ,  $k$  = a factor having values as follows: Category X, non-Solidifying, low-viscosity substance,  $k = 1.2$ ; Category X, Solidifying or high-viscosity substance,  $k = 2.4$ ; Category Y, non-Solidifying, low-viscosity substance,  $k = 0.5$ ; Category Y, Solidifying or High-Viscosity Substance,  $k = 1.0$ . The table below is calculated using the formula with a  $k$  factor of 1 and may be used as an easy reference.

Stripping quantity ( $m^3$ )	Tank volume ( $m^3$ )	
	100	500 3000
□0.04	1.2	2.9 5.4
0.10	2.5	2.9 5.4
0.30	5.9	6.8 12.2
0.90	14.3	16.1 27.7

**21. Verification testing for approval of pre-wash volumes lower than those given in paragraph 20 may be carried out to the satisfaction of the Central Government to prove that the requirements of regulation 13 are met, taking into account the substances the ship is certified to carry. The pre-wash volume so verified shall be adjusted for other pre-wash conditions by application of the factor  $k$  as defined in paragraph 20.**

## V

(See rule 13) Ventilation procedures

**1. Cargo residues of substances with a vapour pressure greater than 5 KPa at 20°C may be removed from a cargo tank by ventilation.**

**2. Before residues of Noxious Liquid Substances are ventilated from a tank the safety hazards relating to cargo flammability and toxicity shall be considered. With regard to safety aspects, the operational requirements for openings in cargo tanks in SOLAS 74, as amended, the International Bulk Chemical Code, the Bulk Chemical Code, and the ventilation procedures in the International Chamber of Shipping (ICS) Tanker Safety Guide (Chemicals) should be consulted.**

### 3. Port authorities may also have regulations on cargo tank ventilation.

### 4. The procedures for ventilation of cargo residues from a tank are as follows:

a. the pipelines shall be drained and further cleared of liquid by means of ventilation equipment; b. the list and trim shall be adjusted to the minimum levels possible so that evaporation of residues in the tank is enhanced; c. ventilation equipment producing an airjet which can reach the tank bottom shall be used. Figure 7-1 could be used to evaluate the adequacy of ventilation equipment used for ventilating a tank of a given depth; d. ventilation equipment shall be placed in the tank opening closest to the tank sump or suction point; .e. ventilation equipment shall, when practicable, be positioned so that the airjet is directed at the tank sump or suction point and impingement of the airjet on tank structural members is to be avoided as much as possible; and f. ventilation shall continue until no visible remains of liquid can be observed in the tank. This shall be verified by a visual examination or an equivalent method.

## VI

### (See rule 19) Survey Fees

Fees payable for surveys conducted for the purposes of issue of an International Pollution Prevention Certificate for the carriage of Noxious Liquid substances/Indian Pollution Prevention Certificate for the carriage of Noxious Liquid substances, Annual Survey, Intermediate and Renewal Survey for Tankers.

#### 1. Gross Tonnage of Ship upto 500 tons

Initial Survey	RS.20,000
Annual Survey	RS.7,500
Intermediate Survey	RS.10,000
Renewal Survey	RS.15,000

#### 2. Gross Tonnage of Ship 501 to 19,999 tons

Initial Survey	RS.50,000
Annual Survey	RS.20,000
Intermediate Survey	RS.30,000
Renewal Survey	RS.40,000

#### 3. Gross Tonnage of Ship 20000 to 29.999 tons

Initial Survey	RS.60,000
Annual Survey	RS.25,000
Intermediate Survey	RS.35,000
Renewal Survey	RS.40,000

4. Gross Tonnage of Ship 30000 to 49.999 tons

Initial Survey	RS.65,000
Annual Survey	RS.30,000
Intermediate Survey	RS.40,000
Renewal Survey	RS.50,000

5. Gross Tonnage of Ship 50000 to 99,999 tons

Initial Survey	RS.70,000
Annual Survey	RS.40,000
Intermediate Survey	RS.45,000
Renewal Survey	RS.50,000

Sundays, holidays and overtime fees

For all the items of surveys  
for which no fees has been  
prescribed in the relevant  
paragraphs, the fees shall be  
as follows:

Overtime (Before 9.30 am. or after 6.00 p.m.) Holidays fees RS. 1.000 RS. 3.000