

**Standard Operating Procedure and Checklist of Minimal
Requisite Facilities for utilization of hazardous waste under
Rule 9 of the Hazardous and Other Wastes (Management and
Transboundary movement) Rules, 2016**

**Utilization of contaminated barrels/containers/drums
containing hazardous wastes/chemicals/oil and
lubricants
(Revised)**



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Central Pollution Control Board
(Ministry of Environment, Forest & Climate Change, Government of India)
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12. Utilization of contaminated barrels / containers / drums containing hazardous wastes/chemicals/oil and lubricants

This SoP is applicable only for utilization of contaminated barrels/containers/drums as described below:

Type of HW	Source of generation	Recovery/Product
Contaminated barrels/containers/drums containing hazardous wastes/chemicals/oil and lubricants	All industrial processes except pesticides industry.	Cleaned barrel and drums for industrial re-use and/or production of plastic granules.

The utilization of contaminated barrels/containers/drums for further re-use involves two stage cleaning i.e. Caustic /surfactants (detergent) cleaning in hot water, followed by fresh water cleaning with fixed nozzles arrangement. During the first stage of washing i.e. cleaning with hot water with caustic solution up to 2% concentration or adequate quantity of detergent shall be carried out. In case of producing plastic granules, there should be two-stage cleaning as specified above followed by shredding. The waste water is recycled after treatment.

A. Standard Operating Procedure

- (1) Collection Storage & Handling of contaminated barrels/containers/drums
 - The unit shall procure only those drums for washing whose contents are compatible with cold water/hot water/detergents/caustic solutions and do not react or become spontaneously flammable or give off flammable/toxic gases in contact with the same.
 - Transportation of contaminated barrels/containers/drums shall be carried out by sender or receiver (utilizer) after obtaining authorization from the concerned SPCB under the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
 - It shall be ensured that the contaminated containers/drums/barrels to be procured from the units, who have valid authorization for the same from the concerned State Pollution Control Board as required under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
- (2) The cleaning of barrels/ containers/ drums contaminated with chemicals listed below generated from pharmaceuticals, food processing, cosmetic, textile, paint formulation and beverages industries and not exhibiting characteristics of Class C3, C4, C5, C6 and C11 of Schedule II of HOWM Rules, 2016 and also does not liberate toxic gases in contact with air or water :

Ethyl Acetate	Glucose	Starch
Glycerine	Sorbitol	Calcium carbonate
Light Liquid Paraffin	Perfume	Vegetable Oil (Nutmeg, Eucalyptus, etc.)
Propylene Glycol	Methyasalicylate	Distilled Hydrogenated Coconut Fatty Acid

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Cyanoacrylate Adhesive	Zinc Pyrithone	Surfactant (Sodium lauryl alcohol sulphate)
Thinner	Ethyl Panthenol	Iso Propyl Alcohol (IPA)
Povidone	Lactose monohydrate	Telmisartan

- (3) The unit shall provide separate covered storage area for both contaminated containers and cleaned containers so as to eliminate rain water intrusion. Further, the sheds shall have proper slope and spillage collection pit so as collect spillages/floor washings. The collected spillages/floor washings shall be channelized to Effluent Treatment Plant for their treatment.
- (4) There shall be a designated space for dry draining of drums contaminated with oils & lubricants where drums to be hanged in inverted position on saw dust bed for 2-3 hours before washing. Oil & lubricant soaked dust to be collected and send to TSDF for disposal, the liquid effluent shall be channelized to Effluent Treatment Plant for treatment.
- (5) Some vapors may liberate at the time of opening of cap of drums containing chemicals which may not be safe for the workers/personnel. Therefore, it shall be ensured that:
 - (i) The cap of the drums shall be opened only in well-ventilated area.
 - (ii) The personnel handling the drum shall wear protective gas mask while opening the drum.
 - (iii) Exhaust/suction blowers shall be provided in the shed area where drums will be opened as well as area, where these are proposed to be hanged invertedly.
- (6) The manifest system and logbook should be maintained. Labeling should be done on all contaminated drums indicating source, date of receipt and chemicals/ hazardous waste which were stored.
- (7) The unit shall ensure that prior to cleaning of contaminated containers/drums/barrels; the left-over or residual material in the drums is safely transferred into a separate container for storage and disposal at common Treatment Storage and Disposal Facility (TSDF).
 - For washing of the drums/containers in both stages, the number of nozzles in 1 HP pump shall not exceed 03. Each of these nozzles can clean maximum 02 nos. of used drums per hour. Thus, number of nozzles and pump capacity thereof shall accordingly be installed for the permitted quantity of drums to be washed/day.
- (8) The nozzles should have multiple jets to ensure that water jets hit entire inner surface of the containers.
- (9) The unit shall provide bund wall along the container storage and washing area with proper slope and collection pit for channelization to Effluent treatment plant for further treatment.
- (10) There should be a separate area with provision of hose pipe with spray nozzle for washing outer surface of the containers along with proper slope, periphery drainage, oil and grease trap and collection pit followed by channelization to

Effluent Treatment Plant for their treatment .

- (11) The unit should ensure zero discharge by recycling of treated wastewater in the washing process.
- (12) The effluent generated shall be evaporated and /or Physico-chemically treated by neutralization, coagulation, sedimentation, aeration, and filtration for recycling in the washing process, as applicable.
- (13) If feasible, the unit shall become member of Common Effluent Treatment Plant (CETP) and send their effluent for final treatment and disposal to CETP.
- (14) In case of evaporator, the flow to the evaporator should be regulated based on heating capacity of the evaporator. The vent of vacuum pump of the evaporator should be elevated at least up to 6 mtr above the roof level. MEE is preferred over simple evaporator. Water flow meter shall be installed at the inlet to evaporator and at the inlet to ETP.
- (15) The pre-existing labels on the drums/containers should be removed physically or with solvent then with a paint and the cleaned containers should be labeled with following prominent indelible text
"Drum Cleaned by: M/s_____; Date: _____"
"For industrial use only"
"NOT FOR STORAGE OF ANY FOOD MATERIAL"
- (16) The above labelling is not applicable in case the cleaned drums are dismantled, shredded and re-cycled.
- (17) The unit shall ensure that all personnel involved in the plant operation shall wear proper personal protective equipments such as masks, safety gloves, goggles, safety shoes etc.
- (18) The monitoring of the effluent for the parameters specified in the Consent issued by the concerned SPCB shall be carried out quarterly through NABL/EPA accredited laboratory and report shall be submitted quarterly to the concerned the SPCB.
- (19) Transportation of the contaminated drums and residues generated from cleaning shall be carried out by sender or receiver (drum cleaners / TSDF operator) as per authorization issued by concerned SPCB under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
 - The unit shall submit quarterly and annual information on quantity of used drums procured & cleaned and their source, mode of cleaning the drum (i.e. detergent/caustic solution), quantity of waste water generated, treated & recycled and residue generated ((i.e. left over residue, Evaporator residue & ETP Sludge) or resources conserved (specifying the details like type and quantity of resources conserved) to the concerned SPCB.
- (20) The residue generated from the drums, evaporator and sludge generated from ETP shall be packaged and temporarily stored in a dedicated hazardous waste storage area and sent to TSDF within 90 days from generation of the waste as per the conditions stipulated under consent/authorization issued by concerned SPCB.

Such hazardous waste shall be stored under covered shed with proper ventilation.

- (21) The unit shall maintain a passbook issued by concerned SPCB wherein each procurement details of contaminated barrels/containers/drums as follows shall be entered:
- Address of the used Drum supplier
 - Date of dispatch
 - Quantity procured
 - Seal and signature of the sender
 - Date of receipt in the premises
- (22) The unit shall maintain record of contaminated drums cleaned, residues generated and disposed as per Form 3 & shall file annual returns in Form 4 as per Rule 20 (1) and (2) of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, to SPCB.
- (23) A log book with information on source of procurement, quantity, date wise number of drums cleaned / quantity of granules manufactured, hazardous waste generation and its disposal etc. shall be maintained including analysis report of emission monitoring & effluent discharged, as applicable.
- (24) In case of environmental damages arising due to improper handling of hazardous wastes including accidental spillage during generation, storage, processing, transportation and disposal, the unit shall be liable to implement immediate response measures, environmental site assessment and remediation of contaminated soil/groundwater/sediment etc. as per the "*Guidelines on Implementing Liabilities for Environmental Damages due to Handling & Disposal of Hazardous Wastes and Penalty*" published by CPCB.
- (25) During the process of utilization and handling of hazardous waste, the unit shall comply with the requirements in accordance with the Public Liability Insurance Act, 1991 as amended, wherever applicable.

B. Checklist of Minimal Requisite Facilities

S.No.	Requisite Facilities
1.	Separate covered storage area for both contaminated containers and cleaned containers with proper slope and spillage collection pit and channelizing to ETP.
2.	Exhaust/ Suction blowers in the contaminated drums/container handling and storage area.
3.	Size/capacity of storage sheds to be adequate to store at least 7 days requirement of contaminated drums
4.	Shed with dry draining facility for used drums, having saw dust bed for dry draining of oily/ lubricant/ greasy drums
5.	Two stage cleaning facility (i.e. hot water with caustic solution/ detergent followed fresh water cleaning) having fixed nozzles arrangement.

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6.	Bund wall along the container storage and washing area.
7.	Number of nozzles for 1 HP pump shall not exceed 03.
8.	Multiple jets to ensure that water jets hit entire inner surface of the containers.
9.	Separate area with provision for washing outer surface of the containers with periphery drainage, adequate slope and collection pit and channelizing to ETP.
10.	Designated space for drum cleanings channelized to Effluent Treatment Plant.
11.	Effluent Treatment Plant and/or Forced Evaporator of adequate capacity.
12.	Sludge drying Bed of adequate size.
13.	Zero discharge by evaporation of the effluent and/ or recycling of treated effluent in washing process or member of Common Effluent Treatment Plant.
14.	Water flow meter at the inlet to evaporator and ETP.
15.	Vent of vacuum pump (if any) elevated at least up to 6 mtr above the roof level.
16.	Separate covered hazardous waste storage area to store hazardous waste generated during the utilization process viz. left over residues from contained drums, residue from forced evaporator and ETP sludge.
