

VISION AND ROLE OF PETROLEUM & EXPLOSIVES SAFETY ORGANISATION (PESO) FOR PREVENTION, MITIGATION AND PREPAREDNESS FOR CHEMICAL DISASTER

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ORGANISATION OF PESO

- PESO WAS FORMERLY KNOWN AS DEPARTMENT OF EXPLOSIVES. IT IS 110 YEARS OLD ORGANISATION.
- PESO HAS ITS HEAD OFFICE AT NAGPUR. IT HAS 5 CIRCLE OFFICES, 13 SUB-CIRCLE, 5 FIELD OFFICES.
- PESO IS PRESENTLY MANNED BY 100 OFFICERS ALL OVER THE COUNTRY.
- THE CHIEF CONTROLLER OF EXPLOSIVES, NAGPUR IS THE HEAD OF THE ORGANISATION.



Testing stations and R&D centre

- Peso has a departmental testing station for statutory testing of explosives for authorisation and quality control, testing of packing material, safety fittings of petroleum tank trucks, testing of gas cylinders, testing explosives for UN classification for export purposes.
- Peso has set up FRDC (fire works research & development centre) at Sivakasi, T.N; to develop environment friendly fireworks, introduce mechanization in fireworks manufacture, testing of raw materials, quality control services and to increase safety of personnel in the industry,

Acts and Rules under PESO

- **Explosives Act ,1884**
 - Explosives Rules, 1983
 - Static & Mobile Pressure Vessels (U) Rules, 1981
 - Gas Cylinder Rules, 2004
- **Petroleum Act, 1934**
 - Petroleum Rules, 2002
 - Calcium Carbide Rules 1987
- **Inflammable Substances Act, 1952**
- **Environment Protection Act, 1986**
 - Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989.

PESO regulates safety of hazardous substances in the following industry

- Import, export, manufacture, possession, transport , use and sale of explosives & pyrotechnics (fireworks) for commercial and industrial uses under the Explosives Rules, 1983.
- Import, storage, production, refining and blending of petroleum under the Petroleum Rules, 2002.
- Import, manufacture, filling and storage of compressed gas in cylinders under Gas Cylinder Rules, 2004.
- Import, manufacture, filling, transport and storage of compressed gases in bulk under SMPV (U) Rules, 1981.
- Acetylene generation, calcium carbide storage.
- Safety advisor to ports, defence establishments, railways.
- Making standards for safety with BIS, OISD,STEC.

Hazardous premises presently under PESO

- Petroleum Refineries – 18 nos.
- Cross Country Pipelines – 10,000 Kms.
- LPG Bottling Plants – 500 Nos.
- High Explosives Factories – 65 Nos.
- Fireworks Manufacturing Factories – 670 Nos.
- Cylinder and Valve Manufacturing Units – 180 Nos.
- Domestic LPG cylinders – 17 crores.
- Petroleum & LPG road tankers – 43,000.
- Petroleum, LPG, & CNG dispensing stations / Pumps – 10,000.
- Total Number of hazardous premises all over India regulated by PESO at present – 2,71,000.

Major activities under Petroleum Rules, 2002.

- Approval of refineries, petrochemical / oil/ gas processing plants, transport of petroleum by water, land and pipeline.
- Approval of flameproof and other safety equipments for use in areas laden with flammable gas.
- Licensing of storage installations, tank trucks, aircraft refuellers, MS/HSD dispensing stations.
- Issuance of certificate of Gas Free for vessels/ ships carrying petroleum for dock entry/man entry/hot work.

Safety in Petroleum Industry

- Refineries, Port Terminals, Major Storage Terminals, Cross Country Pipelines are approved on the following criteria and provision under the Petroleum Rules, 2002.
- Project Reports, Environment Impact Assessment, Risk Analysis reports / remedial measures, Clearances from MOEF, PCB's, Design Criteria for storage tanks, tank fittings, valves, pipelines, electrical equipment, and Standards followed for the layout, installation, testing and certification of safety by competent persons, measures for detection of leakages / hazards and preventive measures, preparation of on site emergency plan.
- NOC from the district authorities as applicable for licences.
- Competent Persons for carrying out tests and issuing safety certificates are approved the CCE under rule 126 and 130.

Major activities under Explosives Rules, 1983

- Grant of Approval / Licenses for manufacture, possession, sale, use, transportation of explosives and their import and export.
- Authorization of explosives.
- Approval of packing boxes.
- Design approval of Explosive vans, portable magazine and metal cases for conveyance of explosives.

Controlling hazard in Explosives & Pyrotechnics Industry

- Only Authorized Explosives are allowed to be manufactured.
- Authorization of an Explosive involves study of nature of explosive composition, its chemical and physical properties, stability, explosive characteristics, safety of manufacturing technology. Samples are then allowed to be made and tested. After this trial batch is allowed and field trials are conducted in reputed mines. After verification of satisfactory performance authorization is recommended. In case of Permitted explosives certification by CMRI, DGMS and CMPDI is also necessary for authorization.
- List of Authorized Explosives is updated.

Explosive factories

- Factory is divided in to a number of sheds separated from each other by a specified safety distance and each shed is limited to a specific process with specified maximum limit for quantity of explosives and number of persons allowed. Sheds are provided with blast walls.
- Factory as a whole has an outer safety zone which is required to be kept clear of any structure, road etc.
- All processes in the factory has to be conducted under supervision of competent person / foreman approved by PESO.
- Certain processes are done only by remote means to protect the personnel.
- Packing materials for all kinds of explosives are to be of approved type and these are tested in the DTS.

Explosives Magazines

- Magazines have safety zones prescribed in the rules depending on the quantity allowed to be stored.
- Magazines are constructed to specifications in the Rules. It covers protection against lightning, separation between high explosives and detonators.
- Only authorized Magazine keepers / shot firers are allowed to handle explosives.
- Explosives must be transported in explosives vans which are fabricated to specification in the rules. Detonators and High Explosives have to be carried separately.
- Shot firer Permits are given to trained persons who can do blasting in areas not covered under the Mines Act.
- The rules & license conditions for manufacture, possession / use / and transport prescribe all do's and don'ts.

Activities under Gas Cylinder Rules, 2004

(Gases which in a closed gas cylinder exert a pressure exceeding 1.5 kg/cm sq. gauge at 15 degree centigrade or exceeding 2 kg/cm sq. gauge at 50 degree centigrade come under the purview of the rules)

- Design approval of cylinders, Valves and Regulators.
- Manufacture of cylinders by authorised fabricators under inspection and certification by BIS/other authorised agency.
- Approval/licence for Gas Filling Plants, storage sheds, Import of cylinders, CNG Dispensing Station.
- Conversion of Cylinders from one gas to another.
- Recognition of Testing Station for periodic examination and testing of cylinders.

Safety in Gas Cylinders

- Cylinders, valves and LPG regulators designed and constructed to a type and standard approved by the CCE and specified in GCR.
- The fabrication is done only in approved fabrication shops.
- Type approval is given after studying all aspects of design, fabrication, tests and performance under joint inspection with BIS.
- Every batch manufactured is certified by BIS.
- Testing of cylinders is done only in testing stations approved by the CCE. All cylinders are required to be tested periodically. Cylinders for toxic /corrosive compressed gases are tested every 2 years.
- Cylinders failing the test or cylinders not conforming to standards are to be condemned to ensure that they are not used for filling.
- Only those cylinders having CCE's filling permission alone can be filled by the filling plants / auto LPG and CNG stations.
- Filling Plants / storage sheds / dispensing stations (auto lpg /cng) are licenced & have prescribed safety zones for the filling facilities / equipment in the plants.

Activities under SMPV(U) Rules,1983

(gas exerting pressure exceeding 1 kg/cm sq. gauge in a closed vessel at maximum working temperature is covered under this rule)

- Approval of fabrication shops of Pressure Vessels/ Safety Fittings
- Approval of Design of Pressure Vessels/safety fittings
- Licence for storage of compressed gases installations
- Licence for transport of compressed gas in vessel by road
- Licence for Auto LPG/CNG dispensing stations.
- Grant of Recognition of Inspecting agencies/ competent persons to carry out inspections during manufacture, repair of vessels and final testing as well as periodic testing.

Safety under SMPV(U) Rules,1981

- Pressure vessels are to be designed as per standards IS 2825 or equivalent approved by CCE.
- Fabrication is done only in approved fabrication shops. Stage wise inspection during fabrication is to be done by third party inspector approved by CCE under Rule 12.
- Fabrication of safety fitting for static / mobile pressure vessels is done in approved shops.
- Competent Persons are recognized by the CCE for testing of safety relief valves under Rule 18, periodic testing of static vessels under Rule 19, for issuing certificate of safety for static installation under Rule 33, certificate of safety for mobile vessel under Rule 43, and road worthiness of the vehicle under Rule 44.

ACCIDENT INVESTIGATION ANALYSIS AND REMEDIAL ACTION

- All accidents within the purview of PESO are investigated to determine the cause and take remedial.
- A copy of investigation report is sent to the district authority.
- In fatal accidents magisterial inquiry is conducted by the district authorities and officers of PESO assist.
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Commitment of PESO

PESO has to take care of safety in diverse fields all over India and managing safety in nearly 3 Lakh premises with a limited strength of only 100 officers. The number of hazardous industrial activities and the areas where intervention of Peso is desired is increasing by the day.

THOUGH SMALL IN SIZE,

PESO IS DOING EVERY THING FOR A SAFER
INDUSTRY

THANK YOU