

# EGLE Waste Webinar Series

## Waste 101 (3/25/20)

### Waste 101



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### Welcome




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### Waste Webinar Series



All lines are muted during the webinar.



Submit your questions using the "Question/Chat" box in your Go To Webinar tool bar.



We are recording this webinar

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### Today's Goal

Provide an overview of the different types of waste under state and federal environmental regulations

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## Waste 101 (3/25/20)

### Types of Waste

- Hazardous Waste
- Solid Waste
- Liquid Industrial By-Product
- PCB Waste
- Medical Waste
- Radioactive Waste

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### How Do I Start

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

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### What is a Waste

A waste is any discarded material

A waste can be a solid, liquid, semisolid, or gaseous material

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### Waste Survey – Don't over think it!

Practical Example



Product = Waffle Batter  
Process = Waffle Iron  
Product = Waffle



Not going to predict a grilled cheese

Think about new products, intermediates, and processes

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### Waste Survey – Don't over think it!

Pile of Poo emoji <



The Pile of Poo emoji, "poomoji", or simply the poo emoji, is an emoji resembling a coiled pile of poop, usually adorned with cartoon eyes and a large friendly smile. It can be used to convey disappointment, but it still holds its literal meaning. [Wikipedia](#)

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### What is a Waste

A waste is any material that cannot be used for its original intended purpose, including materials that are:

- Burned as fuel
- Accumulated and recycled or reclaimed
- Discarded, abandoned or disposed

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### Hazardous Waste Regulations

Regulated under Part 111 of Act 451

Apply to waste determined to be a threat to human health or the environment

Apply to all businesses, including municipalities, hospitals, & service industries, not just manufacturing industries

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### Hazardous Waste Regulations

As a general rule of thumb...  
...less hazardous waste = less regulation and more disposal options under the law

**There is no one best answer for how to dispose of waste for all businesses and locations**

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### Waste Characterization

Is the waste **listed** on lists in the hazardous waste rules?

Does the waste **exhibit a characteristic** that makes it hazardous?

- Ignitable
- Corrosive
- Toxic
- Reactive

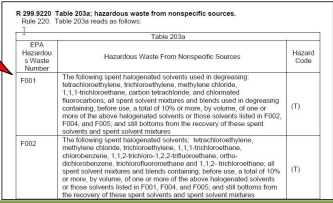


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### Listed Waste Codes

Listed In Part 111 Hazardous Waste Rules



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### Listed Waste Codes

Wastes from **non-specific sources** like spent solvents and metal treatment sludges

- Table 203a
- F codes

Wastes from **specific industries** like petroleum refineries and chemical manufacturers

- Table 204a
- K codes

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### Listed Waste 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
- P and U codes

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### Waste Survey – Don't over think it!



Product and process - wood and fire

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### Waste Survey – Don't over think it!



Waste - ashes

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### Poll Question 1



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### Characteristic Waste Codes

Ignitable - D001

Corrosive - D002

Reactive - D003

Toxic - D004 – D043 (Table 201a)

Severely Toxic – 001S - 007S  
(Table 202, includes dioxins & furans)

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### Characteristic Waste Common Test

- **Flash point** – Used for testing ignitability < 140 F  
Examples: paints, solvents
- **pH** – Used for testing corrosivity  $\leq 2$  or  $\geq 12.5$   
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 & trichlorosilane

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### Characteristic Waste Common Tests

- **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

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## Waste 101 (3/25/20)

### Toxic Characteristic Hazardous Waste Codes

Toxic Constituents  
Part 111 Rules,  
Table 201a

EPA Hazardous Waste Number	Chemical Abstract Name	Material	Extract Concentration milligrams per liter
D004	440-30-1	Arsenic	5.0
D005	7440-39-3	Barium	100.0
D018	71-43-3	Benzene	0.5
D006	344-43-3	Chromium	0.5
D019	50-29-2	Carbon tetrachloride	0.5
D002	67-63-1	Chlorine	0.01
D001	108-90-7	Chlorobenzene	100.0
D002	67-63-1	Chlorine	0.01
D007	8440-47-3	Chromium	5.0
D003	65-09-0	Cadmium	200.0
D004	100-39-4	in Cassel	200.0
D005	100-44-4	in Cassel	200.0
D005		in Cassel	200.0
D005		in Cassel	200.0
D016	34-79-1	2,4-Dichlorophenoxyacetic Acid	0.01
D007	100-46-7	1,2-Dichlorobenzene	0.01
D008	107-06-1	1,2-Dichloroethane	0.5
D009	75-35-4	1,1-Dichloroethylene	0.1
D009	75-35-4	1,2-Dichloroethylene	0.1
D012	72-20-8	Endrin (1,1,1,1,4,4,6-hexachloro-1,2,4-triazolo-3,4-dimethano naphthalene)	0.02

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

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### Waste Survey – Don't over think it!





Product - eggs and coffee  
Waste – compost, eggshells and coffee grounds

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### Common Exemptions & Exclusions


Wastewater discharges to wastewater treatment plants that are **approved** by the receiving sewer authority are exempted **at the point of discharge** to the sewer



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### Common Exemptions & Exclusions

Batteries, pesticides, mercury devices, electric lamps, pharmaceuticals, consumer electronics & antifreeze handled as universal waste enjoy a **partial** exemption



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### Common Exemptions & Exclusions

**NEW!!!**

Aerosol cans often contain ignitable and/or toxic constituents

New hazardous waste rules will adopt aerosol cans as a universal waste eligible for streamlined management



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### Common Exemptions & Exclusions


- Most used oil when recycled
- Petroleum contaminated media from leaking **UST systems** that fail the TCLP for D018 – D043 only and are being remediated under Part 213 of Act 451
- Off-specification fuel (gas, kerosene, diesel, etc.) being recycled into fuel or burned as fuel

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### Common Exemptions & Exclusions

- 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)
- Solvent wipes managed to meet wipes exemption, whether reused or disposed



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### Common Exemptions & Exclusions

- Household waste, including single & multiple residences, hotels & motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, & day-use recreational areas



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### Very 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 less than 2200 pounds (5 drums)
- Wastes are properly disposed under other regulations

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### Hazardous Waste Generator Category

Hazardous waste generator category is based on:


- Total weight 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!!!***

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### Hazardous Waste Regulations



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## Hazardous Waste Generator Category

### NEW!!! Episodic Hazardous Waste Generation

**New rules coming** allow a site to bump up once in a calendar year and stay in their generator category if they meet the new “Episodic Event” requirements:

- Requires notification
- Management as a hazardous waste for disposal
- Labeling
- Disposal within a limited timeframe

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## Hazardous Waste Generator Categories

Generator Type	Maximum amount of non-acute hazardous waste generated per month	Approximate maximum volume of non-acute hazardous waste generated per month	Maximum amount of acute or severely toxic hazardous waste generated per month	Maximum amount of contaminated soil, water or other debris from clean-up of acute or severely toxic hazardous waste generated per month
Very Small Quantity Generators (VSQG)	≤ 100 kilograms or less (220 lbs.)	≤ half a 55-gallon drum or ≤ 25 gallons	≤ 1 kilogram (2.2 lbs.)	≤ 100 kilograms
Small Quantity Generators (SQG)	> 100 kilograms (220 lbs.) but < 1,000 kilograms (2,200 lbs.)	> half a 55-gallon drum and < five 55-gallon drums, or > 25 gallons and < 250 gallons	≤ 1 kilogram (2.2 lbs.)	≤ 100 kilograms
Large Quantity Generators (LQG)	≥ 1,000 kilograms or more (2,200 lbs.) or more	≥ five 55-gallon drums or ≥ 250 gallons	> 1 kilogram (2.2 lbs.)	> 100 kilograms

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## Hazardous Waste Generator Category Max Amount & Time Limits

	VSQG	SQG	LQG
Maximum amount of non-acute hazardous waste that can be accumulated on site.	1000 kg (2200 lbs.)	6000 kg (13,200 lbs.)	No maximum amount
Maximum 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

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## Poll Question 2



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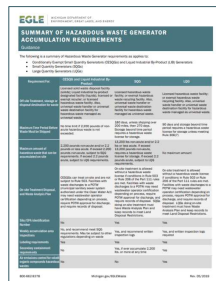


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## Hazardous Waste Generator Requirements Summary

See:

- Summary of Generator Requirements posted at [Michigan.gov/EGLEWaste](http://Michigan.gov/EGLEWaste) under “Announcements” with **webinars**
- Guidebook, Chapter 2 at [Michigan.gov/EHSGuide](http://Michigan.gov/EHSGuide)



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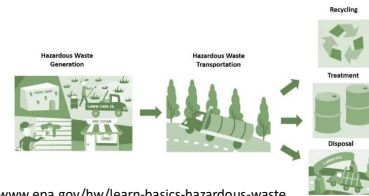
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## Hazardous Waste Tracking

Since 1976, hazardous waste requires “cradle to grave” manifesting, meaning hazardous waste is tracked from the time it is created, while it is transported, treated, stored, and until it is ultimately disposed.



<https://www.epa.gov/hw/learn-basics-hazardous-waste>

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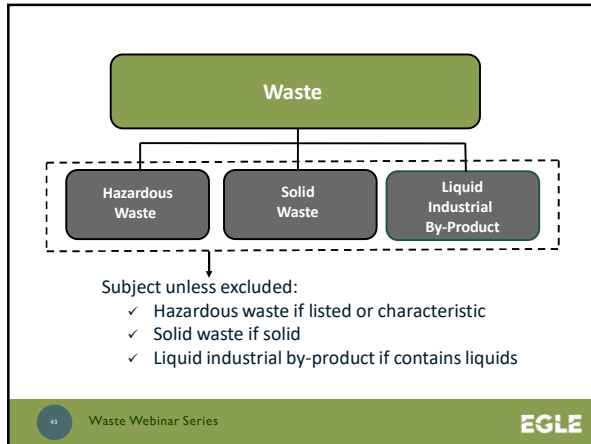
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### Waste Survey – Don't over think it!

Product and process - New oil, then in use in auto  
Waste - Used oil after drained, destined for recycle

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## 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

Solid waste must be disposed in a licensed Municipal Solid Waste Landfill or a permitted Municipal Solid Waste Incinerator or better (haz waste licensed facility) unless it is managed to meet a solid waste exemption (recycled, diverted, inert, beneficial use materials, etc.)

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## Landfill Prohibited Materials

- 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)

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## Solid Waste Recycling Exemptions

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

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## 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 EGLE approval or as fill

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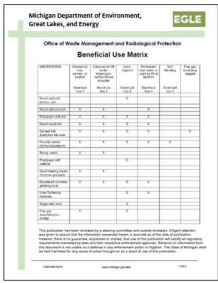
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### Beneficial Reuse Materials

Beneficial use recycles discarded materials like coal and wood bottom ash, paper pulp, cement kiln dust and foundry sand for use in industrial settings

Part 115 identifies specific use conditions that must be met for specific beneficial use materials listed



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### Diverted Waste

Household hazardous wastes like the following diverted from landfills to an environmentally preferred management method:

- Medication
- Computer, TVs, Cell Phones & Tablets
- Household Paints & Solvents
- Fluorescent Light Bulbs
- Batteries
- Used Oil
- Can include VSQG waste



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### Liquid Industrial By-Product (LIB)


Regulated under Part 121 of Act 451

Formally known as liquid industrial waste

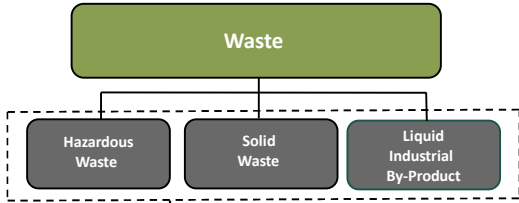
Determined by using the Paint Filter Test, EPA Method 9095 of SW-846.

If there are any free liquids in it should be managed as a liquid industrial by-product




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Subject unless excluded:

- ✓ Hazardous waste if listed or characteristic
- ✓ Solid waste if solid
- ✓ Liquid industrial by-product if contains liquids

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### Liquid Industrial By-Product (LIB)

Liquid VSQG hazardous waste – Subject to LIB requirements

Other liquid waste materials that are not hazardous, hazardous exempt, etc. but are regulated as LIB

Used oil	Catch basin clean-out waste
Antifreeze	Contaminated fuel
Wastewaters	Brine
Fats, oils, grease	Wash waters
Leachate	Some sanitary clean-out waste

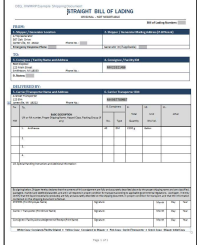
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### Liquid Industrial By-Product (LIB)

Generators of LIB 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



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### Liquid Industrial By-Product (LIB)

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
- Receive confirmation that each LIB shipment arrived at an appropriate LIB Designated Facility

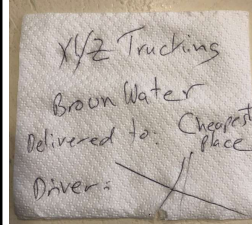
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### Liquid Industrial By-Product (LIB) Shipping Document



- Name and address of the generator
- The name of the transporter
- The type and volume of liquid industrial by-product in the shipment
- The date the by-product was shipped off site from the generator
- The name, address and Site Identification Number of the **designated facility**

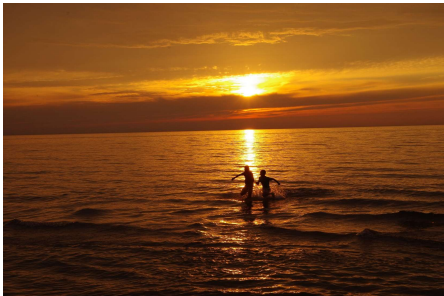
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### Poll Question 3



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### Toxic Substances Control Act (TSCA)

Applies to the manufacture, processing, distribution, marking, use, storage, cleanup, and disposal of PCB-containing wastes

Regulation of TSCA is implemented by EPA

Sources of PCBs include dielectric fluids, heat transfer fluids, capacitors, hydraulic fluids, etc.

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### Toxic Substances Control Act (TSCA)

There are generally 3 action levels of total PCB concentrations:

- <50 ppm
- $\geq$  50ppm to <500 ppm
- $\geq$  500 ppm

For more information:

- See Chapter 4 of guidebook at [Michigan.gov/EHSGuide](http://Michigan.gov/EHSGuide) or [www.epa.gov/pcb](http://www.epa.gov/pcb)
- Call EPA Region 5 at 312-886-7890 or 800-621-8431

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### 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
- All NON-New tires are regulated as "scrap tires"

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## Waste 101 (3/25/20)

### Scrap Tires

Can look up registered haulers and collection sites at [Michigan.gov/scrap tires](http://Michigan.gov/scrap tires)

Can self transport up to 10 tires without a manifest to a registered collection locations

See Chapter 2 of guidebook at [Michigan.gov/EHSGuide](http://Michigan.gov/EHSGuide) for more information



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### Scrap Tires

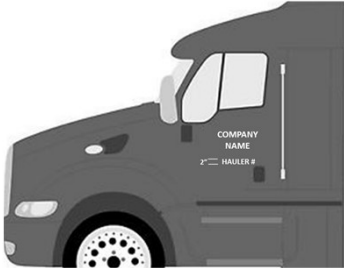


Need adequate aisle space to prevent fire hazards and ensure safety

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### Scrap Tires



- Manifest required for transports >10 tires
- Transporters register
- Must carry copy of current hauler registration
- Registration numbers must be visibly displayed on vehicle

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### Medical Waste

Regulated under Part 138 of Act 368, Michigan Public Health Code

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



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### Medical Waste

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

- EGLE – 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

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### Medical Waste

Many agencies regulate medical waste, including

- MSP/U.S. DOT – Specifies packaging, labeling, securing and shipping documents for safe transport
- MIOSHA – Specified work protections for handling of blood borne infection materials
- Local Health Departments – Local ordinances

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### Medical Waste

- 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

See Guidebook, Chapter 2 at [Michigan.gov/EHSGuide](http://Michigan.gov/EHSGuide) and [Michigan.gov/EGLEMedWaste](http://Michigan.gov/EGLEMedWaste)

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### Radioactive Wastes

NARM and LLMW wastes 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 LDR treatment standards

See Guidebook, Chapter 10 at [Michigan.gov/EHSGuide](http://Michigan.gov/EHSGuide)

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### 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

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### Asbestos

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)

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### Asbestos

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 EGLEs Air Quality Division, NESHAPs Asbestos Coordinator at 517-373-7064

See Guidebook, Chapter 1 at [Michigan.gov/EHSGuide](http://Michigan.gov/EHSGuide) and [Michigan.gov/EGLEAsbestos](http://Michigan.gov/EGLEAsbestos)

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### Additional Resources

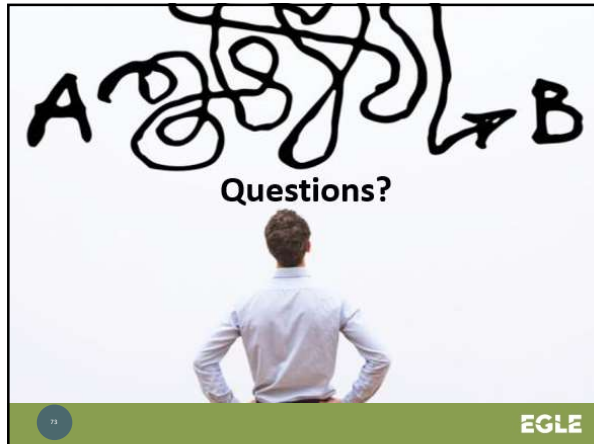
Waste Characterization Guidance

Waste Characterization Steps and Questions

Waste Characterization Example Record

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