

STANDARD OPERATING PROCEDURE

(Recycling of Lead scraps such as scrap lead acid battery waste, Lead acid battery plates and other lead scrap/ashes/residues, Rains, Rinks, Radio, Racks, Rakes, Ropes, Rono, Rents, Relay and Rails etc).

1. Requirements for seeking permission for import of Lead scrap/used lead acid batteries for recycling:
 - 1.1.1 Any unit desirous of importing lead scrap/ used lead acid batteries should have valid authorization from the concerned SPCB/PCC under HoW (M &TM) Rules, 2016. The requirement (pertaining to recycling facilities and standard operating practices) for authorization of such units are given in these guidelines which are placed at Annexure-I.
 - 1.1.2 For considering the applications for import of lead scrap/ used lead acid batteries, the following are also required in addition to the valid authorization:
 - 1.1.3 The valid CTOs and authorization **under HoW (M &TM) Rules, 2016;**
 - 1.1.4 **The lead recycling units has to registered themselves on the EPR portal developed under Battery Waste Management Rules, 2022 developed by CPCB.**
 - 1.1.5 **The lead recycling units desirous of importing lead scrap/ used lead acid batteries (RAINS/RINKS) are required to comply with the provisions of Plastic Waste Management Rules and register themselves on centralized Extended Producers Responsibility Portal for Plastic Packaging and have to fulfill their obligation as an importer of plastic packaging material.. They have to comply with the 'Guidelines on Extended Producer Responsibility for Plastic Packaging' notified during February 2022.**
 - 1.1.6 The analysis reports of stack emissions, waste waters, ambient air, work zone environment, soil and ground water specially in respect of lead content;
 - 1.1.7 The latest blood analysis report in respect of lead of workers engaged in the unit from accredited laboratories;
 - 1.1.8 In addition to the above, those desirous of importing used lead acid batteries the applicant must have automatic battery breaking equipment with acoustic enclosure, dust and fume extraction system as well as wet separation system for lead and plastic;

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Secondary Lead Recycling Units

1. Grant of Authorization by SPCBs/PCCs

1.1.1 Any person who desires to set up a recycling unit for recycling of lead bearing waste such as scrap lead acid battery waste, Lead acid battery plates and other lead scrap/ashes/residues, Rains, Rinks, Radio, Racks, Rakes, Ropes, Rono, Rents, Relay and Rails etc. should submit an application in form 5 of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, accompanied with copies of the following documents for the grant of the authorization to concerned SPCBs/ PCCs.

- i. consent to establish granted by the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and the Air (Prevention and Control of Pollution) Act, 1981 (21 of 1981);
- ii. Consent to operate granted by the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974 (25 of 1974) and/or Air (Prevention and Control of Pollution) Act, 1981, (21 of 1981);
- iii. In case of renewal of authorization, a self-certified compliance report in respect of effluent, emission standards and the conditions specified in the authorization for hazardous and other wastes:
- iv. Process flow sheet of recycling or reprocessing of lead scrap/ used lead acid battery scraps such as scrap lead acid battery, Lead acid battery plates and other lead scrap/ashes/residues, Rinks, Rains, Radio, Racks, Rakes, Ropes, Rents, Relay and Rails etc. along with the details of equipment installed.
- v. Certificate of registration issued by the District Industry Centre or any other government agency authorized in this regard;
- iv. Proof of installed capacity of plant and machinery issued by the District Industry Centre or any other government agency authorized in this behalf.
- v. Proposed Membership of common TSDF for final disposal of slag after recycling of lead bearing waste;
- vi. Process flow sheet of recycling or reprocessing of hazardous waste along with the details of equipment installed;
- vii. Details of Air Pollution Control Systems (APCS) installed in the unit along with the diagram and their specification;
- viii. Details of Effluent Treatment Plant (ETP) with for treatment of acidic wastewater and discharge from scrubber
- ix. Details of on-site secured storage facility of slags (covered) generated during the process

- x. Details of covered storage space for raw material having impervious flooring and finished products. Details on Acid proof flooring in batteries storage and breaking areas.
 - xi. Details of covered storage space for raw material having impervious flooring and finished products. Acid proof flooring in batteries storage and breaking areas.
 - xii. An undertaking that for transportation of imported lead scrap/ used lead acid battery scraps the applicant will follow the guidelines of CPCB for transportation of hazardous waste
- 1.1.2 After receiving the application, the designated officer/officers should examine it and the shortcomings if any be communicated to the applicant within 7 working days of receiving the application.
- 1.1.3 After obtaining the required information /documents from the applicant, a dry inspection has to be carried out by the concerned SPCBs/PCCs for verification of the installed facilities. In the inspection report, the inspecting officer/officers shall certify that he has seen the recycling facility and also shall detail out the pollution control equipment installed in the recycling unit and put his signature.
- 1.1.4 On the basis of inspection report the SPCBs/ PCCS, after being satisfied that the applicant is having environmentally sound technology and possesses, requisite technical capabilities, adequate facilities and equipment, shall grant authorization. If required, the SPCBs/PCCs at their discretion may constitute a committee to examine the proposals and to recommend for grant of authorization.
- 1.1.5 The authorization Certificate shall be granted by the State Pollution Control Board along with a passbook.
- 1.1.6 The authorization issued is valid for a period of five years, unless the operation is discontinued by the unit or the authorization is suspended or cancelled for any violation of rules/conditions specified in authorization certificate.
- 1.1.7 SPCBs/PCCs is expected to dispose applications for authorization as stipulated in the HW Rules 2016.
- 1.1.8 Within a period of six months from grant of **authorization**, SPCBs/PCCs shall carry out performance evaluation of the pollution control devices including ETP for assessing adequacy (meaning whether capable of controlling pollution or not) of pollution control equipment. The inspection report has to be certified by the inspecting officer/officers that he has seen all the pollution control devices which are part of APCS including ETP in running condition and the devices are capable of controlling pollution.
- 1.1.9 The list of the authorized recyclers or re-processors should be regularly updated and placed on the official website of the concerned SPCBs/PCCs. Statement of authorized recyclers in the State may be sent to CPCB on yearly basis by all the SPCBs/PCCs to maintain a centralized list of such recyclers in the country at CPCB website.

- 1.1.10 The lead recycling facility can only operate if it has valid 'consent to operate' under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act 1981 and valid authorization as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and registration on EPR portal of Battery Waste Management rules, 2022 and Plastic Waste Management Rules.

2. Minimum required facilities, operating practices and standards for secondary Lead recycling units.

Type of furnace installed (Rotary/Mandir Bhatti)

- a. Rotary furnace with suction hood connected with APCS over the charging point exists.
 - b. Mandir Bhatti with suction hood connected with APCS over the charging point and molten metal tapping point exists.
- 2.1.1 Furnace connected with expansion chamber, cooling tubes/ducts, Cyclone/ Multi Cyclone, Bag filter with pulse jet/ mechanical shaker arrangement, Alkaline Scrubber with arrangement of alkali dosing, & connected with ETP, ID fan and stack of minimum 30-meter height. Each stack should have a port-hole (as per specifications given in CPCB document COINDS-III) with platform for stack monitoring. There should be an easy ladder for safe access to stack monitoring platform.
- 2.1.2 Separate and secured covered space for storage of residue generated after recycling of lead-bearing waste. The floor of the storage area should be impervious.
- 2.1.3 Separate covered storage space for raw material having impervious acid proof flooring and finished products.
- 2.1.4 Transportation of the battery scrap should be done in pallets and it should be either stretch wrapped or shrink wrapped to the full height of the pallet stack and should be air tight to avoid any gas within the pallets. The pallet should be leak-proof and should be labeled acid containing material.
- 2.1.5 Used lead acid batteries scrap (rinks/rains) must be transported inside shock resistant and acid resistant sealed container in upright position due to the risk of leakage
- 2.1.6 The containers must be well packed to the transport vehicle and should not be allowed to move while being transported. The containers have to be bound, shrink wrapped or stacked properly to avoid movement.
- 2.1.7 A minimum set of equipment necessary to handle accidental spillage or leakage should be provided and the trained transporter be employed.
- 2.1.8 During the unpacking of pallets of batteries, the workers should be equipped with Personal Protective equipment e.g. PPE kit, Eyeglasses, mask, rubber gloves and shoes. Also emergency kits and arrangement has to be readily available.

- 2.1.9 The containers with pallets of batteries must not be opened during its transportation from port to the recycling facilities. The containers with pallets of battery must be allowed to unload only at the recycling facility.
- 2.1.10 Batteries (Rinks) are drained of acid before sending to automatic battery breaking system. The unit has to have a mechanical facility for draining the batteries into the acid collection tank. Manual intervention for draining of batteries should be avoided to a maximum possible extent.
- 2.1.11 The acid collection tank should have arrangements for control of acid fumes such as fume arrester connected with APCD. The acid collection tank must be connected to an acid neutralization tank. After neutralizing the acid, for its disposal the unit should follow the consent conditions. The acidic effluent from floor washing should be channelized into the neutralization tank.
- 2.1.12 The unit has to have a ETP plant to treat waste water from battery-breaking system. The ETP should be based on physic-chemical treatment of wastewater and should have provision for acid neutralization.
- 2.1.13 The unit has to have adequate facilities for the collection and storage of ETP sludge and slags. The sludge from the ETP plant should be stored in a covered sludge storage facility and sent to TSDF.
- 2.1.14 Any unit desirous of importing used lead acid battery (Rink, Rains etc) has to have of acid proof flooring with acid collection tank connected with neutralization tank.
- 2.1.15 Any unit desirous of importing used lead acid battery (Rink, Rains etc) has to have automatic battery breaking system. Any unit without automatic battery breaking system cannot import used battery scrap. Importer of used battery scrap has to have automatic battery breaking system.
- 2.1.16 The automatic battery breaking system will have arrangement for noise control in the form of acoustic enclosure, dust and fume extraction system, acid collection and neutralization facilities and ETP for treatment of lead and acidic wastewater.
- 2.1.17 Unit has to have separate and secured hazardous waste storage area for storing hazardous waste and maintain records of transfer of hazardous waste to TSDF.
- 2.1.18 The pallets packaging material should be disposed only to TSDF.
- 2.1.19 The vehicles involved in the material handling/transportation of pallet of batteries (rains/rink) should be leakage-proof. The vehicles should be labelled with logo for carrying Hazardous waste material.
- 2.1.20 Any unit desirous of importing lead scrap/ used lead acid battery scraps periodically examine their workers at least twice in year for lead level in blood as well as urine. Persons with higher lead levels (greater than 42 micrograms /dl) should be shifted immediately to non-lead activity areas and given special medical treatment till the lead levels come back to acceptable level (10-micrograms /dl)

3. SPCBs/PCCs may prescribe the following standards for Emission /Discharge for Lead

- a. Lead in work area, NIOSH 8-hr avg (mg/ m³) : 0.05
- b. Lead in emission through stack (mg/ Nm³) * :10.0 (already notified)
- c. Lead in effluents (mg/ l) :0.10 (notified general standard)
- d. Lead in factory premises near boundary wall 24-hr avg (µg/ m³) : 1.0 (* Nm³ - normal cubic meter)

- e. Workers Blood lead levels: As a practice, all lead related units should periodically examine their workers at least once in year for lead level in blood as well as urine. Persons with higher lead levels (greater than 42 micrograms /dl) should be shifted immediately to non-lead activity areas and given special medical treatment till the lead levels come back to acceptable level (10-micrograms /dl).

4. Steps to minimize fugitive emissions of Lead

- i. The design of hood /fume collection system from the smelting/ refining operations (from metal tapping point, charging doors, furnace joints etc.) should be capable of collecting lead emissions and transfer to the air pollution control system.
- ii. The storage and handling of all the raw materials, intermediates and products should be in covered area/ shed having concrete floors and mechanized equipment should be used to handle these materials as far as possible.
- iii. The floors in the loading area should be kept wet through sprinklers to reduce the chances of lead particles/ dust getting airborne.
- iv. Any water used for washing, rain water etc, should be collected through separate pits (to delink this from the regular drain) for removing metallic lead etc and the pit should have fine screens for passage of clear water.
- v. The movement of vehicles to the administrative /working /production areas should ensure that only the trucks /vehicles involved in the material handling/ transportation reach the work areas, and their tyres are washed before they leave these areas
- vi. The unit has to have facilities for washing tyres of vehicle entering and going out of the recycling facility.

The minimum requirement for transportation of used lead acid battery scrap Rains/Rinks batteries

The following are the requirements pertaining to the transportation of used lead acid battery scrap Rains/Rinks batteries:

- i. Vehicle used for transportation shall be in accordance with the provisions under the Motor Vehicles Act, 1988, and rules made there under
- ii. Transporter shall possess requisite copies of the certificate (valid authorization obtained from the concerned SPCBs/PCCs for transportation of wastes by the importer) for transportation of Rinks batteries.
- iii. Transporter should have valid "Pollution Under Control Certificate" (PUCC) during the transportation of HW and shall be properly displayed.
- iv. Vehicle should be fitted with mechanical handling equipment as may be required for safe handling and transportation of the wastes.
- v. Name of the facility operator or the transporter, as the case may be, shall be displayed.
- vi. Emergency phone numbers and TREM Card in Form 10 of HW (M & H) Rules, 1989 and as amended shall be displayed properly.
- vii. Vehicle shall be fitted with roll-on I roll-off covers if the individual containers do not possess the same.

- viii. Carrying of passengers is strictly prohibited and those associated with the waste haulers shall be permitted only in the cabin.
- ix. Transporter shall carry documents of manifest for the wastes during transportation.
- x. Each vehicle shall carry first-aid kit, spill control equipment and fire extinguisher.
- xi. HW transport vehicle shall run only at a speed specified under Motor Vehicles Act in order to avoid any eventuality during the transportation of HW.
- xii. Educational qualification for the driver shall be a minimum of 10th pass (SSC). The driver of the transport vehicle shall have valid driving license for heavy vehicles from the State Road Transport Authority and shall have a minimum of five years of experience in transporting the chemicals.
- xiii. Driver(s) shall be properly trained for handling emergency situations and safety aspects involved in the transportation of hazardous wastes.
- xiv. The design of the trucks shall be such that there is no spillage during transportation.
- xv. The load and unloading of batteries should be done by trailers only. The manual load and unloading of batteries is not allowed.
- xvi. The vehicles used for transportation of the scrap batteries should be leakproof. The flooring of the containers should be having wood sawdust. The containers using for transportation of batteries should not be used for other purposes.