

Transfrontier shipment of waste



Definition of hazardous waste

Hazardous Property Class	Property	Summary
HP1	Explosive	Waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause



HP11	Mutagenic	Waste which may cause a mutation that is a permanent change in the amount or structure of the genetic material in a cell.
HP12	Release of an acute toxic gas	Waste which releases acute toxic gases (Acute Tox. 1, 2 or 3) in contact with water or an acid.
HP13	Sensitising	Waste which contains one or more substances known to cause sensitizing effects to the skin or the respiratory organs
HP14	Ecotoxic	Waste which presents or may present immediate or delayed risks for one or more sectors of the environment.
HP15	Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste	

The type of hazardous waste and its treatment is characterized by:

- The types of hazardous substances it contains
- The concentration of hazardous substances it contains
- The physical properties of these substances
- The chemical properties of these substances
- The potential of these substances to react with each other

Non-hazardous waste:

- Municipal solid waste
- Paper, plastic, metal, glass
- Food waste
- Used cooking oil
- Construction and demolition waste (exception: asbestos)
- Electronic scrap (with various exceptions)
- ...















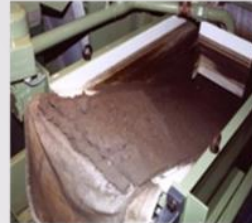

To be considered separately from classic hazardous waste management:

Nuclear waste – separate legal framework

Weapons, military – separate legal framework

Chemical weapons – separate legal framework

Hazardous waste can occur in all areas of life

Households	Solid	Pasty/sludge	Liquid	Hazardous / Non hazardous	
					
Industry					
Commercial & Healthcare Sector					

Hazardous waste can occur in all areas of life

- Adhesives
- Oil contaminated soil
- Obsolete pesticides
- Laboratory waste
- Hospital waste
- Paints, paint sludges
- Packaging with contamination/hazardous residues
- Galvanic sludges
- Fluorescent tubes
- Lead acid batteries
- Heavy metal containing batteries
- Emulsions
- Lithium batteries
- Mercury containing waste
- Industrial waste water
- Solvent waste
- Halogenated waste
- PCB- containing waste (e.g. transformers)
- Spray cans, aerosol
- Gas cylinders
- Asbestos
- Tannery waste
- NORM waste
- Catalyst waste

Hazardous waste generation by branch

Industry branches	Number of different waste groups (as per EWC) typically arising in these industries in Germany
Metal products, machinery & equipment industry	22
Food, beverages & tobacco industry	33
Chemicals, petroleum products, coal, rubber & plastic industry	76
Non-metallic minerals	13
Paper, paper products, printings & publishing industry	8
Wood & wood products, furniture	4
Textiles, clothing & leather products industry	16

- General: Asbestos, fluorescent lamps, paints, solvents, varnishes, dyes, aerosol cans, batteries - Ni-Cd, Lithium, lead-acid, NiMH etc.
- Agriculture industry: Expired pesticides and herbicides
- Telecommunications: PCB waste, transformers etc.
- School and Universities: Lab Chemicals
- Hospitals: cytotoxic waste, pharmaceutical waste, expired medicines, dental amalgam etc.
- Mining industry: Hazardous waste like oily sludges, mercury, etc.

Examples

Waste Type

- Soil impacted by mercury
- Glass crashed of lamps
- Activated carbon used in the retort furnaces



Waste Type

- Cytotoxic material



Waste Type

- Asbestos material



Waste Type

- Pesticides, chemicals



Examples

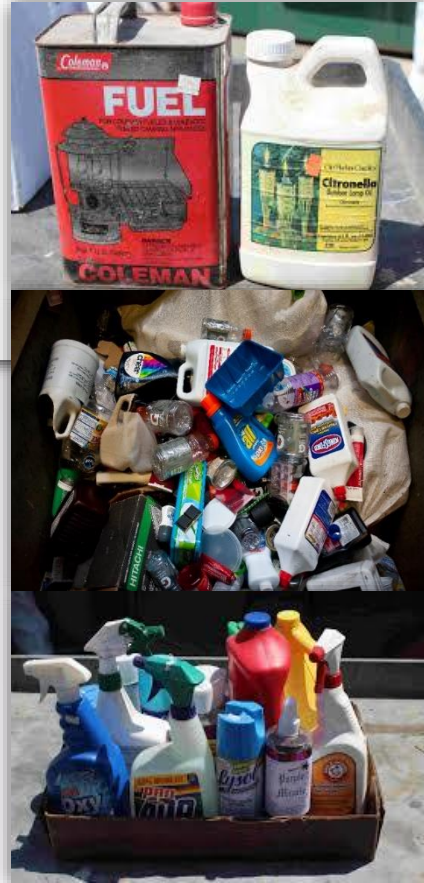
Waste Type

- Healthcare waste



Waste Type

- Automotive industry

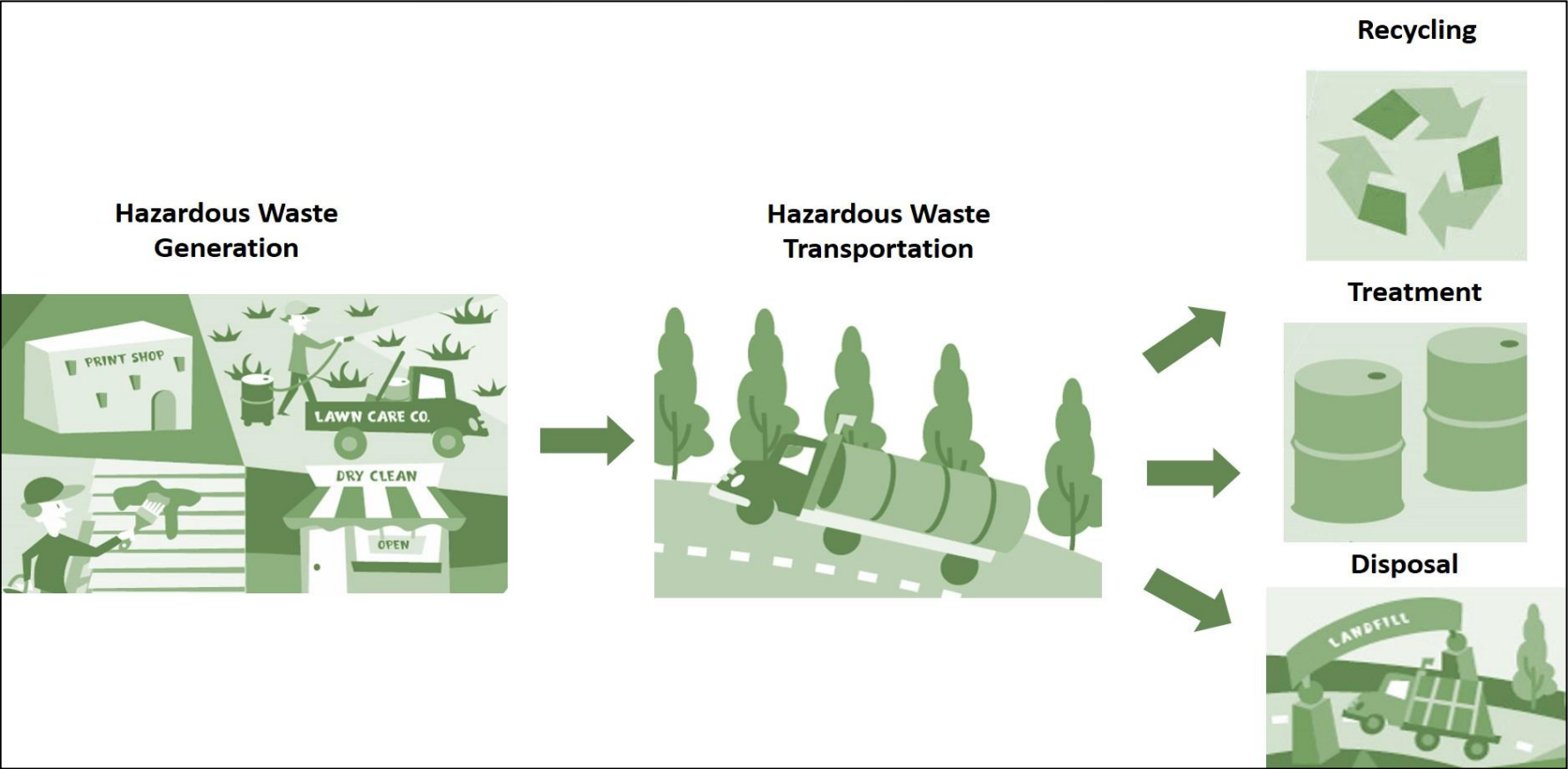


Waste Type

- Electrical waste




Hazardous waste management method - overview



Hazardous waste treatment facilities types - overview

Recovery and Disposal

- **Recovery:** Any operation through which waste is serving a useful purpose, by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.
- **Disposal:** Any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy.



Waste related activities are classed as recovery (R) or disposal (D) as defined in the EU Waste Framework Directive 2008/98.

- A facility carrying out a waste recovery operation will have Recovery (R) codes in its permit
- A facility carrying out a waste disposal operation will have Disposal (D) codes in its permit.

Treatment codes

Hazardous waste Treatment methods - overview

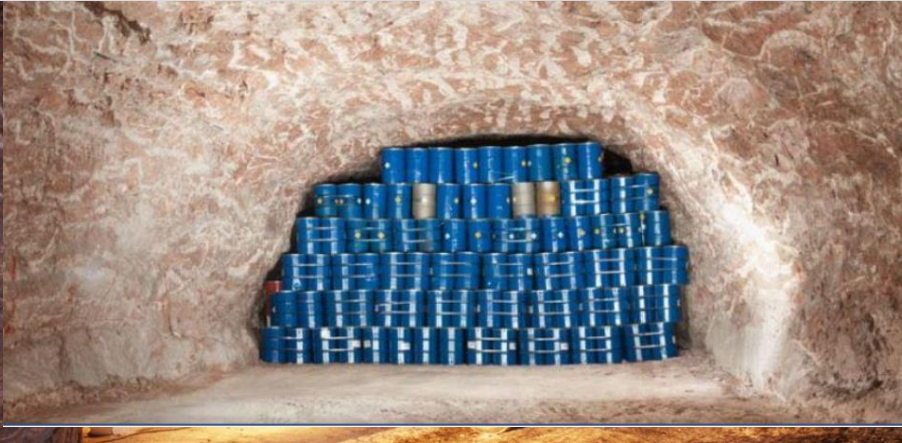
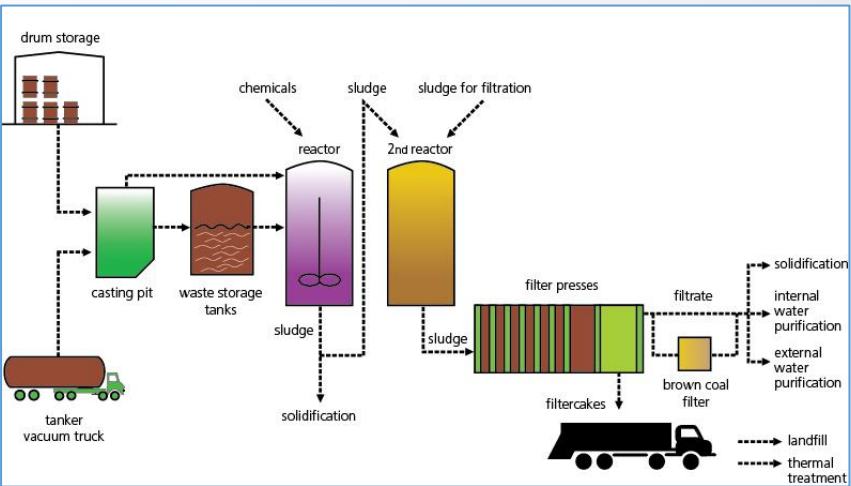
ANNEX IV – Section A- Disposal codes

- **D1 Deposit into or onto land, e.g., landfill**
- D2 Land treatment, e.g., biodegradation of liquid or sludgy discards in soils
- D3 Deep injection, e.g., injection of pump-able discards into wells, salt domes or naturally occurring repositories
- D4 Surface impoundment, e.g., placement of liquid or sludgy discards into pits, ponds or lagoons
- D5 Specially engineered landfill, e.g., placement into lined discrete cells which are capped and isolated from one another and the environment
- D6 Release into a water body, except seas/oceans
- D7 Release into seas/oceans, including sea-bed insertion
- D8 Biological treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12
- **D9 Physico-chemical treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12, e.g., evaporation, drying, calcination**
- **D10 Incineration on land**
- D11 Incineration at sea
- **D12 Permanent storage, e.g., emplacement of containers in a mine**
- **D13 Blending or mixing prior to submission to any of the operations numbered D1 to D12**
- **D14 Repackaging prior to submission to any of the operations numbered D1 to D13**
- D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)

Treatment codes

Hazardous waste Treatment methods - overview

ANNEX IV – Section A- Disposal codes



Physico-Chemical plants

Rotary kiln incinerator

Secure hazardous waste landfill

Treatment codes

Hazardous waste Treatment methods - overview

ANNEX IV – Section B- Recycling codes

- R1 Use principally as a fuel or other means to generate energy
- R2 Solvent reclamation/regeneration
- R3 Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)
- R4 Recycling/reclamation of metals and metal compounds
- R5 Recycling/reclamation of other inorganic materials
- R6 Regeneration of acids or bases
- R7 Recovery of components used for pollution abatement
- R8 Recovery of components from catalysts
- R9 Oil re-refining or other reuses of oil
- R10 Land treatment resulting in benefit to agriculture or ecological improvement
- R11 Use of wastes obtained from any of the operations numbered R1 to R10
- R12 Exchange of wastes for submission to any of the operations numbered R1 to R11
- R13 Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)

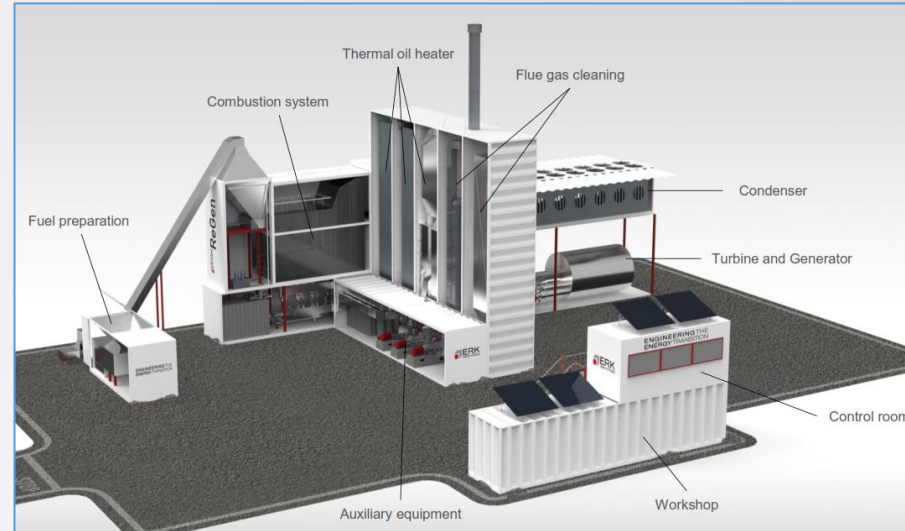
Treatment codes

Hazardous waste Treatment methods - overview

ANNEX IV – Section B- Recycling codes



Lead acid battery recycling

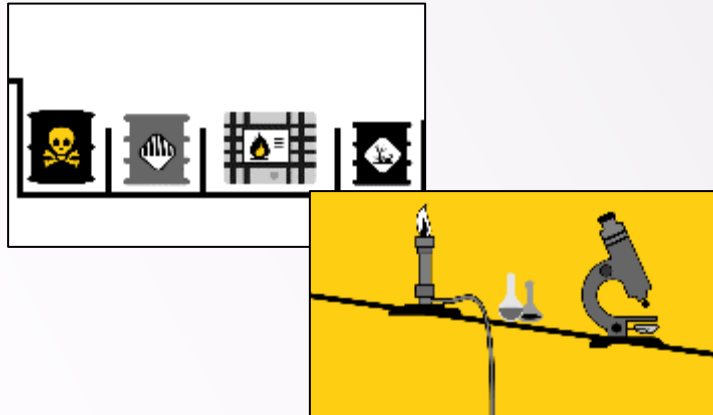


Waste to Energy plant

Steps to export waste –Part 1

A: Information gathering

- ✓ Waste details (Quantity, pictures, SDS, European waste code, UN number, description of waste generation, storage details, HS codes, Basel code)



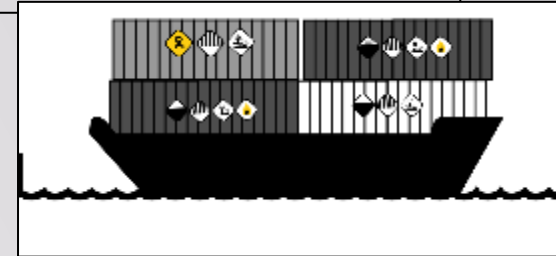
B: Approaching disposal facilities

- ✓ Check import/export restrictions on the BC website
- ✓ Check the ministry of environment pages in the country of import for disposal facilities list
- ✓ Check which type of treatment code the disposal facility can offer
- ✓ Check acceptance criteria from the disposal facilities



C: Transportation

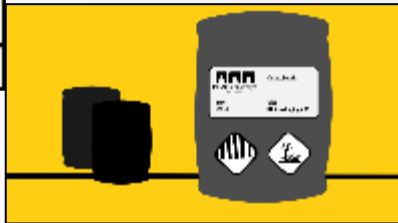
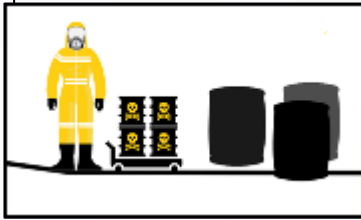
- ✓ Approach sea carriers and road carriers for logistics quote
- ✓ ADR and IMDG requirements
- ✓ Sea routing, carrier information



Export process: Onsite preparation and documentation (part 2)

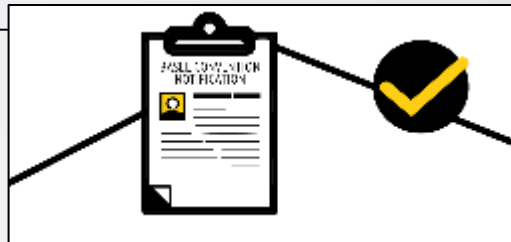
D: Waste packaging

- ✓ Acquire UN rated packaging materials
- ✓ Label according to ADR and IMDG requirements
- ✓ Other requirements from disposal facility's acceptance criteria



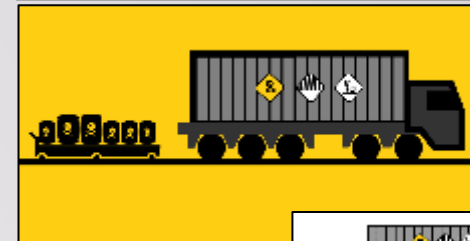
E: Basel Convention documentation

- ✓ Notification document, movement document
- ✓ Environmental/waste shipment regulation contact
- ✓ Financial guarantee



F: Container booking and shipment

- ✓ Container booking after receiving consent from transit countries
- ✓ Announcement of shipment
- ✓ ADR and IMDG requirements



Mercury residues from Mining Industry

Date: 12/2017 - 10/2018
Guatemala City / GUATEMALA

Waste Type

- Soil impacted by mercury
- Glass crashed of lamps
- Activated carbon used in the retort furnaces



Status quo

- Stored material in inadequate conditions
- No suitable local solution
- Environmental risk in storage area



BFS Role

- Technical Consultant
- Project Lead



Solution

- Repacking in UN licensed drums
- Basel documentation
- Licensing
- Export under Basel Convention



Cytotoxic waste from Hospitals

Date: 12/2017 - 10/2018

Beirut / LEBANON

Waste Type

- Cytotoxic material

Status quo

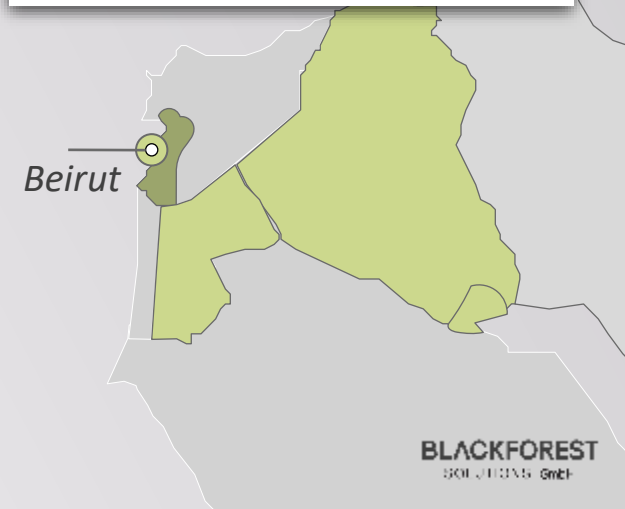
- Stored material in inadequate conditions
- No suitable local solution
- Environmental risk in storage area

BFS Role

- Technical Consultant
- Project Lead

Solution

- Import customs and road carriage within Sweden
- Notification process support
- Licensing
- Export



Export process



Export project timeline



THANK YOU!



BLACKFOREST

SOLUTIONS

M.Sc. Vaishnavi Reddy

<https://www.blackforest-solutions.com/>

Export possibilities

