

कंपार्टमेंट द्वारा नामित टैंक क्षमता (आगे से पीछे की ओर)	के एल
रिक्त भार और टैंक की फिटिंग	कि. ग्रा.
सकल यान भार	कि. ग्रा.
लदाई की सीमा	एल पी एम
उतराई की सीमा	एल पी एम
टैंक परीक्षण की तारीख	एल पी एम

[फा. सं. पी-11021/1/2003-वितरण]  
विवेक कुमार, संयुक्त सचिव

टिप्पण : मूल नियम भारत के राजपत्र में अधिसूचना संख्यांक सा.का.नि. 204(अ), तारीख 13 मार्च, 2002 द्वारा प्रकाशित किए गए थे और तत्पश्चात् अधिसूचना संख्यांक सा.का. नि. 61(अ), तारीख 2 फरवरी, 2007 द्वारा उनका संशोधन किया गया ।

#### MINISTRY OF PETROLEUM AND NATURAL GAS

#### NOTIFICATION

New Delhi, the 1st December, 2011

**G.S.R. 857(E).— WHEREAS** a draft of the Petroleum (Amendment) Rules, 2011, was published as required by sub-sections (2) and (3) of section 29 of the Petroleum Act, 1934 (30 of 1934) by notification the dated the 14<sup>th</sup> June, 2011 of the Government of India in the Ministry of Petroleum and Natural Gas number GSR 455(E), dated the 15<sup>th</sup> June, 2011 in the Gazette of India, Extra-ordinary, Part II, Section 3, Sub-section (i), inviting objections or suggestions from all persons likely to be affected thereby before the expiry of forty five days from the date on which the notification was made available to the public;

**AND WHEREAS**, the said notification was made available to the public on the 15<sup>th</sup> June, 2011;

**AND WHEREAS**, no objection or suggestion to the draft rules was received by the Central Government;

**NOW, THEREFORE**, in exercise of the powers conferred by sections 4, 5, 14, 21, 22 and sub section (1) of section 29 of the Petroleum Act, 1934 (30 of 1934), the Central Government hereby makes the following rules further to amend the Petroleum Rules, 2002, namely :-

1. (1) These rules may be called the Petroleum (Amendment) Rules, 2011.

(2) They shall come into force on the date of their final publication in the Official Gazette.

2. In the Petroleum Rules, 2002, (hereinafter referred to as the said rules), in rule 2, for clause (ix), the following item shall be substituted, namely:-

‘(ix) “Defence Forces of the Union” includes General Reserve Engineering Forces under the Director-general Border Roads, Ordnance Factories under the Ministry of Defence, Assam Rifles, Central Reserve Police Force, Border Security Force, Indo Tibetan Border Police, Coast Guard and National Security Guard under the Ministry of Home Affairs and Special Security Bureau under the Cabinet Secretariat;’.

3. In the said rules, in rule 5, in sub-rule (1), for the words “iron or steel”, the words “steel or other suitable material” shall be substituted.

4. In the said rules, in rule 6, in sub rule (1), for the word “iron”, the words “other suitable material” shall be substituted.

5. In the said rules, in rule 63, for sub-rule (2), the following sub-rule shall be substituted, namely:-

“(2) The tank shall be fabricated and mounted on the vehicle chassis by a manufacturer approved by the Chief Controller and such a manufacturer shall,-

(i) apply to the Chief Controller for approval with particulars of facilities and competent persons available with him and a scrutiny fee of rupees five hundred and the Chief Controller, on satisfying himself after verification of the particulars and competence of technical manpower, may approve the workshop for fabrication of tank truck and such approval shall be valid for three years from the date of issue of approval and renewable for further periods of three years on payment of fee of rupees five hundred for each three year period;

(ii) submit the tank fabrication and mounting drawings in quadruplicate for each type of tank vehicle, along with scrutiny fee of rupees one hundred to the Chief Controller for approval and the Chief Controller, on satisfying himself after verification of the design, may approve the drawings and forward a copy thereof to the applicant with his signature and official seal.”.

6 In the said rules, in rule 64, for sub-rule (3), the following sub-rule shall be substituted, namely:-

“ (3) The net carrying capacity of a tank truck or a tank semi-trailer shall not exceed 40 kilolitres of petroleum except in case of air-craft refueller in which case it shall not exceed 50 kilolitres and the net carrying capacity of any tank trailer shall not exceed 5 kilolitres of petroleum.”

7. In the said rules, in rule 70,-

(1) in sub-rule (1),-

(i) after clause (iii), the following proviso shall be inserted, namely:-

“Provided that where the exhaust of diesel engine is based on design having electronic fuel management with unit injectors and electronic control unit coupled with turbo charger and intercooler arrangements, no separate spark arrestor be provided.”;

(ii) in clause (vi) , for the word “cab”, of both the places where it occurs, the word “cabin” shall be substituted;

(2) in sub-rule (2), for the word “cab”, the word “cabin” shall be substituted.

8. In the said rules, in rule 71,-

(1) in clause (ii),-

(i) for sub-clause (a) , the following sub-clause shall be substituted, namely : -

“(a) comprise of conductors of adequate capacity to avoid overheating and shall be adequately insulated for maximum loads to be carried.”;

(ii) in sub-clause (b), for the words “protective covering, and”, the words “protective covering” shall be substituted;

(iii) in sub-clause (c), after the word “sealed”, the word “and” shall be inserted;

(iv) after sub-clause (c), the following sub-clause shall be inserted, namely:-

“(d) shall be securely fastened and positioned in such a way that the conductors are adequately protected against mechanical stresses;”.

(2) For clause “(iii)”, the following clause shall be substituted, namely:-

“(iii) the generator, battery, switches, fuses and circuit breakers shall be carried in the cabin of the vehicle or in the engine compartment and the battery shall be in an easily accessible position with a heavy-duty switch for breaking the electrical circuits which shall be placed as close to the battery as possible –

(a) direct or indirect control devices shall be installed, one in the driver's cabin and the second on the outside of the vehicle and both the devices installed inside the cabin of the vehicle and outside, shall be readily accessible and distinctly marked and the control device located in the driver's cabin shall be within immediate reach of the driver, seated in the driver's seat and it shall be protected against inadvertent operation by either adding a protective cover, or by using a dual movement control device or by other suitable means;

(b) it shall be possible to open the switch while the engine is running, without causing any dangerous excess voltage and the operation of the switch shall not constitute a fire hazard in an explosive atmosphere which can be ensured by using a switch having a casing with degree of protection IP 65;

(c) the cable connection on the battery master switch shall have a degree of protection IP54, save if such connection is contained in a housing which may be a battery box;

(d) the battery terminals shall be electrically insulated or covered by an insulating battery box cover which is properly vented;"

(3) For clause (iv), the following clause shall be substituted, namely:-

"(iv) generators and motors and switches thereof which are not installed within the engine compartment and which remains energized when the battery master switch is open shall be suitable for use in hazardous areas and shall meet appropriate requirements of Indian Standards for the relevant gas group:

Provided that where such generators or motors or switches thereof are installed in an enclosed space, adequate provision shall be made for air circulation to prevent overheating and possible accumulation of inflammable vapours,";

(4) After clause (iv), the following clause shall be inserted, namely:-

"(v) bypass connections to the battery master switch for electrical equipment which remain energized when the battery master switch is open shall be protected against overheating by suitable means, such as a fuse, a circuit breaker or safety barrier (current limited):

Provided that the provisions of this rule except clause (i) and sub-clause (a) of clause (ii) shall not apply for transportation of petroleum Class A, otherwise than in bulk exclusively used by helicopters and aeroplanes for aerial crop spraying purposes only."

9. In the said rules, in rule 106,-

(i) in sub-rule (1), in the proviso, for the words "safe apparatus of a type", the words "safe apparatus, either individually or in combination with other similar devices forming an intrinsically safe circuit of the type shall be substituted.";

(ii) in sub-rule (2),

(a) in clause (ii), for the words "industrial type apparatus housed", the words "industrial type apparatus, approved in writing by the Chief Controller, housed" shall be substituted;

(b) after clause (ii), the following clause shall be inserted, namely:-

"(iii) combinations of different protection apparatus of the type approved in writing by the Chief Controller.";

(iii) in sub-rule (3), for clause (i), the following clause shall be substituted, namely:-

"(i) a non-sparking apparatus or protected contacts apparatus or restricted breathing enclosure apparatus or energy limited apparatus or simplified pressure protected apparatus of a type approved in writing by the Chief Controller; or";

(iv) in sub-rule (4), after sub-clause (ii), the following shall be inserted, namely:-

"Note:-

1. Intrinsically safe apparatus shall conform to IS/IEC:60079-11 or equivalent standard recognised by the Chief Controller;
2. Intrinsically safe circuit shall conform to IS/IEC:60079-25 or equivalent standard recognised by the Chief Controller;
3. Flameproof apparatus shall conform to IS/IEC:60079-1 or equivalent standard recognised by the Chief Controller;
4. Pressure protected apparatus shall conform to IS/IEC:60079-2/60079-13 or equivalent standard recognised by the Chief Controller;
5. Non-sparking apparatus shall conform to IS/IEC:60079-15 or equivalent standard recognised by the Chief Controller."

10. In the said rules, in rule 108, after sub-rule (3), the following sub-rules shall be inserted, namely : -

“(4) The cross sectional area of the earthing conductor shall be minimum 4 square millimetres.

(5) The electrical integrity of the earthing system shall be measured only by devices approved by the Chief Controller.”.

11. In the said rules, in rule 124, in sub-rule (1),-

(i) for the words, “iron or steel”, the words “steel or other suitable material”, shall be substituted;

(ii) for the words, “codes or specification approved by the Indian Standard Institution”, the words “relevant specification of Bureau of Indian Standards” shall be substituted;

(iii) the proviso shall be omitted.

12. In the said rules, in rule 142, -

(i) after sub-rule (1), the following sub-rule shall be inserted, namely : -

“(1A) A licence in Form XI granted or renewed under these rules shall remain in force for one or more years counted as 365 days or multiple thereof from the date of grant of such licence, subject to a maximum period of ten years.”;

(ii) in sub-rule (2), for the words “three years”, the words “ten years” shall be substituted.

13. In the said rules, in rule 144, after sub-rule (5), the following sub-rule shall be inserted, namely : -

“(6) Where the location of storage of petroleum is within the notified area of a Port or Airport under the control of the state, or establishment of Indian Space Research Organisation or Department of Atomic Energy, NO OBJECTION CERTIFICATE from the District Authority referred to in sub-rules (1) to (5) shall not be required :

• Provided that consent for establishment of petroleum storage from the competent authority of concerned notified area or head of the establishment, as the case may be, is obtained.”.

14. In the said rules, in rule 148, -

(i) after sub-rule (1), the following sub-rule shall be inserted, namely : -

“(1A) Every licence granted in Form XI under these rules may be renewed for a maximum period of ten years counted as 365 days or multiple thereof from the date of grant of the licence where there has been no contravention of the Act or of the rules framed there under or of any conditions of the licence so renewed.”;

(ii) in sub-rule (2), for the words and figures beginning from “Form III or Form XVII ..... to three calendar years”, the following words and figures shall be substituted, namely :-

“Form III, Form XI or Form XVII may be renewable for a maximum period of ten calendar years”;

(iii) in sub-rule (3), the word “calendar” shall be omitted;

(iv) in sub-rule (4), the words “together with approved plans attached to the licence wherever applicable” shall be omitted;

(v) in sub-rule (5), for the words "at least thirty days", the words "on or" shall be substituted;

(vi) for sub-rule (7), the following sub-rule shall be substituted, namely : -

"(7) The same fee shall be charged for the renewal of licence for each year as for the grant thereof:

Provided that if the application with accompaniments required under sub-rule (4) is not received within the time specified in sub-rule (5), but received after the date on which it expires, the licence, without prejudice to any other action that may be taken in this behalf, may be renewed on payment of a late fee amounting to one fourth of the licence fee for delay of every three months or part thereof, in addition to the licence fee for the period for which the renewal is sought for.";

(vii) sub-rule (8) shall be omitted.

15. In the said rules, for rule 151, the following rule shall be substituted, namely : -

**"151. Refusal of licence.** - A licensing authority refusing to grant, amend, renew or transfer a licence, shall record his reasons for such refusal in writing and shall furnish to the applicant, copy of the order refusing to grant, amend, renew or transfer of the licence :

Provided that before refusing to grant, amend, renew or transfer of the licence, the applicant shall be given a reasonable opportunity of being heard."

16. In the said rules, in rule 152, for sub-rule (3), the following sub-rule shall be substituted, namely : -

“(3) A licensing authority or the Central Government suspending or cancelling a licence under sub-rule (1), shall record its reason for so doing in writing and shall furnish to the licensee a copy of the order cancelling the licence.”.

17. In the said rules, in Rules 181 to 185 shall be omitted.

18. In the said rules, in the First Schedule, -

(i) In column 1, against article 2, -

(a) under column 4, for the word “Controller”, the words “Controller authorised in this behalf by the Chief Controller” shall be substituted;

(b) under column 5, for the words and figures “Rs. 500 for every Calender year or part thereof”, the words and figures “Rs.500 for every year counted as 365 days from the date of grant or part thereof” shall be substituted;

(ii) against article 5, under column 4, for the word “Controller”, the words “Controller authorised in this behalf by the Chief Controller” shall be substituted;

(iii) against article 7, under column 4, for the word “Controller”, the words “Controller authorised in this behalf by the Chief Controller” shall be substituted;

(iv) against article 8, under column 4, for the word “Controller”, the words “Controller authorised in this behalf by the Chief Controller” shall be substituted;

(v) against article 9, under column 4, for the word “Controller”, the words “Controller authorised in this behalf by the Chief Controller” shall be substituted;

(vi) against article 10, under column 4, for the word “Controller”, the words “Controller authorised in this behalf by the Chief Controller” shall be substituted;

(vii) against article 11, under column 4, for the word “Controller”, the words “Controller authorised in this behalf by the Chief Controller” shall be substituted.

19. In the said rules, in the Second Schedule, -

(i) in Form XI,-

(a) for the word "Controller", the words "Controller of Explosives" shall be substituted;

(b) for the words "One year from the date of issue", occurring under the heading 'Description of the vehicle', the words and figures "One year counted as 365 days or multiple thereof from the date of issue subject to a maximum of ten years" shall be substituted;

(ii) in Form XII, for the heading "**Space for Endorsement of Renewals**" and the table there-under, the following shall be substituted, namely : -

**"Space for Endorsement/Renewals**

(This licence shall be renewable without any concession in fee for ten years in the absence of contravention of any provisions of the Petroleum Act, 1934 or of the rules framed there under or any of the conditions of this licence.)

Date of renewal	Date of expiry of licence	Signature and Office stamp of the licensing authority
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”;

(iii) in Form XIII, for the heading "**Space for Endorsement of Renewals**" and the table there-under, the following shall be substituted, namely : -

**"Space for Endorsement/Renewals**

(This licence shall be renewable without any concession in fee for ten years in the absence of contravention of any provisions of the Petroleum Act, 1934 or of the rules framed there under or any of the conditions of this licence.)

Date of renewal	Date of expiry of licence	Signature and Office stamp of the licensing authority"
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";

(iv) in Form XIV,

(a) for the word "Controller", the words "Controller of Explosives" shall be substituted;

(b) for the heading "Space for Endorsement of Renewals" and the table thereunder, the following shall be substituted, namely : -

**"Space for Endorsement of Renewals**

(This licence shall be renewable without any concession in fee for ten years in the absence of contravention of any provisions of the Petroleum Act, 1934 or of the rules framed there under or any of the conditions of this licence.)

Date of renewal	Date of expiry of licence	Signature and Office stamp of the licensing authority"
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";

(v) in Form XV, -

(a) for the word "Chief Controller", the words "Chief Controller of Explosives" shall be substituted;

(b) for the heading "Space for Endorsement of Renewals" and the table thereunder, the following shall be substituted, namely : -

**"Space for Endorsement/Renewal**

(This licence shall be renewable without any concession in fee for ten years in the absence of contravention of any provisions of the Petroleum Act, 1934 or of the rules framed there under or any of the conditions of this licence.)

Date of renewal	Date of expiry of licence	Signature and Office stamp of the licensing authority
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”;

(c) in TABLE-2, under the column heading “item”, in second row, for the words and figures “All tanks with diameters upto 50 metres”, the words and figures “All tanks with diameters exceeding 50 metres” shall be substituted;

(vi) in Form XVI, -

(a) for the word “Controller”, the words “Controller of Explosives” shall be substituted;

(b) for the heading “**Space for Endorsement of Renewals**” and the table thereunder, the following shall be substituted, namely : -

**“Space for Endorsement/Renewals**

(This licence shall be renewable without any concession in fee for ten years in the absence of contravention of any provisions of the Petroleum Act, 1934 or of the rules framed there under or any of the conditions of this licence.)

Date of renewal	Date of expiry of licence	Signature and Office stamp of the licensing authority
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”;

(vii) in Form XVII, for the word “Controller”, the words “Controller of Explosives” shall be substituted;

(viii) in Form XVIII, for the heading **"Space for Endorsement/Renewals"** and the table there-under, the following shall be substituted, namely : -

**"Space for Endorsement/Renewals"**

(This licence shall be renewable without any concession in fee for ten years in the absence of contravention of any provisions of the Petroleum Act, 1934 or of the rules framed there under or any of the conditions of this licence.)

Date of renewal	Date of expiry of licence	Signature and Office stamp of the licensing authority
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”;

(ix) under the heading **"LICENCE"**, -

(a) for the words, letters and figures **"FORM XIX (See Article 11 of the First Schedule of the Petroleum Rules, 2001)"**, the words, letters and figures **"FORM XIX (See Article 11 of the First Schedule of the Petroleum Rules, 2002)"** shall be substituted;

(b) for the word **"Controller"**, the words **"Controller of Explosives"** shall be substituted.

20. In the said rules, for the Third Schedule, the following Schedule shall be substituted, namely :-

**THIRD SCHEDULE**

(See rules 63 and 77)

Design and construction of Tank Vehicles for Transporting Petroleum in Bulk

**1. Basic design of tank vehicle:**

(1) Tank vehicles for the transportation of petroleum in bulk shall be designed and constructed according to sound engineering practice to ensure correct

structural relationship between the tank, the propulsion equipment and supporting members, ruggedness, safe-road performance and braking power.

(2) In the case of an articulated vehicle, the weight at the ground of the carrying axles of the tank shall not exceed 60 percent of the designed gross laden weight.

## 2. Material of construction of Tank :

The tank shall be constructed of mild steel or High Strength Alloy Steel or Austenitic Stainless Steel or Aluminum Alloy having the following requirements approved by the Chief Controller.

### A. Physical requirements:

#### (a) Mild Steel or High Strength Alloy Steel or Austenitic Stainless Steel :

Property	Mild Steel (MS)	High Strength Alloy Steel (HSLA)	Low Austenitic Stainless Steel (SS)
Yield Strength	1,700 Kg/ Cm <sup>2</sup>	3,100 Kg/ Cm <sup>2</sup>	1,700 Kg/ Cm <sup>2</sup>
Ultimate Strength	3,100 Kg/ Cm <sup>2</sup>	4,200 Kg/ Cm <sup>2</sup>	4,900 Kg/ Cm <sup>2</sup>
Elongation, 50 mm samples	20%	25%	30%

(b) Aluminum Alloys : Only aluminum alloy material suitable for fusion welding and in compliance with ASTM B-209 Alloy 5052, 5086, 5154, 5254, 5454, 5652 or equivalent specification for Aluminum and Aluminum-Alloy Sheet and Plate, shall be used.

(c) All heads, baffles, and ring stiffeners shall be permitted to use zero temper (annealed) or stronger tempers and all shells shall be made of materials with properties equivalent to H32 or H34 tempers, except that lower ultimate strength tempers shall be permitted to be used if the minimum shell thickness are increased in inverse proportion to the lesser ultimate strength.

**B. Thickness of metal.**

Minimum thickness of the tank shall be related to the volume capacity of the tank expressed in liters per centimeter and the distance between partitions or baffles or other stiffeners as well as to major radius of shell curvature as specified in the table below :

Table

Maximum Shell Radius <sup>1</sup>	Distance between Heads, Baffles, or Ring Stiffeners	Volume Capacity in Litres per Centimeter								
		Upto 21			Over 21 to 27			Over 27		
		MS	HSLA, SS	AL	MS	HSLA, SS	AL	MS	HSLA, SS	AL
Less than 175 cm	90 cm or less	2	2	2.2	2	2	2.5	2.5	2	3
	Over 90 cm to 135 cm	2	2	2.5	2.5	2	3	3	2	3.5
	Over 135 cm	2	2	3	3	2	3.5	3.5	3	4
175 cm or more, less than 225 cm	90 cm or less	2	2	2.5	2.5	2	3	3	2	3.5
	Over 90 cm to 135 cm	2	2	3	3	2	3.5	3.25	3	4
	Over 135 cm	3	2	3.5	3	3	4	3.5	3	4.5
225 cm or more, less than 310 cm	90 cm or less	3	2	3	3	2	3.5	3.25	3	4
	Over 90 cm to 135 cm	3	2	3.5	3	3	4	3.5	3	4.5
	Over 135 cm	3	3	4	3.5	3	4.5	4.2	3	5
310 cm or more	90 cm or less	3	2	3.5	3.5	3	4	3.5	3	4.5
	Over 90 cm to 135 cm	3.5	3	4	3.5	3	4.5	4.2	3	5
	Over 135 cm	3.5	3	4.5	4.2	3.5	5	4.5	4.2	6

Note : If the tank has other than circular cross-section, the radius for the purpose of this table shall be the maximum for that portion of the cross-section under consideration.

**3. Joints :**

All joints to tank, its shell, heads, partitions, baffles and stiffeners shall be welded in accordance with recognised good practice and the efficiency of any joint shall not be less than 85 per cent of the adjacent metal so joined.

**4. Division of tank into compartment :**

- (1) Unless expressly permitted in writing by the Chief Controller, a tank having a net capacity exceeding 5 kilolitres shall be divided into compartments by oil-tight partitions and no compartment shall have net capacity exceeding 5 kilolitres, in case tank truck or a tank semi-trailer with net carrying capacity not exceeding 25 kilolitres or 7 kilolitres in case tank truck or a tank semi-trailer with net carrying capacity exceeding 25 kilolitres.
- (2) Every partition shall be either dished, corrugated, reinforced or rolled. Flat partition without reinforcement shall not be allowed.
- (3) Tank vehicles designed to transport Class A Petroleum in one or more compartments and Class B or Class C Petroleum in other compartment or compartments, shall be provided with double partition and shall be equipped with separate piping, hoses for such classes of product.

**5. Testing of tank:**

- (1) Every tank shall have all its compartments tested to a minimum air or hydrostatic gauge pressure of  $0.316 \text{ Kg/cm}^2$  and the individual compartments shall be tested with adjacent compartments empty and at atmospheric pressure.
- (2) Air pressure, if used, shall be held for a period of at least 5 minutes during which the entire surface of all joints under pressure shall be

coated with a solution of soap and water, heavy oil, or other material suitable for the purpose, foaming or bubbling of which indicates the presence of leaks.

- (3) Hydrostatic pressure, if used, shall be done by using water held for a period of at least 10 minutes, during which pressure as prescribed above shall be applied and gauged at the top of the tank.
- (4) All joints under pressure shall be inspected during the time for the issuance of liquid to indicate leaks.
- (5) All closures shall be in place while test by either method is made.
- (6) During these tests, operative relief devices shall be clamped, plugged, or otherwise rendered inoperative.

**6. Accident Damage Protection :**

- (1) The design, construction, and installation of any fitting to the shell or ends of the tank shall be such as to minimize the possibility of fitting damage or failure adversely affecting the product retention integrity of the tank and structural members, such as the suspension subframe, overturn protection shall be utilized as sites for attachment of fittings and any other accessories to a tank.
- (2) The welding of any fitting to tank shall be made by attachment to a mounting pad and the thickness of a mounting pad shall be not less than that of the tank to which it is attached and the pad shall extend at least 50 mm in each direction from any point of attachment of any fitting and shall have rounded corners or otherwise, be shaped in a manner to preclude stress concentrations on the shell or ends and the mounting pad shall be attached by a continuous weld around the pad.

(3) Every tank shall be provided with a rear bumper to protect the tank and piping in the event of rear-end collision and to minimize the possibility of any part of the colliding vehicle striking the tank or any piping containing product and the bumper shall be located at least 150 mm to the rear of any vehicle component that is used for loading or unloading purposes or may at any time contain product while in transit and the bottom surface of the bumper must be at least 100mm below the lower surface of any part of tank or piping which contains product during transit and not more than 1m from the ground when the vehicle is empty and structurally, the bumper shall be designed to successfully absorb the impact of the vehicle with rated payload (i.e., prevent damage that will cause leakage of product), with a deceleration of 2 "g" using a factor of safety of two based on the ultimate strength of the bumper material and for the purposes of these rules such impact shall be considered uniformly distributed and applied horizontally (parallel to the ground) from any direction at an angle not exceeding 30 degrees to the longitudinal axis of the vehicle.

(4) All closures for loading, unloading and manhole with fittings shall be protected from damage that will result in leakage of product in the event of overturning of the vehicle, by being enclosed within the body of the tank or dome attached to the tank or by guards.

**7. Anchoring of tank:**

- (1) Tanks with frames not made integral with the tank as by welding shall be provided with restraining devices to eliminate any relative motion between the tank and frame that may result from the stopping, starting, or turning of the vehicle.
- (2) Such restraining devices shall be readily accessible for inspection and maintenance.
- (3) Any tank designed and constructed so that it constitutes in whole or in part the structural member used in lieu of a frame shall be supported in

such a manner that the resulting stress levels in the tank do not exceed 20 percent of the minimum ultimate strength of the material as authorised and the design calculations of the support elements shall include loadings imposed by stopping, starting, turning, and dynamic loading under all product configurations using 20 percent of the minimum ultimate strength of the support material.

**8. Discharge and filling faucet or pipe :**

(1) Discharge faucet: Each compartment of a tank shall be fitted with a discharge faucet which shall be substantially made and so attached and the discharge end of the faucet shall be threaded or so designed as to permit the hose being tightly coupled to it.

(2) Filling Faucet: Each compartment of a tank designed for bottom loading; with dome covers closed, shall be provided with filling faucets as per API RP 1004.

(3) Each compartment of the tank with top loading filling arrangements shall be provided with a top filling pipe which is such that-

(i) its inner end is fitted with a proper type of splash deflector and the outer end threaded or so designed as to ensure leak proof connection with the filling hose;

(ii) it extends down nearly to the bottom of the tank;

(iii) its outer end is fitted with an oil tight locker cap.

**9. Emergency discharge control :**

(1) The outlet of each compartment of tank shall have an efficient and reliable shut-off valve located inside the shell or in a sump forming an integral part of the shell.

- (2) The operating mechanism for the shut-off valve shall be provided with a secondary control in an easily accessible position but remote from all fill openings and discharge faucets.
- (3) The secondary control required by sub-paragraph (2) shall be provided with a fusible section which will permit the shut-off valve to close automatically in the event of a fire.
- (4) A shear section which will break under strain shall be provided between the internal shut-off valve and the discharge faucet and the shear section shall be located in the piping system outboard of each of tank internal valve and within 100 mm of the major radius of the tank shell or within 100 mm of a sump, but in no case more than 200 mm from the major radius of the tank shell and the minimum allowable road clearance of any tank component or protection device located between any two adjacent axles on a fully loaded vehicle or vehicle combination shall be at least 4 cm of each 100 cm separately such axles and in no case less than 30.5 cm.

**10. Normal-venting :**

- (1) Every compartment of tank shall be fitted with an independent vacuum and pressure operated vent with a minimum effective opening of 3 square centimeters; the opening being covered with two layers of non-corroding metal wire gauge having not less than 11 meshes per centimeter.
- (2) The vent shall be so arranged as to limit the pressure within the compartment to 0.21 Kg/cm and the vacuum to 5 centimeter water gauge.

**11. Emergency venting for fire exposure:**

In addition to the normal venting, each tank compartment shall be equipped with either pressure actuated vent or fusible vent or a combination of both, but,

fusible vents shall not be provided on tanks of capacity 25 Kilolitre and above.

(1) Pressure-actuated vent or vents wherever provided shall be set to open at not less than  $0.21 \text{ kg/cm}^2$  and close when pressure drop  $0.21 \text{ kg/cm}^2$  or below and the Pressure-actuated devices shall be designed so as to prevent leakage of liquid past the device in case of surge or vehicle upset, except that they shall function in case of pressure rise under any condition of vehicle rollover attitude and the relieving capacity of pressure actuated vents shall be related to the capacity of the compartments and shall not be less than as under:

Net capacity of tank compartment (KL)	Minimum Emergency Venting (M3/Hr)
1	1474
2	1753
3	2372
4	2990
5	3509
6	4083
7	5273

(2) The fusible type of emergency vent wherever provided shall have a minimum fire-venting opening of a net area in square centimeters equal to 8 plus 4.3 times the gross capacity of the compartment in kilolitres and shall be activated by elements operating at a temperature not exceeding  $120^\circ\text{C}$  and the emergency fusible vent shall be so designed as to prevent loss of liquid through the vent in the case of vehicle upset except in the case of pressure rise when in the upset position.

## 12. Loading and Unloading protection:

Where the tank is designed to be loaded or unloaded with the dome cover closed, the vent or vents provided for normal venting shall limit the vacuum to  $0.07 \text{ kg/cm}^2$  (6.9 kPa) and the tank pressure to  $0.21 \text{ kg/cm}^2$  (20.7 kPa) based on maximum product transfer rate and the vent valve shall have sufficient liquid capacity to prevent pressure from exceeding  $0.21 \text{ kg/cm}^2$  (20.7 kPa) to prevent accidental overfilling.

**13. Tank-gauging arrangements:**

- (1) Each compartment shall be fitted with a dip pipe or any approved-tank-gauging device.
- (2) The dip, pipe if provided, shall be carried up to the bottom of the tank and opening in the dip pipe, except the capped top opening, shall be covered with two layers of wire gauge having not less than 11 meshes per centimeter.
- (3) The dip pipe shall be fitted with an oil light locker cap.

**14. Tank overturns protection:**

- (1) All tank top fittings shall be protected from damage in the event of overturning of the vehicle chassis on which it is mounted.
- (2) Where protection to tank top fittings are provided by enclosing them within the contour of the shell or within a rigid coming welded to the tank shell, the area enclosed by such protection shall be adequately drained and provided with plugs or cut-outs, to enable the section to be gas-freed completely before repair.

**15. Marking and Certifying:**

- (1) Manufacturer's Certificate: A certificate signed by the manufacturer of the tank certifying that each such tank is designed, constructed, and tested in compliance with these rules shall be procured, and such certificate shall be retained in the files of the carrier during the time that such tank is employed by him.
- (2) In addition to this certificate, there shall be on every tank a metal plate not subject to corrosion located on the left side, near the front, in a place readily accessible for inspection and such plate shall be permanently affixed to the tank by means of soldering, brazing, welding, or other equally suitable means; and upon it shall be marked in characters at least 5 mm high by stamping, embossing, or other means of forming letters into or on the metal of

the plate itself the information indicated below and the plate shall not be painted so as to obscure the markings thereon.

Manufacturer's Name .....

Approved place of manufacture .....

Chief Controller Approval No and date .....

Manufacturer's Serial No. ....

Date of manufacture .....

Original test date (MM/YY) .....

Test pressure ..... Kg/cm<sup>2</sup>

Shell material .....

Weld material .....

Nominal tank capacity by compartment (front to rear)..... KL

Empty weight and tank fittings ..... Kgs

Gross vehicle weight..... Kgs

Loading limits ..... LPM

Unloading limits..... LPM

Date of Tank test.....

[F.No. P-11021/1/2003-Dist.]

VIVEK KUMAR, Jt. Secy.

**Note:** The Principal Rules were published in The Gazette of India vide notification number G.S.R. 204(E), dated the 13<sup>th</sup> March, 2002 and subsequently amended vide G.S.R. 61(E), dated the 2<sup>nd</sup> February, 2007.