



Hazardous Waste Generator Accumulation, Storage and Labeling Webinar – March 11, 2015

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Hazardous Waste Webinar Series Session 2

- Accumulation and Storage
- Labeling

Do I Need to Know All of This

Hazardous waste regulations. . .

- Apply to all businesses, including municipalities, hospitals, and service industries, not just manufacturing industries
- Are written broadly to address hazards posed by all waste streams

Why Cover these Topics

Hazardous waste regulations require each business to. . .

- Properly label all containers of hazardous and liquid industrial waste
- Properly store all containers of hazardous and liquid industrial waste to prevent the escape of any constituents into the environment

Why Cover these Topics

Proper accumulation and storage will. . .

- Prevent release to the environment
- Prevent costly clean up expenses

Waste Storage and Labeling

- **Act 451, Michigan Natural Resource and Environmental Protection Act**
 - **Part 111, Hazardous Waste**
 - **Part 121, Liquid Industrial Waste**
 - **Part 115, Solid Waste**
 - **Part 169, Scrap Tires**
- **Act 368, Michigan Public Health Code**
 - **Part 138, Medical Waste Regulatory Act**
 - **Part 2 Ionizing Radiation Rules**
- **Federal Toxic Substance Control Act**



Conditionally Exempt Small Quantity Generators (CESQG) (MAC R 299.9205)¹

- Accumulation area must be protected from weather, fire, physical damage, and vandals
- Waste must be accumulated so that constituents cannot escape by gravity into soil (directly or indirectly), into surface water or ground water, into drains or sewers, or to the air in violation of Part 55



Small Quantity Generators (MAC R 299.9306(4))

Containers must:

- Be labeled “Hazardous Waste”
- Have accumulation date (visible)
- Have hazardous waste numbers
- Be in good condition



¹ MAC is the “Michigan Administrative Code” reference for the rule, so MAC R 299.9302 is Rule 302 of the Part 111 Rules.

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- Be stored closed
- Be handled and stored to prevent leaks
- Be inspected weekly
- Be compatible with the waste
- Not contain incompatible wastes
- Be separated from each other if incompatibles
- Be washed if they previously held incompatibles
- Have secondary containment if > 1000 kg (2,200 lbs.) or ~ 5 drums

Large Quantity Generators (MAC R 299.9306(1))

Containers must:

- Be labeled “Hazardous Waste”
- Have accumulation date (visible)
- Have hazardous waste number(s)
- Be in good condition
- Be stored closed
- Be handled and stored to prevent leaks
- Be stored 50 feet from property line if ignitable and/or reactive (written local fire department approval required if less than 50 feet)
- Be inspected weekly
- Inspections must be documented (kept on-site 3 years)
- Not contain incompatible wastes
- Be separated from each other if holding incompatibles
- Be washed if previously holding incompatibles
- Have secondary containment



Generator Accumulation/Storage Time Frames (MAC R 299.9306(1) and (4))

SQGs -

- Generate > 220lbs and < 2200 lbs. non-acute monthly and < 2.2 lbs. acute or severely toxic monthly
- Accumulate/store not more than 13,200 lbs. at any time
- **Store 180 days or less**

LQGs -

- Generate \geq 2200 lbs. non-acute monthly and/or \geq 2.2 lbs. acute or severely toxic monthly
- Accumulate/store > 13,200 lbs. non-acute and/or > 2.2 lbs. acute or severely toxic at any time
- **Store 90 days or less**

Secondary Containment (MAC R 299.9306(1) and (4))

SQGs > 2,200 lbs. non-acute –

- Part 111, Rule 306(4)(b) refers to 40 CFR 264.175

LQGs -

- Part 111, Rule 306(1)(a) refers to 40 CFR 264.175

} Note requirements are the same!



Secondary Containment (MAC R 299.9306)

Secondary Containment must:

- Have an impervious base free of cracks
- Be sloped or otherwise designed to elevate/protect containers from liquids
- Hold 10% of total container volume or volume of the largest container whichever is greater
- Prevent run on-on unless of sufficient capacity
- Have accumulated liquids removed to prevent over-flow



Satellite Containers (MAC R 299.9306(2))

Must be accumulated at or near the point of generation and containers must:

- Be < 55 gallons of non-acute hazardous waste (all types/containers combined)
- Be < 1 quart of acutely/severely toxic hazardous waste

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- Be under the control of the operator
- Be labeled “Hazardous Waste”
- Be labeled with either the hazardous waste number(s) or chemical name

Containers must be:

- In good condition
- Compatible with the waste in them
- Closed when not in use
- Marked with the accumulation date and moved to storage area within 3 days of exceeding 55 gallons
non-acute or 1 qt. severely/acutely toxic hazardous waste
- Managed to prevent leaks



Academic Laboratories

- New rule adopted in Michigan on 11/5/13
- Rule 313, and the corresponding federal regulations under 40 CFR 262.200
- Applies to colleges, universities, or college - university affiliated teaching hospitals and non-profit research institutes
- Allows academic entities to decide when & where on-site hazardous waste determinations are made
- Requires hazardous waste determinations to be made by trained professionals (not students)
- Requires development of a lab management plan
- Requires hazardous waste to be removed every six months
- Unused hazardous wastes generated during once/year lab clean-out are not counted towards generator status
- See [EPA table](#) comparing academic lab rule requirements to satellite accumulation requirements

Liquid Industrial Waste (MCL 324.12113(1) and (2))

- No labeling requirements
- All vehicles, containers and tanks must be closed or covered, except when adding or removing waste, to prevent escape of liquid industrial waste
- Exteriors of vehicles, containers and tanks must be kept free of liquid industrial and its residues
- Liquid industrial waste must be managed to prevent discharge into soil, surface water or groundwater, drain or sewer

Used Oil (MAC R 299.9810(4) and 40 CFR 279.22(c))

- Labeled “Used Oil” if stored in a container or above ground storage tank
- Have fill pipes used to transfer used oil labeled “USED OIL”
- Only stored in containers or tanks
- Stored in containers in good condition with no visible signs of leaks
- Meet liquid industrial waste accumulation/storage requirements



Universal Waste Antifreeze (MAC R 299.9228(4))

Containers must be:

- Labeled “Universal Waste Antifreeze” or “Waste Antifreeze” or “Used Antifreeze”
- Kept closed
- Structurally sound and compatible with the contents
- Managed to prevent leaks or releases to environment

Universal Waste Batteries (MAC R 299.9228(4))

Containers must be:

- Labeled “Universal Waste Batteries” or “Waste Batteries” or “Used Batteries”
- Kept closed
- Structurally sound and compatible with the contents
- Managed to prevent leaks or releases to environment

Universal Waste Consumer Electronics (MAC R 299.9228(4))

Packaging must be:

- Labeled “Universal Waste Consumer Electronics” or “Universal Waste Electronics”

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- Managed to prevent breakage during normal handling conditions
- Additional resources are found at www.michigan.gov/electronicwaste

Universal Waste Electric Lamps (MAC R 299.9228(4))

Containers must be:

- Labeled “Universal Waste Electric Lamps” or “Waste Electric Lamps” or “Used Electric Lamps” (RULE CHANGE)
- Structurally sound and compatible with contents of lamps
- Managed to prevent breakage
- Kept closed



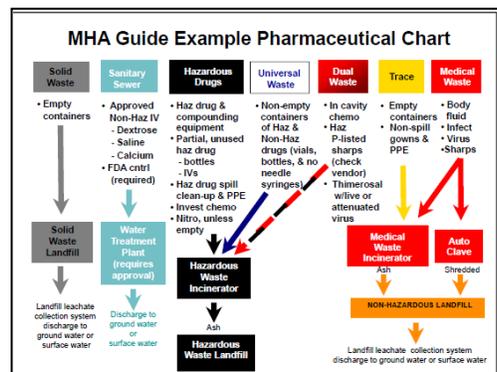
Universal Waste Mercury Devices (MAC R 299.9228(4))

Containers must be:

- Labeled “Universal Waste Thermostats” or “Waste Mercury Thermostats” or “Used Mercury Thermostats”
- Structurally sound, compatible with contents of device with no evidence of leakage or spillage
- Designed to prevent the escape of mercury

Universal Waste Pharmaceuticals (MAC R 299.9228(4))

- Must be managed to prevent release of any universal waste
- Packaging must be:
 - Structurally sound and compatible with contents
 - Lacking evidence of leakage, spillage, or breakage
 - Kept closed
- Recommend label “Universal Waste Pharmaceutical”
- Resources for healthcare are online at www.michigan.gov/deqhealthcare under “Waste Health Care Resources” including
 - [MHA Pharmaceutical Waste Management Guide](#)
 - [MHA Guide Example Posting](#)
 - [Pharmaceutical Waste Tutorial](#)
- Upcoming federal rule changes to be proposed this summer for hazardous waste pharmaceuticals



Universal Waste Pesticides (MAC R 299.9228(4))

Containers must be:

- Labeled “Universal Waste Pesticides” or “Waste Pesticides”
- Structurally sound and compatible with contents
- Free of evidence of leakage, spillage or damage
- Kept closed

Tank General Requirements (MAC R 299.9306 and 40 CFR 265, Subparts J and I)

Tanks must:

- Be labeled “Hazardous Waste”
- Be marked with accumulation date
- Not contain wastes which could cause rupture, leaks, corrosion or other failures
- Be managed to prevent reactions that would threaten human health and the environment
- Be decontaminated (washed) if they previously held incompatible waste before adding waste

Tank Requirements for Ignitable and Reactive Waste (MAC R 299.9306 and 40 CFR 265.198)

Tanks must:

- Treated /mixed so that resulting mixture is no longer ignitable or reactive and does not cause structural damage to the tank
- Stored/treated so it is protected from igniting or reacting NOTE: Generator must observe the National Fire Protection Association’s buffer zone for tanks with ignitable or reactive wastes

Tank Controls and Practices to Prevent Spills and Overflows (MAC R 299.9306 and 40 CFR 265.194)

Tanks must:

- Have spill prevention controls, overfill prevention controls

Uncovered tanks must:

- Have at least 2 feet of freeboard unless equipped with containment structure or with a drainage or diversion system

Tank Secondary Containment (MAC R 299.9306 and 40 CFR 265.193)

Above ground tanks must:

- Be paved, diked, or curbed or otherwise enclosed to contain not less than 100% of the largest tank
- Have 100% containment for each tank if waste is incompatible or the tanks are interconnected

Under-ground tanks must:

- Have secondary containment and a leachate withdrawal system
- Have a complete inventory of wastes done not less than twice a month
- Have leachate sampled at least annually

Tank Secondary Containment (MAC R 299.9306 and 40 CFR 265.193)

Secondary containment must:

- Be constructed of compatible material with sufficient strength
- Have an adequate foundation
- Have leak detection system which is able to detect leaks within 24 hours or earliest practical time
- Be sloped and/or drained so that all liquid is removed within 24 hours or earliest practical time

Tank Secondary Containment (MAC R 299.9306 and 40 CFR 265.193)

Secondary containment must include:

- A liner
- A vault system
- Or a double walled tank

Tank ancillary equipment must have full secondary containment also!!!

Tank Secondary Containment (MAC R 299.9306 and 40 CFR 265.193)

Secondary containment liner must:

- Have a 100% capacity of the largest tank
- Prevent run-on or infiltration of precipitation unless has excess capacity
- Be free of cracks or gaps
- Must cover any area that waste may come in contact with if released
- Be constructed with chemical resistant stops if cement
- Have an impermeable, compatible interior coating if cement

Tank Secondary Containment (MAC R 299.9306 and 40 CFR 265.193)

Vault system must:

- Have 100% capacity of the largest tank within its boundary
- Prevent run-on or infiltration of precipitation
- Be constructed with chemical resistant water stops in all joints
- Have a compatible impermeable interior coating
- Provide against vapor formation and ignition if storing ignitable or reactive waste
- Have an exterior moisture barrier

Tank Inspection Requirements (MAC R 299.9306(1) and 40 CFR 265.195)

Inspect each day (if present) or weekly if leaks are determined promptly either through detection systems or work practice (must be documented in facility operating record):

- Discharge, overflow/spill control equipment
- Monitoring equipment data
- Above ground portion of tank system (e.g., materials and area around tank)
- All tank inspections must be documented and all documents must be kept for at least 3 years.

Tank Inspection Requirements – Additional In-ground Tanks

Inspect cathodic protection for in-ground tanks (if present):

- Within six months after initial installation, annually after that
- Impressed current at least bimonthly

Tank Inspection Records

- All tank inspections must be documented and all documents must be kept for at least 3 years.

Tank Certification

Must obtain a written assessment that is reviewed and certified by a qualified professional engineer that includes:

- Design standards
- Hazard characteristics of the waste
- Determination performed by corrosion expert if the external shell of a metal tank is in contact with soil or water
- Design considerations if tank is affected by vehicles
- Professional engineer written certification must be kept on file at facility!



Subpart CC Rules – What Are They

- U.S. EPA rules for controlling certain air emissions
- Part 111, MAC 299.9306(1) and R 299.9634 adopt by reference 40 CFR Part 264, Subpart CC requirements
- Certain LQGs and TSDs are subject to one of 3 different sets of requirements for containers under Subpart CC

Subpart CC Rules – What Are They

Container requirements depend on:

- the size of container
- the organic content of the waste placed in the container
- whether or not waste stabilization occurs in container

Subpart CC Rules – What Are They

TSDs as well as certain LQGs must comply with Subpart CC if they:

- generate a hazardous waste which has an average volatile organic (VO) concentration > 500 parts per million by weight (ppmw) at the point of waste origination and
- it is stored in containers larger than ~ 26 gallons
- SQGs are exempt from Subpart CC

Subpart CC Exemptions

- Wastewater treatment units
- Elementary neutralization units
- Emergency or spill management units
- Waste recycling units
- Satellite accumulation units
- RCRA empty containers
- If organic content is reduced prior to waste being placed in container

Subpart CC Records

Required records include the following for hazardous waste < 500 ppmw

- Test Results
- Date, time, and location of sampling for EACH hazardous waste
- Measurements
- Calculations
- Other documentation
- Records verifying Subpart CC exemption must be maintained on-site and reviewed/updated at least once every twelve months or when the waste changes, whichever is shorter

Subpart CC (MAC R 299.9306(1) and 40 CFR 265.1081)

“LIGHT LIQUID SERVICE” means:

- Vapor pressure of one or more of the organic constituents is > 0.3 kilopascals at 20 degrees Celsius and the total concentration of organic constituents is equal to or greater than 20 percent by weight

Subpart CC Container Levels

Level 1 –

- 26 to 122 gallon capacity in light liquid service

Level 2 –

- >122 gallon capacity
- In light liquid service

Level 3 –

- Waste stabilization unit

Subpart CC Container Requirements

Level 1 Container (MAC R 299.9306(1) and 40 CFR 265.1087(c))

- DOT approved
- Covers and closure devices for all openings
- Open top with organic vapor suppressing barrier

Level 2 Container (MAC R 299.9306(1) and 40 CFR 265.1087(d))

- DOT approved
- Vapor tight or operated with no detectable emissions

Level 3 Container (MAC R 299.9306(1) and 40 CFR 265.1087(d))

- Vented (or located in enclosure that is vented) through closed vent system to a control device

Subpart CC Tank Defined (MAC R 299.9306(1) and 40 CFR 265.1084)

Level 1 tank

- < 20,000 gal with Vapor Pressure < 11.1 psi
- 20,000 – 40,000 gal with Vapor Pressure < 4 psi
- > 40,000 gal with Vapor Pressure < .75 psi
- Not used to heat hazardous waste
- Not used as a waste stabilization unit

Subpart CC Tank Requirements (MAC R 299.9306(1) and 40 CFR 265.1084(c))

Level 1 tank must:

- Have fixed roof
- Have any and all openings in roof equipped with closure device or connected by a closed vent system that is vented to a control device
- Have initial inspection and then once each year thereafter (some exceptions to this)
-

Subpart CC Tank Levels (MAC R 299.9306(1) and 40 CFR 265.1084)

Level 2 tank

- < 20,000 gal with Vapor Pressure > 11.1 psi
- 20,000 – 40,000 gal with Vapor Pressure > 4 psi
- > 40,000 gal with Vapor Pressure > .75 psi
- Used to heat hazardous waste
- Used as a waste stabilization unit

Subpart CC Tank Requirements (MAC R 299.9306(1) 40 CFR 265.1085(d))

Level 2 tank must:

- Have an external floating roof or
- Have an internal floating roof if fixed-roof or
- Vent to control device or
- Be a pressure tank or
- Vent to an enclosed combustion device

Subpart CC Tank Requirements

- All tanks subject to Subpart CC control requirements must be inspected
- Inspection procedures and requirements vary by type of tank
- Records of all inspections regardless of the tank control level must be kept at the facility for a minimum of 3 years after the date of the inspection
- More detailed record keeping and inspection requirements are required for floating roof tanks and tanks or enclosures which vent to a control device

Closed Container – What Is It

- Regulations do not define “closed container”
- Requiring containers to be closed is a means to minimize emissions of volatile wastes, to protect ignitable or reactive wastes from sources of ignition or reaction, to prevent spills, reduce the potential for mixing of incompatible wastes and reduce direct contact of personnel with waste

Closed Container – Liquid Hazardous Waste

For containers in storage:

- Cover secured with snap rings bolted
- Bung holes capped
- If needed, pressure-vacuum relief valve to avoid explosions

For containers in satellite accumulation:

- Lids properly affixed to prevent spills
- Funnels with manual or spring-loaded lids or tightly screwed into bung hole with a one-way valve



Closed Container - Solid Hazardous Waste

- Container is closed if there is complete contact between the lid and the rim all around the top of the container
- If continuously receiving wastes, containers should be capable of catching and retaining all of the material

Need Help?

- Go to www.michigan.gov/deq and select “Waste”
- Contact the DEQ Environmental Assistance Center at 800-662-9278 (800-NO2-WASTE)
- Go to www.epa.gov/wastes/hazard/downloads/tool.pdf
- Contact DEQ district waste inspection staff
- Contact hazardous waste vendors
- Contact waste consultants

