

Solid Waste Characterization

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Solid Waste Regulation

- **Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended**
- **Michigan's Solid Waste Management Act Administrative Rules**
- **Subtitle D of the federal Resource Conservation and Recovery Act of 1976, as amended**

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Where We Are Today

2015 Michigan Recycling Index



2014 Industrial By-product Reuse

	Recycled	Disposed	Percent Recycled	Material	2009 Volumes	Percent Volume Change from 2009
Pulp/paper/wood sludge	102,141	103,487	50%	-16%	39,889	+156%
Shingles	26,648	?	?	-16%	19,650	+61%
Scrap Wood ⁴	110,492	?	?	+60%	26,432	+318%
CKD	16,058	262,791	6%	-63%	29,081	-45%
Foundry Sand	107,611	259,025	29%	+5%	66,870	+61%
Food Processing ³	31,207	?	?	-11%	16,073	+118%
Coal Ash ²	454,000	1,169,734	28%	+14%	174,900	+157%
Drywall	3,818	?	?	+16%	1,048	+264%
FGD	35,577	?	?	+9%	32,328	+10%
Wood Ash ¹	7,737	128,412	4%	-18%	5,592	+2%
Totals ³	889,189	?	?	+5%	411,863	+116%



How Materials Are Excluded from Solid Waste Regulation

- **Statutory Exclusion**

- ✓ Solid Waste Definition
- ✓ Inert Material
- ✓ Site Separated Recyclable Material
- ✓ Beneficial Use By-products
- ✓ Diverted Wastes

- **Rule Exclusion**

- ✓ Petition for Exemption 118a
- ✓ DEQ Approved Exclusion

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Statutory Excluded Materials

Part 115, Section 11506(1)

- Foundry or steel mill slag
- Food waste that is composted or land applied
- Coal bottom ash used as cold weather road abrasive
- Stamp sands used as cold weather road abrasive
- Non-hazardous secondary material approved for combustion under 40 CFR Part 241
- Scrap metal *Page 1-78*

Statutory Excluded Materials

Part 115, Section 11506(1)

- Human body waste
- Medical waste
- Manures and bedding
- Liquid waste
- Land application under an Agricultural Use Agreement
- Coal ash
- Materials land applied under the Generally Accepted Agricultural Management Practices
- Inert material
- Site separated recyclable material
- Diverted waste

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Inert Materials

Part 115, Section 11504(2)

- **Rocks**
- **Trees, stumps, or similar land clearing debris**
- **Uncontaminated soil or dredge material**
- **Construction brick, masonry, pavement, or broken concrete**
- **Asphalt pavement or concrete pavement**

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Site Separated Recyclable Materials

Part 115, Section 11506(6)

- *Glass, metal, wood, paper, plastic, etc.*
- *Scrap wood, rail road ties, tires, or paint solids used as fuel*
- *Drywall or FGD used to produce drywall*
- *Shingles used for fuel or to produce hot mix asphalt*

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Site Separated Recyclable Materials

Part 115, Section 11506(6)

- **Utility poles used for poles or posts**
- **Rail road ties used for landscaping**
- **Recovered paint solids used as fuel**
- **Municipal solid waste incinerator ash used for landfill alternate daily cover**

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Site Separated Recyclable Materials

Part 115, Section 11506(6) & 11553(9)

- Concrete Grinding Slurry
- Asphalt Shingle
- Drywall
- Ethanol Syrup
- Fish Waste
- Scrap Wood *(Page 3-27)*
- On Farm Anaerobic Digestion
- Water Softening Lime *(Page CV)*
- Tires *(Page 3-34)*
- Manure, Paunch, and Pen Waste *(Page 3-38)*



Beneficial Use By-Products

Part 115, Sections 11502(8), 11551, 11551a, 11552, and 11553

- **Cement or Lime Kiln Dust Collected Air Contaminants**
- **Coal or Wood Bottom Ash**
- **Coal or Wood Combustion Collected Air Contaminants**
- **Dewatered Concrete Grinding Sludge**

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Beneficial Use By-Products

Part 115, Sections 11502(8), 11551, 11551a, 11552, and 11553

- **Flue Gas Desulfurization Collected Air Contaminants**
- **Foundry Sand**
- **Lime Softening Residuals**
- **Mixed Wood Ash**
- **Pulp and Paper Mill Ash**

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Beneficial Use By-Products

Part 115, Sections 11502(8), 11551, 11551a, 11552, and 11553

- **Pulp and Paper Mill Material**
- **Soils Washed or Removed from Sugar Beets**
- **Spent Media from Sandblasting**
- **Stamp Sands**

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Beneficial Use By-Product

Use Options

- **Beneficial Use 1** - Use as aggregate, road material, or building material if it will be bonded or encapsulated by cement, limes, or asphalt.
- **Beneficial Use 2** - Use as construction fill, road base, soil stabilizer, or road shoulder material.
- **Beneficial Use 3** - Application of material as fertilizer, a soil conditioner under Part 85, or a liming material under 1955 PA 162.

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Beneficial Use By-Product

Use Options

- **Beneficial Use 4** - Use to stabilize, neutralize, or treat waste, including wastewater, sludge, or hazardous substances or to serve as landfill construction material.
- **Beneficial Use 5** – Use of foundry sand and organic material to manufacture soil.

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Office of Waste Management and Radiological Protection

Beneficial Use Matrix

USE/MATERIAL	Bonded by lime, cement, or asphalt	Construction fill under impervious surface/Road shoulder	Land Applied	Remediate/treat waste or used as fill at landfills	Soil blending	Flue gas scrubbing reagent
	Beneficial Use 1	Beneficial Use 2	Beneficial Use 3	Beneficial Use 4	Beneficial Use 5	
Wood ash/coal bottom ash			X			
Wood ash/coal ash	X	X		X		
Pulp/paper mill 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/aluminum)	X	X	X	X	X	
Stamp sands	X	X				
Pulp/paper mill material			X			
Sand blasting media from new products	X	X				
Dewatered concrete grinding slurry	X	X	X	X		
Lime Softening residuals			X	X		
Sugar beet soils			X			
Flue gas desulfurization sludge	X		X			

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Analytical Requirements

- **Listed Beneficial Use By-Products**
- **Listed Inert Materials**
 - **Soil and Sediment**
 - **Construction Brick, Masonry, Pavement, and Broken Concrete**
- **Listed Source Separated Materials**



Analytical Requirements

- **Materials Approved by the DEQ**
 - ✓ **Agricultural Use Approvals**
 - ✓ **Beneficial Use By-Products**
 - ✓ **Inert Materials**
 - ✓ **Source Separated Materials**
 - ✓ **Low-Hazard Industrial Waste**



Foundry Sand Example

- **Asphalt or concrete – non-hazardous using testing or knowledge**
- **Fill under impervious surface – must leach less than 20 times Part 201 Health Based Drinking criteria**
- **Land applied – must meet cumulative pollutant loading rate**

Foundry Sand Example

- Remediate or treat waste - non-hazardous using testing or knowledge
- Soil blend – must test for 10 metals (i.e. antimony, cobalt, copper, iron, lead, manganese, molybdenum, nickel, thallium, and zinc), benzene, formaldehyde, phenol, and trichloroethylene



Diverted Wastes

Part 115, Section 11521b

Diverted waste is a waste that is:

- commonly generated by households
- can lawfully be disposed of at a licensed sanitary landfill or municipal solid waste incinerator
- is separated from other waste
- is being diverted to an environmentally preferred management option

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Diverted Wastes

Part 115, Section 11521b

- Hazardous material generated by a CESQG
- Liquid waste
- Pharmaceuticals
- Electronics
- Batteries
- Sharps
- Light bulbs
- Pesticides
- Thermostats, switches, thermometers, or other mercury containing devices



Waste Diversion Center Requirements

- **Must be managed safely by trained personnel**
- **Must control releases to the environment**
- **Must have secure overnight storage**
- **May store material up to 1 year**
- **Must keep appropriate records**
- **Material must be sent to another waste diversion center, a recycling facility, or a disposal facility**



Questions



Michigan Department of Environmental Quality

www.michigan.gov/deqwaste

Click on “Solid Waste”

1-800-662-9278



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Interactive Breakout

Facilitators:

Trish Confer
Mark Daniels
Jim Day
Nadine Deak
Jeanette Noechel
Wade O'Boyle
Reed Sneller
Mike Busse

Floater:

Jack Schinderle
Tracy Kecskemeti
Steve Sliver
Duane Roskoskey
Bob Skowronek
David Skutt



Breakouts

MDEQ Waste Characterization Workshop
Thurs., 9/10/15
Laurel

Name Tags ID Your
Group

Tables are Numbered

Breakout sessions
begin promptly at
1:45.

