

PETROCHEMICAL TARIFF

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Standard Fire and Special perils Policy shall be issued to cover manufacturing risks, storage risks and miscellaneous blocks rateable under this Tariff.

1. Scope

1.1 This Tariff is applicable

- a) for risks using Class A and/or Class B hydrocarbon/natural gas as basic raw materials **and**
- b) where the total sum insured in one compound/complex exceeds Rs. 50 crores **and**
- c) the sum insured of plant(s) using hydrocarbon (Class A/Class B) /natural gas as basic raw materials is in excess of 35% of the total sum insured of the risk.

Note 1: "Urea Synthesis Plant " shall be rated under this Tariff and a basic rate of Rs. 2.75% shall apply. This rate is subject to warranties given under section 6 .

Note 2 : Following types of risks are excluded from the scope of this tariff :

- (a) Plants whose basic raw materials are not hydrocarbons although the units constituting the plant may be manufacturing Class A/B hydrocarbons or further processing them to make a final product
- (b) Bottling plants of LPG and similar materials located outside the refinery premises.

Note 3 : Risk(s) which was (were) rateable under erstwhile petrochemical tariff prior to the introduction of revised petrochemical tariff (2001) may continue to be rated under this tariff if the insured so desire, as a one time option.

1.2 All premises and/or goods rateable under this Tariff are subject to the provisions of All India Fire Tariff unless otherwise specifically provided for..

2. Excess Clause :

This insurance does not cover 5% of the claim amount subject to minimum of Rs. 5 lakhs resulting from each and every loss in Material Damage Insurance for all perils. The excess is applicable per event per insured.

2.1 Definitions

2.1.1 **Plant:** The physical equipment required to produce a principal product and the related by-products. A plant may consist of one or more number of processing units to achieve the above objective.

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- 2.1.2 **Process Unit:** Part of the plant that can be logically characterised as a separate entity with identifiable boundaries separated from neighbouring areas either by a road or a stretch of land in which there are no other processing equipment (like vessels, reactors, columns, pumps, compressors, etc.) excepting pipe racks carrying process fluids from one block to another; and consisting of an integrated group of reactors, heaters, furnaces and distillation columns together with their supports and enclosures, if any, and including related appurtenances, compressors, control rooms, pumps, etc., all designed to perform an unified processing operation.
- 2.1.3 **Bulk Tankage/Tank Farms:** Tanks or group of tanks for bulk storage of raw or finished products. These shall not include intermediate tanks which are those tied on with the process flow of the plant. In case the intermediate tanks are separated by an adequate distance from the plant as stipulated in this Tariff, they should be treated at par with bulk Tankage.
- 2.1.4 **Utilities or Auxiliaries:** Plants such as Boilers, Water Pumps, Cooling Towers, Electric Generating Sets and Substations, Air-conditioning or Refrigeration Units, Air or Inert Gas Compressors, Water Treatment Plants, Effluent Treatment Plants and Air Liquefaction Plants shall be treated as Utilities or Auxiliaries.
- Note: Inert gas plants excluding air Liquefaction plant and refrigeration units using flammable hydrocarbons (class A/B) as refrigerants shall be treated as Plants.
- 2.1.5 **Miscellaneous Buildings:** Offices, Canteen, Mechanical and Electrical Workshops, Storage, Laboratories, Bagging and Filling Stations, Fire Stations, Change Rooms and open storage.
- 2.1.6 **Flash Point:** The minimum temperature at which a flammable liquid gives off flammable vapour as determined by means of Abel/Pensky Martin closed cup method unless otherwise specified.
- 2.1.7 **Classification of Flammable Materials**
- 2.1.7.1 Class `A' Products are those having flash point below and upto 23° C
- 2.1.7.2 Class `B' products are those having flash point above 23° C and upto 65° C.
- 2.1.7.3 Class `C' products are those having flash point above 65° C and upto 93° C.
- 2.1.7.4 Class `D' products are those having flash point above 93° C.
- 2.1.8 **Unstable liquids/ Gases:** A liquid or gas may be termed as unstable if it has known characteristics of being readily subjected to rapid chemical change under industrially approved storage or handling practices. Examples are

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Ethylene Oxide, Acrylonitrile, Acrylene , Hydrogen Cyanide and the like. However, substances which are subject to simple and harmless decomposition or polymerisation should not be considered as unstable for the above purpose.

3. Silent Risks

- 3.1 The risk shall be deemed to be 'silent' only if all hydrocarbons/flammable materials/combustible materials have been removed and it has been purged (i.e. all apparatus and piping have been thoroughly cleaned) before the inception of the silent period and would continue to be so throughout the silent period. The plant is thus completely empty of hydrocarbons/flammable materials/combustible materials and is completely out of use.

This requirement shall be complied with by all the plants which are linked to one another and which are not separated by a minimum distance specified in this Tariff.

- 3.2 The silent period excluding the period required to purge the plant of hydrocarbons/flammable materials/combustible materials and the period of start-up, shall be atleast a continuous period of 60 days.

Note - For rating of 'Silent risks', please refer Section 5 (5.4)

4. Minimum requirements for granting cover

- 4.1 Unless there are any extenuating circumstances, no insurance cover should be granted to risks falling to be rated under this Tariff unless the following minimum requirements are fulfilled:
- 4.1.1 **Fire Protection:** Plant area should be protected with hand appliances in accordance with Section 4 of the Fire Protection Manual and hydrant service complying with rules for Ordinary Hazard Classification of Fire Protection Manual.

Note 1 : Non-Petrochemical plants, which are constructed prior to 1.1.96 and do not comply with the above Warranty may be exempted therefrom.

Note 2 : All hazardous storage areas and tank farms should be protected by hydrant service as above.

- 4.1.2 **Electrical Installation** throughout the premises should comply with Committee's Regulations.

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4.2 Rulings

4.2.1 Highest applicable rate shall be charged on plants/process units, tankages/gas holders, spheres or bullets containing liquefied/pressurised hydrocarbon or substituted hydrocarbon or hydrogen, Utilities and miscellaneous buildings, if the separating distance between them is less than that laid down hereunder:

Plants/Storages/Utilities	Distances
a) Between plants/process units	
i. High hazard to high hazard	35 m
ii. High hazard to low hazard	30 m
iii. Low hazard to low hazard	20 m
b) Between plant and tankage/gas holders	25 m
c) Between plant and liquefied/pressurised hydrocarbon/ substituted hydrocarbon/Hydrogen spheres or bullets	50 m
d) Between plant and utilities, auxiliaries, miscellaneous buildings and stocks in open	15 m
e) Between tankages / gas holders and liquefied/ pressurised hydrocarbons/substituted hydrocarbons/ Hydrogen spheres/bullets	25 m
f) Between tankages/gas holders and utilities, auxiliaries, miscellaneous buildings and stocks in open	15 m
g) Between liquefied/pressurised hydrocarbon/substituted hydrocarbon/Hydrogen Spheres/bullets and utilities, auxiliaries, miscellaneous buildings and stocks in open	50 m
h) Between two tanks/gas holders	15 m or diameter of largest tank whichever is

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more

Note 1: The separating distances mentioned under (a),(b),(c) and (d) above shall not apply to Non-Petrochemical plants which are constructed prior to 1.1.96.

Note 2: The distance between plants is to be ascertained by taking measurements between the outermost points of the two nearest equipment located in the adjoining plants. For this purpose, pipe racks, knockout drums and equipment handling only water, steam, air, lime, acid and caustic tanks and other non-flammable materials may be ignored. In case of plants being located in a building, measurements are to be taken from its external wall to the nearest equipment/external wall of the adjoining plant.

Note 3: For storage vessels, the distance is to be taken from the boundary wall/dyke wall. However, for measuring distance between two tanks situated in different dykes, the distance from shell to shell may be taken. All tanks located within the same dyke should carry the rate of the highest rated tanks therein.

Note 4: The distance stipulated under items (c), (e) and (g) above are not applicable to Liquefied Natural Gas storage installations. Such installations require much larger distances and reference should be made to T.A.C. when a case arises.

Note 5: For the purpose of item (a) above, high hazard plant is a plant, which attracts a basic rate of Rs.5.40 %o or more under this tariff. Low hazard plant is a plant, which attracts a basic rate below Rs. 5.40%o.

Note 6: The rate of a higher rated risk will apply to all other risks falling within the prescribed distance thereof. However, this rate will not apply to other risks which fall beyond the prescribed distance of the risk from which the rate originates and beyond 10 m of those risks which attract the higher rate by virtue of their being within the prescribed distance of the originating risk.

Example:

If Plant "A" is a high hazard risk and Plant 'B' is a low hazard one and two plants fall within 30 m., the rate of 'A' will apply to 'B'. However, if Plant 'C', which is also a low hazard plant, falls within 20 m. of plant 'B' but beyond 30 m. of Plant 'A' the rate of Plant 'A' will not apply thereto, provided Plant 'C' is atleast 10 m clear of Plant B. Should the 'per se' rates of plant 'B' however, be higher than that of Plant 'C', the latter will attract the rate of Plant 'B'. Thus Plants 'A' and 'B' will attract the rate of Plant 'A' whereas Plant 'C' will attract the rate of Plant 'B'.

Note : The above principle will apply to all risks whether plants, storages, utilities or Miscellaneous blocks.

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4.3 The method of rating shall be as follows

- 4.3.1 Add together all loading and deduct there-from all discounts as given in Section 6.2, 6.3 and 6.4 respectively and the net loading or discount should be applied to the basic rate as worked out in accordance with the rating procedure set out in Section 5.1, 5.2 and 5.3 to obtain Standard Fire and Special
- 4.3.2 Perils rate
The Standard Fire and Special Perils rate for each Plant /Unit after application of all loadings and discounts should not be less than 65 % of the basic rate applicable as per sections 5.1, 5.2 and 5.3 nor shall it be more than 165 % of the basic rate.
- 4.3.3 The reduction in premium rates (on the Standard Fire and Special Perils rates) for deletion of STFI and/or RSMTD perils at the inception of the policy shall be as under:

STFI	Re. 0.25 per mille
RSMTD	Re. 0.10 per mille

For midterm inclusion of STFI/RSMTD perils the rate arrived at as above shall be loaded as under:

STFI	Re.0.35 per mille
RSMTD	Re.0.15 per mill

Note :- Midterm cover for STFI/RSMTD perils shall be subject to the provisions under General Regulation No.4 of AIFT.

5. **Rating Procedure -**

5.1 Rating of Plant/Unit :

- a) Consider each identifiable process unit in the plant by reference to the process flow chart.
- b) For each such equipment in the process unit ascertain the **process/operation hazard factor** by reference to Table No.1
- c) Add the loading relating to the operating temperature and pressure by reference to Table No. 2 to derive the **modified process hazard factor**.
- d) Ascertain the quantity of material in largest process vessel or train of process vessels connected together. Shut off valves that can be actuated from a remote location (control rooms) can be considered to reduce the exposure by half the total volume. Refer to Table 3 to determine the appropriate loading to be applied to the process hazard factor to derive the additional hazard factor to be added to the modified process hazard factor to arrive at the **final process hazard factor**.
- e) Take notes of all the raw materials, solvents, intermediates for finished products contained in the equipment under consideration and select the highest applicable material factor. Refer Table No. 4 with the final process hazard factor and the material factor to ascertain the basic rate for the process/operation equipment.

Note- *Where the quantity of a material contained in the equipment is not significant (say less than 5% by weight or one tonne whichever is less , except Hydrogen where it would be less than 2.5% by weight or 1 tonne whichever is less) it may be ignored for ascertaining the applicable material factor.. However, if only one hydrocarbon is involved in a process/operation, the material factor of that hydrocarbon shall be taken into account for rating.*

- f) The basic rate for process unit will be the highest of the basic rates so derived for the various equipment in the unit.

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**Table –1
PROCESS HAZARD FACTOR**

Unit process/ operations	Process/operation Hazard factor
1. Unit Operations -	
Operations such as distillations, Absorption, adsorption, Crystallisation	0.80
2. Unit Processes -	
a) Endothermic reactions such as calcination, cracking, and reforming by steam or using catalyst.	1.00
b) Exothermic reactions such as hydrogenation, hydrolysis, isomerisation, sulphonation, neutralisation, causticisation, hydration, coupling, hydro- genolysis, caustic fusion, esterifi- cation, Methanation, Shift Reaction, oxo-synthesis, Deoxo Unit.	1.08
c) Alkylation, amination by ammonolysis or by other types of reduction (like Fe+Hcl) condensaaion, polymerisation, oxidation by air or oxygen acetylation, reduction using polysulfides, Amm- oxidation, combustion, diazotisation in aqueous solution.	1.25
d) Halogenation, chlorination using HC1, oxychlorination process, dehydration.	1.46
e) Oxidation using chlorates, perchlorates permanganates, hypochlorous acid, salts, sodium chlorate, chlorine dioxide, HNO3, inorganic peroxide, nitrogen tetraoxide	
Nitration, diazotisation in nitrosyl and sulphuric acid.	1.66

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Table – 2

Loading percentage for operating conditions

OPERATING PRESSURES (1)	OPERATING TEMPERATURE			
	Below flash point (2)	Equal to or above Flash Point but below boiling point (3)	Equal to or above Boiling Point but below Auto-ignition Point (4)	Equal to or above Auto-Ignition Point (5)
a) Vacuum Processes and pressures equal to or less than 500 mm Hg	52	72	104	117
b) Pressure above 500 mm Hg upto atmosphere pressure	Nil	21	52	65
c) Pressure above 1 and upto 7 atmosphere.	13	34	65	78
d) Pressure above 7 and upto 14 atmosphere	26	47	78	91
e) Pressure above 14 and upto 28 atmosphere.	39	60	91	104
f) Pressure above 28 and upto 50 atmosphere.	52	72	104	117
g) Pressure above 50 and upto 100 atmosphere.	65	85	117	130
h) Pressure above 100 and upto 700 atmosphere.	74	94	126	139
i) Pressure above 700 atmosphere	117	138	170	182

Note: In the event of more than one material being used in the process /operation the lowest of their flash points, boiling points or auto ignition temperature should be taken for arriving at the loading percentage.

TABLE - 3

**Additional Hazard Factor for the hold-up of Hydrocarbons,
Hydrogen and substituted Hydrocarbons in the discreet circuit**

Quantity in Metric Tonnes	% of Process Hazard Factor
Upto 5	Nil
Above 5 upto 10	26 %
Above 10 upto 50	32 %
Above 50 upto 100	48 %
Above 100 upto 150	67 %
Above 150 upto 200	91 %
Above 200	104%

- 1) For processes/operations involving Class `C' and `D' materials, this loading will not apply if the process/operation is carried out at temperature below flash point.
- 2) For arriving at the hold up capacity in the discrete circuit the quantity of materials in the process equipment along with the connected train of equipment/knockout drum/pipeline etc. contained by shut off valves shall be taken
- 3) The inventory calculated is to be halved before using the above table (i) for substituted hydrocarbon (ii) if the shut off valves referred to under item 2 above can be actuated from a remote location (Control Room)

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TABLE NO – 4

Basic Rate (Rs. %o per annum)

Final Process Hazard Factor	Material Factor							
	4	10	14	16	21	24	29	41
1.00	2.75	2.75	2.75	3.013	3.244	3.376	4.531	5.323
1.25	2.75	2.75	2.75	3.211	3.475	3.640	4.828	5.851
1.50	2.75	2.75	2.815	3.376	3.640	3.970	5.059	6.247
1.75	2.75	2.75	2.980	3.541	4.003	4.168	5.356	6.643
2.00	2.75	2.75	3.211	3.673	4.168	4.399	5.620	7.072
2.25	2.75	2.848	3.277	3.904	4.366	4.597	5.785	7.369
2.50	2.75	3.013	3.475	4.135	4.564	4.927	5.917	7.567
2.75	2.75	3.145	3.574	4.300	4.795	5.059	6.181	7.567
3.00	2.75	3.244	3.607	4.399	4.960	5.224	6.313	7.567
3.25	2.75	3.376	3.739	4.531	5.059	5.389	6.511	7.567
3.50	2.75	3.475	3.871	4.729	5.257	5.521	6.544	7.567
3.75	2.75	3.541	3.937	4.927	5.389	5.653	6.577	7.567
4.00	2.75	3.607	4.003	4.993	5.521	5.719	6.577	7.567
4.25	2.75	3.640	4.135	5.125	5.620	5.785	6.577	7.567
4.50	2.75	3.739	4.168	5.224	5.653	5.785	6.577	7.567
4.75	2.75	3.805	4.201	5.356	5.752	5.785	6.577	7.567
5.00	2.75	3.904	4.201	5.455	5.752	5.785	6.577	7.567
5.25	2.815	3.937	4.201	5.521	5.752	5.785	6.577	7.567

Note 1. The material factor should be ascertained by reference to NFPA Publication (Classifications of hazardous materials). If the material is not listed, reference should be made to the T.A.C.

Note 2. Where the final process hazard factors arrived at is between two consecutive slabs, the percentage for the nearer slab should be applied to arrive at the basic rate. In case the hazard factor is exactly midway between 2 consecutive slabs, the percentage of the higher slab should be applied.

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5.2 Storage Tanks

Tanks type and contents	Basic Rate (Rs.%o)
5.2.1 Tanks other than those mentioned under item 5.2.2 below.	2.25
5.2.2 Tanks for Class `A' or `B' products and Gas holders including Ammonia Tanks and Spheres.	2.40
5.2.3 Pressurised or un-pressurised Liquid Petroleum Gas Spheres or Bullets.	2.60
5.2.4 Tanks or Gas holders for unstable liquids or gases	3.00
5.2.5 Liquefied Natural Gas Storage	Refer to TAC

N.B 1: If a tank storing Class `A' product or unstable liquids does not have floating roof, an additional premium of 20 % must be charged. However, the loading may be reduced to 10% wherever the tank is kept at positive pressure by dry nitrogen.

N.B 2: Tanks and contents therein belonging to Marketing Divisions of oil companies which are situated within the compound of risks rateable under this Tariff shall also carry the above rates.

5.3 Utilities Piping, Miscellaneous Building, LPG Bottling Plants and Non-Petrochemical Plants etc. :

Occupancy	Basic Rate (Rs.%o)
5.3.1 Utilities, Piping and Miscellaneous Buildings	
5.3.1.1 Boiler House	1.90
5.3.1.2 Engine House	1.90
5.3.1.3 Electrical Generating Stations, Turbine House, Transformer House and/or other electrical plant room.	1.90
5.3.1.4 Maintenance Workshop	1.90

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5.3.1.5	Carpenter's Shop	1.90
5.3.1.6	Water Pump Room	1.90
5.3.1.7	Cooling Tower, Loco shed, water pipes and tanks and weigh bridges	1.90
5.3.1.8	Administrative Offices/Canteens	1.40
5.3.1.9	Warehouses constructed of brick, stone, asbestos cement sheet or metal with incombustible roof and their contents	-
	a) Class `A' products	3.40
	b) Class 'B' Products	2.80
	c) Coal (inclusive of Spontaneous combustion)	3.40
	d) Hazardous Catalysts	3.40
	e) Other materials	2.40

Note - For buildings of other constructions and open storage of products listed in (a), (b), (d) and (e) above, an extra of 15 % should be charged on aforesaid rates.

5.3.1.10	Air, Steam, Gas and Oil pipelines, Pipes and Cable racks, under ground cables, surface and under ground drains etc.	3.00
5.3.1.11	Flare Stack/Vent Stack –	
	a) Flare stack/vent stack beyond 25 metres of any plant	1.90
	a) Flare stack/Vent stack within 25 m of any plant	Same rate as applicable to the plant
	b) Flare stack/Vent stack within 25 m of more than one plant	Highest rate of such plants

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5.3.1.12	Process Control rooms situated 25m away from all plants.	1.90
5.3.2	LPG Bottling Plants –	
a)	LPG Loading / Filling areas & Tank / Lorry Decanting Sheds	6.00
b)	Empty Cylinder Shed	3.00
c)	Filled Cylinder Shed	3.00
d)	Cold Repair Shed	3.00
5.3.3	Non-Petrochemical Plants –	
5.3.3.1	Fertiliser Plants	2.50
5.3.3.2	Acid Plants :	
(a)	Plants using or manufacturing Class A/ B Materials	3.50
(b)	Other Plants	2.50
5.3.3.3	Plastic Goods Manufacturers and Rubber Goods Manufacturers.	3.75
5.3.3.4	Other Plants using or manufacturing Class `A`/`B` materials.	3.50
5.3.3.5	Other Plants using or manufacturing <u>other than</u> Class `A`/`B` materials	2.50
5.3.4	Bagging Plants for Urea and similar products	2.50
5.3.5	Liquid Bulk Loading (Chemicals) --	
a)	Class `C` or `D` products	2.75
b)	Class `B` products	3.25
c)	Class `A` products	4.00
5.3.6	Coal Preparation, Coal processing Plants and Coal Handling Plants.	3.50
5.3.7	Flare Gas Recovery Plant	3.50
5.3.8	Sludge Catcher for Off – shore installations	3.50

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5.3.9	Air Liquification Plants and Effluent Treatment Plants	1.90
5.3.10	Metering Stations	1.90
5.4	Silent Risks	1.25 Net of all discounts or appropriate storage rate whichever is higher

6. Warranties

All policies should carry the following conditions/ warranties :

6.1 Condition Paramount :

Warranted that at all times during the currency of this Policy the following warranties shall be complied with:

6.1.1 Fire Protection: Plant area, hazardous storage areas and tank farm shall be protected by hand appliances in accordance with Section 4 of the Fire Protection Manual and hydrant service complying with rules for Ordinary hazard Classification of Fire protection Manual.

6.1.2 Electrical Installation: The installation throughout the premises shall comply fully with rules laid down by the Tariff Advisory Committee.

6.2 Warranties Applicable to Plants / storages / Utilities and Details of Loading for non compliance

Warranties	If warranty is deleted or modified, items on which loading to be applied
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It is hereby warranted that during the currency of this policy:-

6.2.1	Bulk storage vessels for class A or Class B products located within 100 metres of any plants are not at a higher level than the plant, by a gradient of more than 1: 50	10% on plants which are at lower level than tanks
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Warranties

If warranty is deleted or modified items on which loading to be applied and % loading

- 6.2.2 All roads essential for fire fighting around Plant, Tankages, Storage Areas and Utilities are black topped and are of a minimum width of 6 meters . 5% on Plants, Tankages, Storage Areas and utilities.
- 6.2.3 No portion of the plant is situated within 100 metres of the flare stack and the flare stack is at least 15 metres in height. However, if the flare stack is situated between 50 metres and 100 metres of the plant, the top of the stack is atleast 10 metres higher than the highest column of such plant or 22.5 metres in height, whichever is higher. 10% as follows:
a) On all plants, within 50M of the flare stack
b) On all plants situated beyond 50M of flare stack but within 100M where the top of the stack is not higher than 10M above the highest column of such plants
- Explanation: Where the flare stack is not continuously burning excess vapours and the like, this warranty may be deleted without payment of extra premium.
- 6.2.4 Effluent channels are covered within battery limit and flame-trapped in and around plants handling flammable liquids or liquefied gases. 5% on particular plant
- 6.2.5 An emergency system adequate to supply power to all emergency lighting and motive power to essential cooling water, fire pumps and other equipment (excluding fail safe instruments) needed for safe shut down of the plant is provided. 15% on all plants
- Note :**
A satisfactory completely independent power source may be accepted as an alternative.
- 6.2.6 Adequate provisions have been made for safe blow down of flammable liquids and vapour phase contents of the plants to blow down drums, pits or sumps and/or flare or any other safe location. 10% on particular plant

Note – *The above warranty is not applicable for such plant, the equipment of which are connected to a continuous flaring facility .*

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| 6.2.7 | Plinth level of control room, if situated within 15 metres from any hydrocarbon or substituted hydrocarbon processing plant, is at least 15 cms higher than the battery floor level. | 5% on particular plant to which the control room relates. |
| 6.2.8 | For Plants/Units using combustible liquids as heat exchange media above its flash point (Hot oil Heat Exchange System) the quantity of the fluid contained in the system including storage in service tank shall be less than 10 tonnes. | 5% on particular plant/Unit |

6.3 Warranties Applicable to Tankfarm and Details of loading for non-compliance

Warranties	If warranty is deleted or modified, items on which loading to be applied and % loading	
6.3.1	All load-bearing structural steel work of spheres or bullets are protected by at least 50 mm. thick concrete carried upto the highest of the points where the load of the storage equipment is transferred to the supporting framework.	20% on particular storage tank
6.3.2	No tank used for storing Class A and B products has a storage capacity exceeding 50,000 K. litres.	
	If capacity is more than	
	50,000 KL but less than 1,00,000KL	10% on particular storage tank
	1,00,000 KL but less than 2,00,000 KL	15% on particular storage tank
	2,00,000 KL and above	20% on particular storage tank

6.4 Warranties Applicable to plants, storages, utilities etc. and Details of Discount for compliance :

The following discounts off the basic rates may be given for superior features whenever applicable on incorporation of the related warranty:

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Warranties		If warranty is complied with items on which discount to be applied and % discount
6.4.1	Warranted Fired Heater is situated more than 20 m from nearest equipment handling combustible material. Note – Applicable only to plants that require a fired heater	5% on particular plant
6.4.2	Warranted the electrical power distributing system is completely underground except for reasonable exposure for connections to motors and cable trenches are fully covered. If they are provided with baffles and sandfillings.	2.5% on particular plant Additional 2.5% on particular plant
6.4.3	Warranted that all load bearing structural steel work/support of vessels, column bases and vertical members of pipe racks within 15m of equipment handling flammable fluids are protected by at least 50mm thick Reinforced concrete carried upto the highest of the point where the load of the equipment is transferred to the supporting framework. b)Warranted that all load bearing structural steel work/support of vessels, column bases and vertical members of pipe racks within 15m of equipment handling flammable fluids are protected by at least 50mm thick Reinforced concrete carried upto a minimum height of 4.5 m above the fire hazard level (where the fire hazard level is above 4.5 m, fire proofing is to be done upto 4.5 m above the fire hazard level)	15% on particular plant 10% on particular plant
	Note: If the pipe racks are located at a height less than 3 metres from ground level, then the horizontal supports also should be fireproofed. This will be applicable to above Warranties 6.4.3 (a) and (b) above. Note 2 : If fire proffing is carried out by using approved passive materials as per the relevant standards, 50% of the applicable discounts as stated in the above warranties (a) and (b) may be allowed.	
6.4.4	(a) Warranted control room is situated beyond 30 metres from all plants	5% on the plant to which the control room relates

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(b) Warranted control room is situated beyond 15 metres from any processing plant and is of blast proof RCC construction of not less than 22.5 cm thickness throughout without any opening on all sides other than the one remotest from the plant. 10% on the plant to which the control room relates

Note: Discount may be allowed under one of the two (a) or (b) of 6.4.4 above.

- 6.4.5 Warranted approved portable extinguishers and Fire Hydrant System complying with the requirements of the Tariff Advisory Committee are maintained 10% on all protected areas
- 6.4.6 Warranted static water supply reserved for fire fighting exceeds 6 hrs for the aggregate installed pumping capacity and the hydrant system fully complies with the current rules of the TAC. 10% on all protected plants and tanks
- 6.4.7 Warranted --
- a) aggregate pumping capacity of Hydrant System is over 150 % of the capacity laid down by the Tariff Advisory Committee and fire water storage, equivalent to 4 hrs for the increased aggregate pumping capacity is maintained and all the hydrant pipes are designed to take the increased rate of pumping. 5% on all protected plants and tanks
- b) Aggregate pumping capacity of hydrant system is over 150% of the capacity laid down by the TAC and fire water storage equivalent to 6 hrs for the increased aggregate pumping capacity is maintained and all the hydrant pipes are designed to take the increased rate of pumping. Additional 5% on all protected plants and tanks
- 6.4.8 Warranted an approved Mutual Aid System is in operation with full time private fire brigades Upto 5% on all hydrant protected blocks

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- 6.4.9 Warranted approved independent fixed water Spray protection is provided for process plant 20% on the protected plant
- 6.4.10 (a) Warranted approved independent fixed water spray protection is provided for Storage Tank. 10% on the protected tank.
- (b) Warranted approved automatic fixed water spray protection tapped from hydrant mains is provided for storage tanks. 5% on the protected tank
- (c) Warranted approved automatic foam aqueous film forming foam/protein foam/light water/clean agent protection is provided for storage tank. 5% on the protected tank
- 6.4.11 Warranted the storage tanks of identification is underground 15% on the protected tank
- 6.4.12 (a) Warranted approved independent sprinkler installation is provided in Process Plant /storage godowns. 10% on the protected process plant/ storage godowns
- (b) Warranted approved sprinkler installation tapped from pressurised hydrant mains provided in Process Plan/ storage godowns 5% on the protected process plant/ storage godowns
- (c) Warranted approved independent HV Water Spray System is provided for transformers in open and transformers are separated from other blocks by 15 m or by a blank brick wall of 350 mm thickness 20% on the protected transformers
- 6.4.13 Warranted computer is used to control the process and computer room is protected by automatic clean agent/CO₂ installations in accordance with NFPA Regulations. 2.5% on particular plant/unit

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- 6.4.14 Warranted Claims Experience of preceding 10 years, excluding the expiring policy period, is less than 5 % 5% on the entire risk.
- 6.4.15 Warranted hydrant system of risk qualifying for discount under warranty 6.4.5 is connected to approved hydrant system of adjoining risk having minimum pumping capacity of 546 m³/hr. 2.5% on all hydrant protected blocks

For non-petrochemical plants, discounts mentioned against Warranties 6.4.5 to 6.4.15 shall only be considered wherever applicable.

7. Mutual Aid Scheme regulations

7.1 Geographical Coverage

Within 10 Kilometre distance from the most distant point.

7.2 Membership

Membership should be of two or more industrial Plants, Warehouse and Public Utilities.

7.3 Secretariat & Communication

7.3.1 A full time permanent Secretary having a back ground in Fire fighting relevant to the types of industries included in the scheme. There shall be a permanent office for the Secretariat with necessary staff.

7.3.2 The member industries should mutually evolve an effective liaison and communication system

7.3.3 Call procedures in case of an emergency must be laid down and frequent exercises and tests would be necessary.

7.4 Individual Member's fire fighting requirements

7.4.1 Portable fire fighting appliances in accordance with the T.A.C's requirements.

7.4.2 A mobile fire pump of at least 400-gpm capacity

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- 7.4.3 Fire hydrant System complying with minimum requirements laid down in the Petrochemical Tariff.
- 7.4.4 The stock of foam compound should be provided as outlined in Rule 7.8 of Fire Protection Manual.
- 7.4.5 Fire and explosion accidents must be fully investigated by the member unit and their findings which might be fruitful and effective in preventing a recurrence should be made available to other members, which would benefit all plants, without interfering with any one plant's autonomy.

7.5 Additional Capacity Requirements

In the event of an outbreak of fire, the members of mutual aid scheme should be able to supplement in the shortest possible time, the resources of the affected plant, to the extent given below:

- 7.5.1 Mobile fire fighting capacity by an additional 800 GPM.
- 7.5.2 Foam compound available by an additional 10,000 litres
- 7.5.3 Other fire fighting equipment to the extent of 50% of the affected plant's own requirements.

7.6 Other requirements

- 7.6.1 Fire and explosion safety of the plant and extension should preferably be checked every six months, but atleast annually using an audit system and utilising check lists where appropriate.
- 7.6.2 Practice drills consisting of Supervisory Staff and Fire Marshall should be arranged once in two months (each time in different member units) to familiarize those concerned with the actions expected of them, and at the same time test the equipment available in each unit.
- 7.6.3 Deployment of personnel to an affected plant from other members of the scheme should not be subject to any constraints arising out of staff problems.

7.7 Interchangeability of equipment

- 7.7.1 To the extent possible individual plants should follow such standards in the purchase of equipment that there would be adequate interchangeability and complete freedom of use of equipment between member plants.

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- 7.7.2 Member units of the scheme, should also exchange fully detailed information regarding the various fire fighting appliances available, so that if necessary adapter pieces can be kept ready for hooking up equipment not conforming to the affected plants specification.
- 7.8 Insured risks must have within the plant, an accurate inventory of emergency equipment so that the management of each plant can say at a given time what items can be spared. By such a policy, plants are encouraged to be self-sufficient and not to lean unreasonably on other plants
- 7.9 Each risk should maintain a sensible policy and not strip itself of equipment, which it might need in the case of trouble in its own property, which may be simultaneous with a disaster elsewhere

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