

HAZARDOUS WASTE MANAGEMENT IN BULK DRUG INDUSTRY

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HAZARDOUS WASTES GENERATED from

- Raw Materials
- Process
- Products
- Environment Management

RAW MATERIALS

- Packing Materials: Drums and Carboys, Cartoons, Liners (Paper and LDPE) Bags
- Reject Materials or Unusable Materials

PROCESS

- Liquid Wastes:
 - Wastewater, Organic, Concentrated Inorganics and spent Acids
- Solid Wastes:
 - Organic and Inorganic Materials, Spent Carbon, Hyflow etc
- Reuse and Recycle Wastes
- Spent Solvents, spent oils and Residues

PRODUCTS

- Damaged Packing Materials
- Off grade products

ENVIRONMENT MANAGEMENT

- ETP Sludge
- Evaporation Salts
- Incinerator Ash
- Dust Collected from AHUs

COLLECTION OF HWs

- Packing materials: collected from each block by house keeping personal in trolleys
- Spent solvents collected in the drums by production persons and kept in the shed for disposal

COLLECTION OF HWs

HWs collected by Environment department

- Spent acids (H₂SO₄) collected in HDPE drums
- Residues: (liquids) Collected in drums (Solids and semi solids) in Carboys
- Inorganic Materials: Spent Carbon, high flow, Sodium Sulphate: Collected in lined HDPE bags and stored in containers of TSDF
- Off grade products and Dust collected from AHUS: collected in HDPE bags
- Evaporation salts: collected in containers of TSDF
- ETP sludge: Dried and kept in the Container of TSDF

STORAGE OF HWs

- Separate compartment for each type of HW in raised platform sheds with leachate collection system
- Containers of TSDF

DISPOSAL OF HWs

- **DETOXIFIED PACKING MATERIALS:**
 - Selling to Authorized Parties
- **LIQUID ORGANIC WASTES (SPENT SOLVENTS and oils etc.):**
 - Selling to Authorized Parties/ Incinerator
- **SOLID or SEMI SOLID ORGANIC WASTES:**
 - Incinerator/ TSDF
- **INORGANIC SOLID WASTES, INCINERATOR ASH, ETP SLUDGE, EVAPORATION SALTS , DUST COLLECTED FROM AHUs :**
 - TSDF

RECORDS

- Daily collection records of all HWs
- Detoxification Records
- Disposal records
 - Selling quantities and parties
 - Incineration
 - TSDF with quantities and type of HWs
 - Manifestos
 - Returns to APPCB



THANK YOU