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Waste Regulations 101

Types of Waste Regulated by Statute:

- Hazardous Wastes
- Solid Wastes
- Waste Recycling and Reduction
- Liquid Industrial By-Products
- PCB Waste
- Medical Wastes
- Radioactive Waste

How do I start?

- Identify what wastes are generated at your facility
- Tour your entire facility and inventory all waste streams

What is a waste?

- A waste is any discarded material
- A waste can be a solid, liquid, semisolid, or gaseous material
- A waste is a material that's been used for its original intended purposes and can no longer be used for that purpose (i.e., spent materials) or an material that cannot be used for its intended purposes (i.e., off spec materials), including materials that are:
 - Burned as fuel
 - Accumulated and recycled or reclaimed
 - Discarded, abandoned or disposed
- As a general rule of thumb, less hazardous waste = less regulation & more disposal options under the law
- There is no one best answer for how to dispose of waste for all businesses & locations

Hazardous Waste Regulations

- Regulated under [Part 111](#) of Act 451 and the [Part 111 rules](#)
- Determined to be a threat to human health or the environment
- Apply to all businesses, including municipalities, hospitals, & service industries, not just manufacturing industries

Waste Characterization

- Is the waste listed on lists in the hazardous waste rules?
 - Wastes from non-specific sources like spent solvents & metal treatment sludges
 - Table 203a
 - F codes
 - Wastes from specific industries like petroleum refineries and chemical manufacturer
 - Table 204a
 - K codes

- Commercial chemical products, off-specification products, container and spill residues like nicotine formaldehyde, DDT, xylene
 - materials with sole active ingredient
 - Tables 205 a, b & c
 - U codes
- Does the waste exhibit a characteristic that makes it hazardous?
 - Ignitable
 - Corrosive
 - Toxic
 - Reactive
- [Waste Characterization Steps & Questions](#)
- [Example Waste Characterization Record Form](#)

Listed Hazardous Waste Codes

- Listed In Part 111 Hazardous Waste Rules

Characteristic Hazardous Waste Codes

- Ignitable - D001
- Corrosive - D002
- Reactive - D003
- Toxic - D004 – D043 (Table 201a)
- Severely Toxic – 001S -007S (Table 202, includes dioxins and furans)

Characteristic Waste Common Test

- Flash point – Used for testing Ignitability < 140 F
Examples: paints, solvents
- pH – Used for testing corrosivity ≤ 2 or ≥ 12.510
Examples: acids, bases
- Reactivity – Test as required for DOT classification for materials that are unstable at normal conditions, reacts violently with water, explode, etc.
Examples: lithium hydride and trichlorosilane
- TCLP (Toxicity Characteristic Leaching Procedure) - Used for testing leaching potential for the 40 Table 201a hazardous constituents
Examples: Paints or sludges containing metals or MEK, contaminated media

TCLP Characteristic Hazardous Waste Codes

- Listed In Part 111 Hazardous Waste Rules

Double Check!

- Once the hazardous wastes have been identified, check for exemptions or exclusions!

Common Exemptions & Exclusions

- Wastewater discharges to POTW's that are approved by that sewer authority are exempted at the point of discharge to the sewer
- Batteries, pesticides, mercury devices, electric lamps, Pharmaceuticals, consumer electronics & antifreeze handled as Universal Waste enjoy a partial exemption
- Used oils that are recycled
- Petroleum contaminated media from leaking UST systems that fail the TCLP for D018 – D043 only & are being remediated under DEQ approval pursuant to Part 213 of Act 451
- Off-specification fuel (gas, kerosene, diesel, etc.) being recycled into fuel or burned as fuel
- Materials remaining in manufacturing units that would otherwise be hazardous wastes. If taken out of service the material becomes a hazardous waste (degreasers, paint pots)
- Laundered rags that are reused that would otherwise be a hazardous waste
- Household waste, including single & multiple residences, hotels & motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, & day-use recreational areas
- Conditionally Exempt Small Quantity Generator Exemption
 - Monthly hazardous waste generation < 220 lbs. or ~ 1/2 drum non-acute and 2.2 lbs. acute
 - Total hazardous waste accumulation always be less than 2200 pounds (5 drums)

- Wastes are properly disposed under other regulations
- Regulation of Waste – least to greatest
- Solid Waste
- Liquid Industrial By-Products Generators (LIB)
- Universal Waste Generators
- Conditionally Exempt Small Quantity Generators (CESQGs)
- Small Quantity Generators (SQGs)
- Large Quantity Generators (LQGs)

Hazardous Waste Generator Status

- Hazardous waste generator status is based:
 - Total quantity of hazardous waste generated each calendar month AND
 - The amount of hazardous waste accumulated at any one time
- This information is used to determine the handling & disposal requirements for the waste!!!
- Do not count the following wastes when determining your monthly generator status:
 - Waste excluded from definition of hazardous waste (e.g. recycled scrap metal, recycled fuel, POTW permitted disposal)
 - Universal waste
 - Used oil
 - Empty containers
 - Liquid industrial by-product

	CESQG	SQG	LQG
Amount of acute or severely toxic haz waste generated or accumulated at any time.	1 kg. (2.2 lbs.) or less	1 kg. (2.2 lbs.) or less	>1 kg. (2.2 lbs.)
Amount of acute spill residue or cont. soil generated or accumulated at any time	100 kgs.(220 lbs.) or less	100 kgs. (220 lbs.) or less	>100 kgs. (220 lbs.)
Amount of non-acute haz waste generated in 1 calendar month.	100 kg. (220 lbs.) or less	>100 kg. (220 lbs.) but <1000 kg (2200 lbs.)	>1000 kg. (2200 lbs.)

Hazardous Waste Generator Requirements

- See Chapter 2, Table 2.6 on page 2-41 of the guidebook at www.michigan.gov/ehsguide
- Hazardous waste must be managed to meet [U.S. DOT hazardous materials regulations](#)

Overview

- Waste (Hazardous, Liquid Industrial By-Product, or Solid)
- Subject unless excluded:
 - Hazardous waste if listed or characteristic
 - Liquid industrial by-product if free liquids
 - Solid waste if solid
 - Solid Waste
- If the waste meets a hazardous waste exemptions or exclusions, it is subject to non-hazardous solid waste regulation if solid
- Regulated under [Part 115](#) of Act 451 and the [Part 115 rules](#)
- Solid waste must be disposed in a Type II municipal solid waste landfill or permitted municipal solid waste incinerator unless it is:
 - Recycled or
 - Diverted
- Landfills require special waste approval prior to shipment for special waste (e.g. CESQG solid hazardous waste)

	CESQG	SQG	LQG
Approx. volume of non-acute haz waste.	25 gallons (assuming the liquid wt. equals that of water)	25 to 250 gallons	200 to 250 gallons
Max amount of non-acute haz waste that can be accumulated on site.	1000 kg (2200 lbs.)	6000 kg (13,200 lbs.)	No maximum amount
Max time period before waste must be shipped.	No time limit if never exceeding 2200 lbs.	180 days unless shipped over 220 miles; then 270 days	90 days

Wastes Prohibited from Landfill Disposal Under Part 115

- Used Oil
- Liquid Waste
- Lead Acid Batteries
- Hazardous Waste from SQG & LQG
- Low Level Radioactive Waste

- PCB Waste
- Medical Waste
- Empty Drums
- Whole Tires
- Returnable Beverage Containers
- Sewage
- Asbestos (unless landfill approved)

Solid Waste Recycling Exemptions

- Concrete Grinding Slurry
- Ethanol
- Lime Sludge
- Manure, Paunch and Pen Waste
- Backyard Composting
- Gypsum Drywall
- Fish Waste
- Scrap Wood

Inert Materials

- Inert means there are no listed hazardous wastes, or, hazardous substances present in a waste at concentrations above current Part 201 cleanup criteria
- Inert materials can include dredged spoils, excavated soils, cement kiln dust, asphalt, certain construction materials, rock, etc.
- Inert materials can be used as alternate daily cover in landfills with DEQ approval or as fill

Beneficial Use and Recycling

- **Beneficial use** recycles waste materials like coal and wood bottom ash, paper pulp, cement kiln dust and foundry sand for use in industrial settings.
- Statute identifies specific use conditions that must be met for a beneficial use for the materials identified

Examples of Diverted Waste

- Household hazardous wastes like:
 - Medications
 - Computer, Televisions, Cell Phones & Tablets
 - Paints & Solvents
 - Fluorescent Light Bulbs
 - Batteries
 - Used Oil

Liquid Industrial By-Product (LIB)

- Regulated under [Part 121](#) of Act 451
- Formally known as Liquid Industrial Waste
- **Statutory change** in March 2016
- Determined by using the Paint Filter Test, EPA Method 9095 of SW-846
- LIB may be also subject to [U.S. DOT hazardous materials regulation](#)
- If there are any free liquids in the waste it should be managed as a liquid industrial by- product
- Includes liquids from CESQG that meet the definition of hazardous waste
- Includes liquid waste that is not a listed or characteristic hazardous waste such as:
 - Used oil
 - Catch basin clean-out
 - Antifreeze
 - Contaminated fuel
 - Wastewaters
 - Waste waters

Michigan Department of Environmental Quality
DEQ

Office of Waste Management and Radiological Protection
Beneficial Use Matrix

USE/MATERIAL	Excluded by time, amount, or location	Construction fill under impermeable surface/land fill/cover	Land Applied	Rehabilitate/ use roads or used as fill or benefit	Soil blending	Flue gas scrubbing reagent
	Beneficial Use 1	Beneficial Use 2	Beneficial Use 3	Beneficial Use 4	Beneficial Use 5	
Wood pulchral bottom ash			X			
Wood pulchral ash	X	X		X		
Phosphorimil ash	X	X	X	X		
Mixed wood ash	X	X	X	X		
Cement kiln dust/Lime kiln dust	X	X	X	X		X
Foundry sands (ferrous/nonferrous)	X	X	X	X	X	
Slag/slags	X	X				
Pulp/paper mill material			X			
Sand dewatering media business products	X	X				
Dewatered concrete paving slurry	X	X	X	X		
Lime to Making media			X	X		
Slag/blast waste			X			
Flue gas desulfurization sludge	X		X			

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- Fats, oils, & grease
- Wash waters
- Generators of LIB must...
- Must have characterization & shipping records
- Manage LIB in tanks or containers that are in good condition, closed and have no leaks
- Labeled containers/tanks to identify their contents
- Protect containers/tanks from weather fire physical damage and vandals
- Generators of liquid industrial by-product must...
 - Must have exterior of all vehicles, containers and tanks free of use oil residues
 - Prevent release to ground
 - Use permitted registered LIB transporter or maintain spill insurance if self-transporting

Toxic Substances Control Act (TSCA)

- Regulation of TSCA is implemented by EPA
- Applies to the manufacture, processing, distribution, marking, use, storage, cleanup, and disposal of polychlorinated biphenyls (PCB)-containing wastes
- Sources of PCBs include dielectric fluids, heat transfer fluids, capacitors, hydraulic fluids, etc.

Toxic Substances Control Act

- There are generally 3 action levels of total PCB concentrations:
 - <50 ppm
 - ≥ 50ppm to <500 ppm
 - ≥ 500 ppm
- For more information, see Chapter 4.5, Page 4-26 of guidebook at www.michigan.gov/ehsguide and contact EPA Region 5 at 312-886-7890, 800-621-8431, or 213-353-2318, or www.epa.gov/pcb

Scrap Tires

- Regulated by [Part 169](#) of Act 451 Requirements for scrap tire generators include:
 - Store tires safely at the location of generation
 - Ensure scrap tires are taken to a [registered tire collection site](#)
 - Use only [register hauler](#)
 - Obtain and keep copies of scrap tire [manifests](#)
- Can look up registered haulers and collection sites at www.michigan.gov/scraptires
- Can self-transport up to 10 tires without a manifest to a registered collection locations
- See guidebook at www.michigan.gov/ehsguide Section 2.2.2 Page 2-17 for more details

Medical Wastes

- Regulated under [Part 138](#) of Act 368, Michigan Public Health Code and the [Part 138 Rules](#)
- Includes infectious biohazardous waste like:
 - Blood and body fluids from human and animals
 - Pathological waste like organs and tissue
 - infectious agents like live or attenuated viruses in vaccinations
 - Sharps or needles and scalpels
- Medical waste does not include pharmaceuticals unless they contain live or attenuated vaccines in which case they're dual/mixed waste
- Many agencies regulate medical waste, including
 - DEQ – Regulates how producers must manage medical waste from point of generation to disposal
 - U.S. EPA – Produces guidelines for land disposal and requires air permitting for incineration
 - Michigan State Police (MSP)/U.S. Department of Transportation (U.S. DOT) – Specifies packaging, labeling, securing and shipping documents for safe transport
 - Michigan Occupational Safety and Health Administration (MIOSHA) – Specified work protections for handling of blood borne infection materials
- Medical Waste Regulatory Act requires:
 - Producer registration every 3 years
 - Medical Waste Management Plan
 - Employee training records

- Proper packaging
- Storage no longer than 90 days
- Shipment records

Radioactive Wastes

- Naturally occurring and accelerator produced radioactive material (NARM) and low level mixed waste (LLMW) are possibly exempt from the definition of hazardous waste if certain conditions apply, such as if it meets the acceptance criteria of a low-level radioactive waste disposal facility or eligible NARM waste
- NARM and LLMW waste shall meet or be treated to meet hazardous waste land disposal restriction (LDR) treatment standards

Asbestos

- Used in more than 3000 products over the past 100 years for its insulation and fire protective properties
- Common products include pipe insulation, floor and ceiling tiles, and electrical appliances
- Found in a wide range of settings including industrial and manufacturing, school and universities, and residential properties
- Generally disposed in Type II Municipal Solid Waste landfill if the landfill has been approved to accept asbestos-containing wastes
- Regulated by [MIOSHA](#)
- Regulated by Air Quality Division under the [National Emission Standards for Hazardous Air Pollutants \(NESHAP\)](#)
- Asbestos is the general name of a group of minerals with a similar propensity to become airborne and cause damage to lungs. These minerals include Chrysotile, Amosite, and Crocidolite
- Additional information is available through the DEQ Air Quality Division's, National Emission Standards for Hazardous Air Pollutants Asbestos Coordinator at 517-373-7064