GUJARAT POLLUTION CONTROL BOARD
Head Office, "Paryavaran Bhavan"
Sector: 10-A, Gandhinagar

CIRCULAR

Sub: Standard Operating Procedure (SOP) for Isolated Storage of Hazardous Chemicals - Regarding.

Ref:- (1) Office order bearing no.GPCB/CTE-KH-1203/ID-80805/602119 dated: 28/09/2021.
(2) Integrated Guidance Framework for Chemicals Safety in Respect of the Isolated Storages and Industries Covered under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989" published by CPCB on dated 24/12/2021

Gujarat Pollution Control Board receives applications for Consent To Establish (CTE) as well as Consent To Operate (CCA) for isolated storage of various chemicals, which attracts the provisions of Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended from time to time.

An urgent need was felt to devise a strategy in form of SOP to have a uniform and sound decision on such applications received by the Board. Therefore, Board had constituted an Expert Committee comprising of various subject experts vide office order dt. 28/09/2021.

The Expert Committee after detailed and elaborative discussion as well as brain storming has devised a Standard Operating Procedure for Isolated Storage of Hazardous Chemicals (toxic & non toxic), copy of which is attached herewith.

This Standard Operating Procedure (SOP) outline the checklist, points to be considered while issuing the permission by the Board in the cases especially where such storages are not in the jurisdictions of other various authorities mentioned in the schedule 5 of MSIHC Rules, 1989, such as Chief Inspector of the factory appointed under the Factories Act 1948 (now Directorate of Industrial (Safety and Health – DISH), Chief Inspector of Dock Safety appointed under the Dock Workers (Safety, Health and Welfare) Act, 1986, Chief Inspector of Mines appointed under the Mines Act, 1952, Chief Controller of Explosives appointed under the Indian Explosive Act and Rules, 1983.

This SOP is for internal purpose of the Board and to be used as a decision making tool to have uniformity in the decision on the applications received for Isolated storage and shall not have any overriding effect on any circular /guideline of CPCB/MoEF&CC.

D. M. Thaker 30/6/2022
(D. M. Thaker)
Member Secretary

No: GPCB/HAZ-GEN-735/ 676629 **Date:** 30 JUN 2022

Copy to:

1. Office of the Hon'ble Chairman, GPCB, Gandhinagar ..... For Information Please

2. Office of the Hon'ble Member Secretary, GPCB, Gandhinagar..... For Information Please

3. **The Regional Officer**
   Ahmedabad (City), Ahmedabad (East), Ahmedabad (Rural), Anand, Ankleshwar, Bharuch, Bhavnagar, Godhra, Gandhinagar, Himmatnagar, Jamnagar, Junagadh, Kutch (East), Mehsana, Palanpur, Rajkot, Surat, Surendranagar, Vadodara, Vapi, Jetpur, Kutch (West), Morbi, Nadiad, Navsari, Porbandar, Sarigam.

4. **The Unit Head,**
   Ahmedabad (City), Ahmedabad (East), Ahmedabad (Rural), Anand, Ankleshwar, Bharuch, Bhavnagar, Godhra, Gandhinagar, Himmatnagar, Jamnagar, Junagadh, Kutch (East), Mehsana, Palanpur, Rajkot, Surat, Surendranagar, Vadodara, Vapi, Jetpur, Kutch (West), Morbi, Nadiad, Navsari, Porbandar, Sarigam.

5. Unit Head - IT cell..... **For upload this circular on GPCB Website, XGN and XPN website.**

6. Unit Head – P-1, P-2, P-3 cell..... For information.
7. Unit Head – Legal Branch..... For information.
8. Selected File.

STANDARD OPERATING PROCEDURE FOR ISOLATED STORAGE OF HAZARDOUS CHEMICALS

1. PURPOSE:-

i. This standard operating procedure (SOP) is prepared as a guiding tool prior giving permission to the applications received by Board in the case of isolated storage of Hazardous Chemicals (referred as facility hereinafter) especially where such storages are not in the jurisdictions of other various authorities mentioned in the schedule 5 of MSIHC Rules 1989, such as Chief Inspector of the factory appointed under the Factories Act 1948 (now Directorate of Industrial Safety and Health- DISH), Chief Inspector of Dock Safety appointed under the Dock Workers (Safety, Health and Welfare) Act, 1986, Chief Inspector of Mines appointed under the Mines Act, 1952, Chief Controller of Explosives appointed under the Indian Explosive Act and Rules, 1983.

ii. Integrated Guidance Framework for Chemicals Safety in respect of Isolated Storages and Industries covered under MSIHC Rules 1989, in compliance to the Hon'ble National Green Tribunal order dated 11/06/2021 in Original Application No. 60/2021 has been framed by Central Pollution Control Board on December 24, 2021 which is also required to implement.

iii. This Standard Operating Procedure (SOP) outline the checklist, points to be considered while issuing the permission by the Board in the cases mentioned in serial no.(i) above.

iv. The overall purpose of this SOP is to ensure that risks associated with the handling and storage of chemicals are adequately managed according to rules and in order to minimize the risk of accident and prevention of damage to the human life, environment & property.

2. SCOPE

The Scope of this SOP is limited to as a decision making tool in the applications received by the Board such as Consent to Establish (CTE), Consent to Operate (CCA) in the case of isolated storage as discussed in 1(i) above and for uniformity in processing of such applications. This SOP is supplement to various guidelines issued by CPCB New Delhi.

3. SITING CRITERIA FOR ISOLATED STORAGES:

(A)- Storage facility located in urban area

i. If the Storage facility located in urban areas like (Municipal Corporation, Urban development Authority) where development plan is prepared, unit must be in industrial Zone only.
ii. In no case isolated storages shall be permitted in residential areas.
iii. Occupier/project proponent shall have to obtain permission from the Local Authority while making CTE application.
iv. Occupier/project proponent shall have to obtain fire NOC.

(B). Storage facility located in other than urban area

I. If Storage facility located in other than urban area, the Land should be converted into Non Agricultural use and N.A. order should mention that land parcel use is for storage of Hazardous chemicals.

II. **Storage facility should comply following siting criteria.**

a) Unit should be minimum 500 Meter away from the residential area, school and college.
b) Unit should be minimum 500 Meter away from the Historic buildings, Religious places, forest boundary and coastline.
c) Unit should be in accordance with control line of National highway, Express highway, State highway, District major roads as per Notification of Concerned authority.
d) Unit should be in accordance with control line of Railway track following the norms of Indian Railways.
e) Unit should be at least 500 Meter away from the water source like river, nallah, canal, lake, pond etc.
f) Such industry according to use of non-agricultural land and all around industry should be maximum green belt area 5 meter in premises.

4. **SPECIFIC CRITERIA:-**

a) No person shall store hazardous chemicals in isolated Storage facility area without obtaining Fire NOC from competent authority.
b) For storage of hazardous chemicals in isolated Storage area , permission shall have to be obtained from the local authority.
c) The supplier of electrical energy shall supply power only after ascertaining that isolated Storage area for storage of hazardous chemicals have obtained the permissions indicated herein above Point (a) & (b) above.
d) Storage of hazardous chemicals should not be permitted in the residential areas.
e) In the isolated Storage facility area where hazardous chemicals are stored should not be permitted for any type of manufacturing process.
f) Unit shall submit Safety audit report , Risk Assessment , HAZOP study along with the application of Consent to Establish
g) Unit shall submit on site emergency plan to the Board along with consent to operate application. Unit shall also upgrade and update the on site emergency plan as and when required
h) Unit shall conduct safety and fire audit once in a year through reputed institutes or through an expert, not associated with such isolated storage and shall submit the report to the Board.
i) The CPCB guidelines on Isolated storage published in December 2021 with reference to Hon'ble NGT matter 60/2021 shall be invariably complied.
j) Every unit storing hazardous substances/ chemicals mentioned in column 2 of the table is equal to or, in excess of the threshold quantity specified in column 3 of the said table of The Public Liability Insurance Act & Rules 1991 shall take out insurance policy under the provisions of The Public Liability Insurance Act 1991 and submit to GPCB before getting consent to operate (CCA)

5. **CHECKLIS FOR MINIMAL REQUIREMENT:**

Minimal requisite infrastructure facilities & operational controls is attached as **Annexure-1**

6. **SPECIFIC CONDITIONS:**

1) Activity shall involves only for Warehousing, Unloading, Storage & Dispatch of packed cargos including chemicals stored in IBC's, Drums, Pales, Cartons and Cans.
2) Unit shall not carry out activities at warehouse like manufacturing activity, re-packing activity, stickering (label pasting) activity, chemical waste generation.
3) Waste having flash point less than 65.5 degree Celsius, the drums should not be stacked more than one height.
4) Only Battery operated forklift and hand pallet jacks shall used to offload the drums, IBC's, pales and cans from the truck.
5) Fire break of at least 4 meter between two blocks of stacked drums should be provided in the storage shed. One block of drum should not exceed 300 MT waste.
6) Minimum of 3 meter clear space should be left between two adjacent rows of pallets in pair for inspection.
7) In isolated storage places having hazardous chemical storage, passage between piles / stacks of material should be at least 3 mtrs or more wide shall be maintained for safe movement of battery operated fork lift / hand pallet jacks / stackers. The clearance between the ceiling and the top of the pile / stack should not be less than 2 m.
8) Exit signage with direction way to exits in green with glowing colour or illuminated shall be provided.
9) As per Table 5 & 6.8.1.1 of NBC code Part 4 & GFR 66-A(7)(9) every room however small used for storage of hazardous commodities / high hazard materials shall have an exit 22.5 Mtrs of any point in the room or 35 Mtrs where automatic sprinkler protection is provided and there shall be two ways of escape.
10) As per 6.8.1.3 of NBC code part 4, for warehouses, natural draft, smoke venting shall utilized roof vents / wind operated roof extractor / fans or vents in wall at or near the ceiling level such vents shall be normally open or, if close shall be designed for automatic opening in case of fire by release of smoke sensitive devices.
11) As per 6.9.2(f) of NBC code part 4, wall vents having an area of not less than 100 cm2 each shall be placed in the exterior wall near the floor line, not more than 1800 mm apart horizontally. Each building shall be provided with power driven flame proof fan exhaust system of ventilation which shall be arranged and operated so as to produce a complete change of air in each room every 3 minutes i.e. 20 air changes in hour.

7. **GUIDELINE FOR STORAGE SHED:-**

1) Flammable, ignitable, reactive and incompatible wastes shall be stored separately and never shall be stored in the same storage shed.
2) Storage area may consist of different sheds for storing different kinds of hazardous wastes chemicals and these sheds should be provided with suitable openings.
3) Storage area should be designed to withstand the load of material stocked and any damage from the material spillage.
4) Storage area should be provided with the flameproof electrical fittings and it should be strictly adhered to.

5) Intrinsically safe Automatic smoke / heat / beam detection system should be provided in the sheds. Adequate fire fighting systems should be provided for the storage area, along with the areas in the facility.
6) There should be at least 15 m distance between the storage sheds.
7) Loading and unloading of wastes in storage sheds should only be done under the supervision of the well trained and experienced staff.
8) Fire break of at least 04 meter between two blocks of stacked drums should be provided in the storage shed. One block of drum should not exceed 300 MT of waste.
9) Minimum of 3 meter clear space should be left between two adjacent rows of pallets in pair for inspection.
10) The storage and handling should have at least two routes to escape in the event of any fire in the area.
11) Doors and approaches of the storage area should be of suitable sizes for entry of fork lift and fire fighting equipment;
12) The exhaust of the vehicles used for the purpose of handling, lifting and transportation within the facility and exclusively outside the storage shed such as forklifts or trucks should be fitted with the approved type of spark arrester.
13) In order to have appropriate measures to prevent percolation of spills, leaks etc. to the soil and ground water, the storage area should be provided with concrete floor or steel sheet depending on the characteristics of waste handled and the floor must be structurally sound and chemically compatible with wastes.
14) Measures should be taken to prevent entry of runoff into the storage area. The Storage area shall be designed in such a way that the floor level is at least 150 mm above the maximum flood level.
15) The storage area floor should be provided with secondary containment such as proper slopes as well as collection pit so as to collect wash water and the leakages/spills etc.
16) All the storage yards should be provided with proper peripheral drainage system connected with the sump so as to collect any accidental spills in roads or within the storage yards as well as accidental flow due to fire fighting.

8. **GUIDELINE FOR STORAGE IN DRUMS:-**

1) The container shall be made or lined with the suitable material, which will not react with, or in other words compatible with the hazardous wastes proposed to be stored.
2) The stacking of drums in the storage area should be restricted to three meters high on pallets (wooden frames). Necessary precautionary measures should be taken so as to avoid stack collapse. However, for waste having flash point less than 65.5°C, the drums should not be stacked more than one height.
3) Stacking of drums may be done on specially racks designed for holding pallets up to three rows, with height not exceeding 4.5 meters.
4) No drums should be opened in the storage sheds for sampling etc. and such activity should be done in designated places outside the storage areas;
5) Drums containing hazardous wastes stored in the storage area should be labeled properly indicating mainly contents, quantity, characteristics, source, physical & health hazard, PPE required and date of storing etc.

9. OTHER IMPORTANT GUIDELINE

1) Gas leak detection system with audio visual alarm shall be installed at strategic location while storage of toxic substance in storage tank.
2) Smoking shall be prohibited in and around the storage areas, and no smoking sign in English & local language shall be displayed on all sides of storage shed. Hot work or article capable of igniting inflammable vapour shall be prohibited.
3) Good house-keeping need to be maintained around the storage areas.
4) Signboards showing precautionary measures to be taken, in case of normal and emergency situations should be displayed at appropriate locations.
5) To the extent possible, manual operations within storage area should be avoided. In case of manual operation, proper precautions need to be taken, particularly during loading / unloading of liquid hazardous waste in drums.
6) A system for inspection of storage area to check the conditions of the containers, spillages, leakages etc. should be established and proper records should be maintained.
7) The wastes containing volatile solvents or other low vapor pressure chemicals should be adequately protected from direct exposure to sunlight and adequate ventilation should be provided.
8) Tanks for storage of liquids waste should be properly dyked/curbed and should be provided with adequate transfer systems.
9) Storage sites should have adequate & prompt emergency response equipment systems for the hazardous waste stored on-site. This should include fire fighting arrangement based on the risk assessment, spill management, evacuation and first aid. For this purpose, on-site and off- site accident/emergency plan should be in place.
10) Immediately on receipt of the hazardous waste, it should be analyzed and depending upon its characteristics its storage should be finalized.
11) Only persons authorized to enter and trained in hazardous waste handling procedures should have access to the storage site.
12) Mock drill for onsite emergency should be conducted regularly and at least once in six months. Records of mock drill shall be maintained.

Note:- This SOP is for internal purpose of the Board to have uniformity in the decision making of applications received for Isolated storage and shall not have any overriding effect on any circular /guideline of CPCB/MoEF&CC.

ANNEXURE-1

S. No	Type of requirement	Check-list
1	Layout	Shall be Accessible from all the four sides. Minimum circulation space to move fire tender around building shall be provided. Provision of emergency exit other than main entry, Loading and unloading platform(Storage docks with guard rails), Proper ramps (Slope, anti slippery, etc)
2	Compatibility	Compatibility study shall be carried out. All the material should be stored accordingly and compatibility chart shall be displayed at the entrance of the storage facility
3	MSDS	Availability of latest Material Safety Data Sheet (MSDS) for each chemical,. Easy accessibility of all the MSDS
4	PPEs	Shall Adequate numbers of PPEs available (self – contained breathing apparatus wherever required), Its condition, Accessibility and its storage, Availability of eye washing and safety shower facility,.
5	FFEs	Fire detection system, Adequate types of FFEs shall be available. Adequate numbers of suitable FEs (fire extinguishers) as per type of fire extinguishment shall be available in good and operable condition, Accessibility and its maintenance, Regular checking and testing and its record shall be maintained.
6	Accessibility	Each container or bags should be accessible from at least one side to monitor for spillage/leakage; Stored material should be at least one meter away from all the walls/partition.
7	Display/Visual management	Storage licenses, Company's SHE policy, Compatibility chart displayed, Details and contact numbers of persons to be, contacted in emergency, Details and contact numbers of Fire brigade and other mutual aid, All hazardous materials containers are properly labeled, indicating the chemical's identity, the manufacturer's name and address, and appropriate hazard warnings, Required PPEs notice, Properly marked Aisles and passage ways, Exits are clearly identified, Various procedures displayed, Warning signs displayed
8	Spill Management	Proper floor to avoid percolation to the ground, Proper slope and its collection system (including containment pit), spill kits, Specific procedures for different chemicals e.g. Solid, Liquid, Toxic, Flammable, corrosive, oily, etc., Spill control & mopping material and cleaning equipments, Proper and adequate drainage as well as collection/disposal system for fire water.
9	Electrification	Electrical wiring, fitting and equipments according to the area classification (Zone 1 and 2 as per the Petroleum Act & Rules), Adequate Earthing and its continuity, Testing and checking of earthing, Lightening protection a per IS standard, e. Electrification and earthing of Power tools, Battery chargers should be outside in well

		ventilated room in case of battery operated fork lift or other equipment.
10	Illumination and Ventilation	Proper illumination/lighting (Provision of natural light as far as possible), Natural and/or forced ventilation, Proper air circulation (From ground surface to upper side)
11	House keeping	Floors and aisles are clear of clutter, electrical cords, hoses, spills and other hazards that could cause employees to slip, trip or fall.
12	Training and records	General safety training on joining, Fire fighting training, Spill control and waste management training, Ergonomics training
13	Odour control	The facility must have appropriate odor control facility to deal with the odor nuisance.
14	Emergency Response Plan	Emergency Response Plan to deal with spills, fires and emergencies as per CPCB guidelines
15	First aid box	Full fledged first aid box including necessary antidotes if required any.
16	Stacking of material(Other than specified conditions)	All the materials should not be stored directly on floor, Proper Storage racks (Size, shape, stability, SWL etc.), Tiered materials are stacked in a manner to assure stability, MS drums (only up to two stacks with a wooden palate in between), HDPE/ PP/ Cardboard/ carboy (only a single stack), Paper or pp bags (only three bags above each other in single stack). Stacking of material according to its load (Place heavier loads on lower or middle shelves), Bags, containers, bundles, etc. are stored in tiers that are stacked, blocked, interlocked and limited in height so that they are stable and secure to prevent sliding or collapse.
17	Handling tools, tackles and equipment	Bare minimum manual handling, Availability and usage of wooden stool and ladders, Equipment selection as per the area classification, Proper maintenance and its regular checking and testing as per factory act, Driver's license in case of forklift, tractor, truck, etc, Ensuring of avoidance of spark from any of the equipment and/or machinery. Example forklift, power tools, battery, mobile phone, etc. Inbuilt ELCB shall be provided with power tools.

Resource:

1. CPCB guideline for storage of hazardous waste chemicals December 2021.
