CHAPTER 7045
MINNESOTA POLLUTION CONTROL AGENCY
SOLID AND HAZARDOUS WASTE DIVISION
HAZARDOUS WASTE

7045.0020 DEFINITIONS.

[For text of subps 1 to 6, see M R. 1985]

Subp. 6a. **Boiler.** "Boiler" means an enclosed device using controlled flame combustion and having the characteristics specified in item A or B

A. (1) The unit must have physical provisions for recovering and exporting thermal energy in the form of steam, heated fluid, or heated gases.

(2) The unit's combustion chamber and primary energy recovery sections must be of integral design (physically formed into one manufactured or assembled unit). A unit in which the combustion chamber and the primary energy recovery sections are joined only by ducts or connections carrying flue gas is not integrally designed, secondary energy recovery equipment (such as air preheaters or economizers) need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section Process heaters which transfer energy directly to a process stream and fluidized bed combustion units are not precluded from being considered boilers under this definition solely because they are not of integral design

(3) While in operation, the unit must maintain a thermal energy efficiency of at least 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel

(4) The unit must export and utilize at least 75 percent of the recovered energy, calculated on an annual basis. No credit shall be given for recovered heat used internally in the same unit for purposes such as preheating fuel or combustion air or the driving of induced or forced draft fans or feedwater pumps.

B The unit is one which the director has determined meets the criteria for a boiler after considering the standards in part 7045.0075, subpart 4.

Subp 6b. **By-product.** "By-product" means a material that is not one of the primary products of a production process and is not solely or separately produced by the production process. Examples are process residues such as slags or distillation column bottoms.

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[For text of subps 7 to 14, see M.R. 1985]

Subp. 15. **Designated facility.** "Designated facility" means a hazardous waste treatment, storage, or disposal facility which:

A. (1) has received interim status;

(2) has received an agency permit,

(3) is subject to the requirements of part 7045.0125, subpart 5, 6, or 10, or subpart 9, item B, or part 7045.0685; or

(4) if located outside Minnesota, has been exempted from the requirements to obtain a permit by the United States Environmental Protection Agency; has either received an Environmental Protection Agency permit or a permit from an authorized state, or has interim status; and

B. has been designated on the manifest by the generator pursuant to part 7045.0261, or has been designated on a shipping paper or management plan required by part 7045.0125.

[For text of subps 16 and 17, see M.R 1985]

Subp. 18. **Discarded.** "Discarded" means abandoned by being:

A. disposed of;

B. burned or incinerated; or

C. accumulated, stored, or treated, but not recycled, before or in lieu of being disposed of, burned, or incinerated.

[For text of subps 19 to 34, see M.R. 1985]

Subp. 35. **Hazardous waste incinerator.** "Hazardous waste incinerator" means an enclosed device using controlled flame combustion, a purpose of which is to thermally break down hazardous waste and that neither meets the criteria for classification as a boiler nor is listed or can be classified as an industrial furnace.

[For text of subps 36 to 43, see M.R 1985]

Subp. 43a. **Industrial furnace.** "Industrial furnace" means any of the following enclosed devices that are integral components of manufacturing processes and that use controlled flame devices to accomplish recovery of materials or energy: cement kilns; lime kilns; aggregate kilns; phosphate kilns; coke ovens; blast furnaces; smelting, melting, and refining furnaces, including pyrometallurgical devices, such as cupolas, reverberator furnaces, sintering machines, roasters, and foundry furnaces; titanium dioxide chloride process oxidation reactors; methane reforming furnaces; pulping liquor recovery furnaces; combustion devices used in the recovery of sulfur values from spent sulfuric acid; and such other devices as the director determines qualify for inclusion based on one or more of the following factors:

A. the design and use of the device primarily to accomplish recovery of material products;

B. the use of the device to burn or reduce raw materials to make a material product;

C. the use of the device to burn or reduce secondary materials as effective substitutes for raw materials, in processes using raw materials as feedstocks;

D. the use of the device to burn or reduce secondary materials as ingredients in an industrial process to make a material product; or

E. the use of the device in common industrial practice to produce a material product.

[For text of subps 44 to 62, see M R 1985]

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Subp. 63. **Other waste material.** "Other waste material" means any solid, liquid, semi-solid, or gaseous material, resulting from industrial, commercial, mining, or agricultural operations, or from community activities, and which:

A. is discarded or is being accumulated, stored, or physically, chemically, or biologically treated prior to being discarded; or

B. is recycled or is accumulated, stored, or treated prior to being recycled, or

C. is a spent material or by-product.

[For text of subps 64 to 68, see M R 1985]

Subp. 69. [Repealed, 10 SR 1688]

[For text of subps 70 to 73, see M R 1985]

Subp. 73a. **Reclamation.** "Reclamation" means the processing or regeneration of a waste to recover a useable product. Examples are the recovery of lead values from spent batteries and regeneration of spent solvents.

Subp 73b. **Recycle.** "Recycle" means the reclamation, reuse, or use of a hazardous waste.

[For text of subps 74 and 75, see M R 1985]

Subp. 75a. **Reuse.** "Reuse" means employing a waste as an ingredient in an industrial process to make a product or as an effective substitute for a commercial product, provided that distinct components of the waste are not recovered as end products.

[For text of subps 76 to 79, see M.R 1985]

Subp. 79a. **Scrap metal.** "Scrap metal" means bits and pieces of metal parts (for example, bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (for example, radiators, scrap automobiles, railroad box cars) which when worn or superfluous can be recycled.

[For text of subps 80 to 84, see M.R 1985]

Subp. 84a. **Speculative accumulation.** "Speculative accumulation" means accumulation of a hazardous waste before it is recycled. Speculative accumulation does not include accumulation of a waste if there is a feasible method of recycling for the waste and at least 75 percent by volume or weight of the waste is recycled during a calendar year. The 75 percent requirement applies to each waste of the same type that is recycled in the same way.

Subp. 84b. **Spent material.** "Spent material" means a material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing.

[For text of subps 85 to 100, see M R 1985]

Subp. 100a. **Used oil.** "Used oil" means any oil which has been refined from crude oil, used, and as a result of such use has become contaminated by physical or chemical impurities.

[For text of subps 101 to 108, see M.R 1985]

Statutory Authority: *MS s 116 07 subd 4*

History: *10 SR 1688*

7045.0065 AVAILABILITY OF REFERENCES.

The documents referred to in this chapter may be obtained by contacting the appropriate offices as listed in this part.

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[For text of items A to F, see M R 1985]

G. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, publication number SW 846, as amended, of the Office of Solid Waste, United States Environmental Protection Agency, 401 M Street S.W., Washington, D.C. 20460, available at the state of Minnesota Law Library and by subscription from the Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402, (202) 783-3238; and

[For text of item H, see M.R. 1985]

Statutory Authority: *MS s 116 07 subd 4*

History: *10 SR 1688*

7045.0075 PETITIONS.

[For text of subps 1 and 2, see M.R. 1985]

Subp. 3. **Petition for reduced regulation of hazardous waste being speculatively accumulated or reclaimed prior to use.** The agency may, upon presentation of a petition for those purposes, reduce any of the requirements of chapter 7045 applicable to reclamation, reuse, or recycling. The agency shall apply the standards and criteria set forth below in determining whether to grant a petition to reduce the regulatory requirements for the following recycled hazardous wastes.

A. Any person seeking a reduction in regulation of hazardous wastes that are accumulated speculatively as defined in part 7045.0020 without sufficient amounts being recycled as defined in part 7045.0020 may petition under this subpart. The petitioner must demonstrate to the satisfaction of the agency that sufficient amounts will be recycled or transferred for recycling in the following year. Such a reduction in regulation is valid only for the following year, but may be renewed on an annual basis by filing a new petition. The agency's decision to grant the petition shall be based on the following standards and criteria:

(1) the manner in which the hazardous waste is to be recycled, when the waste is expected to be recycled, and whether the expected disposition is likely to be affected by past practice, market factors, the nature of the hazardous waste, or contractual arrangements for recycling;

(2) the reason that the applicant has accumulated the hazardous waste for one or more years without recycling 75 percent of the volume accumulated at the beginning of the previous year;

(3) the quantity of the hazardous waste already accumulated and the quantity expected to be generated and accumulated before the hazardous waste is recycled;

(4) the extent to which the hazardous waste is handled to minimize loss; and

(5) any additional information the director may reasonably request which may be required to evaluate the petition.

B. Any person seeking a reduction m regulation of hazardous wastes that are reclaimed and then reused as feedstock within the original primary production process in which the hazardous wastes were generated if the reclamation is an essential part of the production process may petition under these provisions. The agency's decision regarding the petition shall be based on the following standards and criteria:

(1) how economically viable the production process would be if it were to use virgin materials rather than the reclaimed hazardous waste;

(2) the prevalence of the practice on an industry-wide basis;

(3) the extent to which the hazardous waste is handled before reclamation to minimize loss,

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(4) the time periods between generating the hazardous waste and its reclamation, and between reclamation and return to the original primary production process,

(5) the location of the reclamation operation in relation to the production process,

(6) whether the hazardous waste as reclaimed is used for the purpose for which it was originally produced when it is returned to the original process, and whether it is returned to the process in substantially its original form;

(7) whether the person who generates the hazardous waste also reclaims it; and

(8) any additional information the director may reasonably request which may be required to evaluate the petition.

C. Any person seeking a reduction in regulation of hazardous waste that has been reclaimed but must be reclaimed further before recovery is completed if, after initial reclamation, the resulting material is used like a commodity, may petition under this subpart. The agency's decision to grant the petition shall be based on the following standards and criteria:

(1) the degree of processing the hazardous waste has undergone and the degree of further processing that is required;

(2) the value of the hazardous waste after it has been reclaimed;

(3) the degree to which the reclaimed hazardous waste is like an analogous raw material,

(4) the extent to which an end market for the reclaimed hazardous waste is guaranteed,

(5) the extent to which the reclaimed hazardous waste is handled to minimize loss; and

(6) any additional information the director may reasonably request that may be required to evaluate the petition.

Subp. 4. **Petition to be classified as a boiler.** In accordance with the definition of boiler in part 7045.0020, the director may determine that certain enclosed devices using controlled flame combustion are boilers, although they do not otherwise meet the definition of boiler, based on the following standards and criteria:

A. the extent to which the unit has provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases,

B. the extent to which the combustion chamber and energy recovery equipment are of integral design;

C. the efficiency of energy recovery, calculated in terms of the recovered energy compared with the thermal value of fuel,

D. the extent to which the exported energy is utilized;

E. the extent to which the device is in common and customary use as a "boiler" functioning to produce steam, heated fluids, or heated gases, and

F. any additional information the director may reasonably request which may be required to evaluate the petition.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1688*

7045.0120 EXEMPT WASTES.

The following wastes may be stored, labeled, transported, treated, processed, and disposed of without complying with the requirements of this chapter

[For text of items A to L, see M R 1985]

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M. used oil which does not contain waste listed in part 7045.0135 and is to be recycled;

[For text of item N, see M.R. 1985]

O. pulping liquors (for example, black liquor) that are reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, unless they are accumulated speculatively as defined in part 7045.0020; or

P. spent sulfuric acid used to produce virgin sulfuric acid, unless it is accumulated speculatively as defined in part 7045.0020.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1688*

7045.0125 MANAGEMENT OF WASTE BY USE, REUSE, RECYCLING, AND RECLAMATION.

Subpart 1. **Scope.** This part regulates hazardous waste that is to be recycled except for use constituting disposal as provided in part 7045.0665, hazardous waste utilized for precious metals recovery as provided in part 7045.0675; or spent lead-acid batteries being reclaimed as provided in part 7045.0685.

Subp. 2. [Repealed, 10 SR 1688]

[For text of subp 3, see M.R. 1985]

Subp. 4. **Management of specific hazardous wastes.** Management of the following wastes when recycled, is not subject to regulation under parts 7045.0205 to 7045.0685: industrial ethyl alcohol that is reclaimed; used batteries or used battery cells returned to a battery manufacturer for regeneration; and scrap metal.

Subp. 5. **Requirements for use of hazardous wastes as feedstock.**

A. Except as provided in items B to D, hazardous wastes that are shown to be recycled by being utilized in a manner specified in subitems (1) to (3), are not subject to regulation under parts 7045.0205 to 7045.0685. This subpart does not apply to wastes being accumulated speculatively as defined in part 7045.0020, or being managed by use constituting disposal, or burning for energy recovery, as regulated under part 7045.0665, or subpart 10. Hazardous wastes are considered to be used as feedstock if they are:

(1) used or reused as ingredients in an industrial process to make a product, provided the hazardous wastes are not being reclaimed;

(2) used or reused as effective substitutes for commercial products; or

(3) returned to the original process from which they are generated, without first being reclaimed. The hazardous waste must be returned as a substitute for raw material feedstock, and the process must use raw materials as principal feedstocks.

B. Generators of hazardous wastes for use as feedstock are subject to the following requirements:

(1) parts 7045.0214 to 7045.0217;

(2) parts 7045.0220 to 7045.0249;

(3) part 7045.0296, subpart 5;

(4) within 45 days of shipment, the generator must provide the director a copy of the shipping papers confirming that the hazardous waste was delivered to the designated facility as indicated in the management plan; and

(5) the generator must keep records showing: the volume of these wastes stored at the beginning of the calendar year; the amount of these hazardous wastes generated during the calendar year; the amount of these hazardous

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wastes used as a feedstock during the calendar year; and the amount of these hazardous wastes remaining at the end of the calendar year.

C. Transporters of hazardous wastes for use as feedstock must comply with all applicable requirements of Minnesota Statutes, section 221.033, and Code of Federal Regulations, title 49, parts 171 to 179.

D. Owners or operators of facilities that manage hazardous wastes for use as feedstock are subject to the following requirements:

(1) prior to receiving the waste, as a designated facility, the owner or operator must provide the director with written evidence to document that the hazardous waste is used as specified in item A and that the facility has the equipment necessary to manage the hazardous waste; and

(2) the owner or operator must keep records showing: the volume of these hazardous wastes stored at the beginning of the calendar year; the amount of these wastes received during the calendar year; the amount of these hazardous wastes used as a feedstock during the calendar year; and the amount of these hazardous wastes remaining at the end of the calendar year.

Subp. 6. **Requirements for reclamation of specific hazardous wastes.**

A. A by-product or a sludge that is hazardous only because it exhibits a characteristic of hazardous waste and is reclaimed is subject to the following requirements:

(1) Generators of such a hazardous waste are subject to regulation under parts 7045.0214 to 7045.0217; 7045.0220 to 7045.0255; and 7045.0296, subpart 5. In addition, within 45 days of shipment the generator must provide the director a copy of the shipping papers confirming that the waste was delivered to the designated facility as indicated in the management plan. The generator must keep records showing: the volume of such hazardous wastes stored at the beginning of the calendar year; the amount of these wastes generated during the calendar year; the amount of such waste reclaimed during the calendar year; and the amount of such hazardous wastes remaining at the end of the calendar year.

(2) Transporters of such a hazardous waste must comply with all applicable requirements of Minnesota Statutes, section 221.033, and Code of Federal Regulations, title 49, parts 171 to 179.

(3) Owners or operators of designated facilities receiving a hazardous characteristic by-product or sludge must provide written evidence to the director prior to receiving such hazardous waste that the owner or operator has the equipment and capability to reclaim such hazardous waste, and must keep records showing: the volumes of such hazardous waste stored at the beginning of the year; the amount of such hazardous waste received during the calendar year; the amount of such hazardous waste reclaimed during the calendar year; and the amount of such hazardous waste remaining at the end of the calendar year.

B. This subpart does not apply to hazardous wastes being accumulated speculatively as defined in part 7045.0020 or being managed by use constituting disposal, as regulated under part 7045.0665 or being burned for energy recovery under subpart 10.

Subp. 7. **Generator requirements.** Except as provided in subpart 4, 5, 6, or 10, generators of hazardous waste destined for recycle, are subject to the requirements of parts 7045.0205 to 7045.0304.

Subp. 8. **Transporter requirements.** Except as provided in subpart 4, 5, 6, or 10, transporters of hazardous waste destined for recycle are subject to the requirements of parts 7045.0351 to 7045.0397.

Subp. 9. **Facility requirements.** Except as provided in subpart 4, 5, 6, or 10, owners or operators of facilities which recycle hazardous waste are subject to the following requirements:

A. If the recyclable hazardous waste is stored before it is recycled, the

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owners or operators are subject to the requirements of parts 7045.0450 to 7045.0534, 7045.0552 to 7045.0632, and chapter 7001.

B. If the recyclable hazardous waste is recycled without storing before recycling, the owners or operators are subject to the requirements of parts 7045.0556, subpart 2; 7045.0580, and 7045.0582.

Subp. 10. **Hazardous waste which is beneficially used by burning.** Hazardous waste that is transported or stored prior to a beneficial use by burning is subject to regulation under the following:

A. A waste that is hazardous solely due to ignitability and is transported or stored prior to a beneficial use involving burning is subject to the agency's permitting procedures in chapter 7001 for hazardous waste storage facilities and the requirements of parts 7045.0205 to 7045.0534, 7045.0544, 7045.0552 to 7045.0632, and 7045.1000 to 7045.1030.

B. A hazardous waste that is a sludge, or is or contains a waste listed in part 7045.0135 for reasons other than ignitability, or is or contains a waste that is toxic under part 7045.0131, subpart 6, and is transported or stored prior to a beneficial use involving burning is subject to the agency's permitting procedures in chapter 7001 for hazardous waste storage facilities and the following requirements: parts 7045.0205 to 7045.0534; 7045.0544; 7045.0542, except subpart 4, item C, and subpart 7, item A, subitem (2), 7045.0552 to 7045.0632; 7045.0640; and 7045.1000 to 7045.1030; and must apply for or have an air quality facility permit as required.

Statutory Authority: *MS s 116.07 subd 4*

History: *9 SR 2613; 10 SR 1688*

7045.0127 RESIDUES IN EMPTY CONTAINERS AND EMPTY INNER LINERS.

[For text of subpart 1, see M.R. 1985]

Subp. 2. **Empty containers or inner liners; definition.** A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste in part 7045.0135, subpart 2, 3, or 4, item E, is empty if:

[For text of subp 2, items A to D, see M R. 1985]

Subp. 3. **Other empty containers or inner liners.** A container or inner liner that has held an acute hazardous waste identified in part 7045 0135, subpart 2, 3, or 4, item E is empty if:

[For text of subp 3, items A to C, see M.R. 1985]

[For text of subp 4, see M R 1985]

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1212*

7045.0135 LISTS OF HAZARDOUS WASTES.

Subpart 1. **General.** A waste is a hazardous waste if it is listed under subparts 2 to 5 unless it has been excluded from the list under part 7045.0075, subpart 2.

The basis for listing the classes or types of wastes listed in subparts 2 to 5 is indicated by employing one or more of the following hazard codes:

A. ignitable waste, (I);

B. corrosive waste, (C);

C. reactive waste, (R);

D. EP toxic waste, (E);

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E. acute hazardous waste, (H); and

F. toxic waste, (T).

The constituent which caused the agency to list the waste as an EP toxic waste (E) or toxic waste (T) in subparts 2 and 3 is identified in part 7045.0139.

Each listed hazardous waste is assigned a hazardous waste number which precedes the name of the waste. This number must be used in complying with the disclosure requirements of parts 7045.0205 to 7045.0304 and certain record keeping and reporting requirements under parts 7045.0205 to 7045.1030 and the agency's permitting procedures in chapter 7001.

The following hazardous wastes listed in subparts 2 and 3 are subject to the exclusion limits for acutely hazardous wastes established in part 7045.0219: Hazardous Waste Numbers F020, F021, F022, F023, F026, and F027.

Subp. 2. **Hazardous wastes from nonspecific sources.** Hazardous wastes from nonspecific sources are listed as follows:

Hazardous Waste No.	Hazardous Waste	Hazard Code
Generic:		
F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons, and sludges from the recovery of these solvents in degreasing operations	(T)
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, and trichlorofluoromethane, and the still bottoms from the recovery of these solvents	(T)
F003	The following spent nonhalogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol, and the still bottoms from the recovery of these solvents	(I)
F004	The following spent nonhalogenated solvents: cresols and cresylic acid, and nitrobenzene, and the still bottoms from the recovery of these solvents	(T)
F005	The following spent nonhalogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, and pyridine, and the still bottoms from the recovery of these solvents	(I,T)
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum, (2) tin plating on carbon steel, (3) zinc plating (segregated basis) on carbon steel, (4) aluminum or zinc-aluminum plating on carbon steel, (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel, and (6) chemical etching and milling of aluminum	(T)
F007	Spent cyanide plating bath solutions from electroplating operations	(R,T)
F008	Plating bath sludges from the bottom of plating baths from electroplating operations where cyanides are used in the process	(R,T)

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F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used m the process	(R,T)
F010	Quenching bath residues from oil baths from metal heat-treating operations where cyanides are used m the process	(R,T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat-treating operations	(R,T)
F012	Quenching wastewater treatment sludges from metal heat-treating operations where cyanides are used in the process	(T)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum	(T)
F020	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production or manufacturing use as a reactant, chemical intermediate, or component in a formulating process of tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-tri-chlorophenol.	(H)
F021	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production or manufacturing use as a reactant, chemical intermediate, or component in a formulating process of pentachlorophenol, or of intermediates used to produce its derivatives.	(H)
F022	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the manufacturing use as a reactant, chemical intermediate, or component in a formulating process of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.	(H)
F023	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production of materials on equipment previously used for the production or manufacturing use as a reactant, chemical intermediate, or component in a formulating process of tri- and tetrachlorophenols. This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.	(H)
F024	Wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor cleanout wastes from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes. This does not include light ends, spent filters and filter aids, spent dessicants, wastewater, wastewater treatment sludges, and spent catalysts.	(T)
F026	Wastes, except wastewater and spent carbon from hydrogen chloride purification, from the production of materials on equipment previously used for the manufacturing use as a reactant, chemical intermediate, or component in a formulating process of tetra-, penta-, or hexachlorobenzene under	(H)

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	alkaline conditions.	
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.	(H)
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with hazardous waste Nos. F020, F021, F022, F023, F026, and F027.	(T)

[For text of subp 3, see M.R. 1985]

Subp. 4. **Discarded commercial chemical products, off-specification species, containers, and spill residues.** The following materials or items are hazardous wastes when they are discarded or intended to be discarded as defined in part 7045.0020, when they are burned for purposes of energy recovery in lieu of their original intended use, when they are used to produce fuels in lieu of their original intended use, when they are applied to the land in lieu of their original intended use, or when they are contained in products that are applied to the land in lieu of their original intended use.

[For text of subp 4, items A to D, see M.R. 1985]

E the commercial chemical products or manufacturing chemical intermediates, or off-specification commercial chemical products or manufacturing chemical intermediates referred to in items A to D and listed in the following table, are identified as acute hazardous wastes (H) and are subject to the small quantity exclusion defined in part 7045.0219, subpart 1, items B and C. The primary hazardous properties of these materials have been indicated by the letters T (toxicity), and R (reactivity). Absence of a letter indicates that the compound is listed only for acute toxicity. These wastes and their corresponding hazardous waste numbers are listed as follows:

Hazardous Wastes from Commercial Chemical Products

Hazardous Waste No.	Substance	Hazard Code
P023	Acetaldehyde, chloro-	
P002	Acetamide, N-(aminothioxomethyl)-	
P057	Acetamide, 2-fluoro-	
P058	Acetic acid, fluoro-, sodium salt	
P066	Acetimidic acid, N-[(methylcarbamoyl)oxy] thio-, methyl ester	
P001	3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin and salts when present at concentrations greater than 0.3 percent	
P002	1-Acetyl-2-thiourea	
P003	Acrolein	
P070	Aldicarb	
P004	Aldrin	
P005	Allyl alcohol	
P006	Aluminum phosphide	(R,T)
P007	5-(Aminomethyl)-3-isoxazolol	
P008	4-Aminopyridine	
P009	Ammonium picrate	(R)
P119	Ammonium vanadate	

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P010	Arsenic acid
P012	Arsenic (III) oxide
P011	Arsenic (V) oxide
P011	Arsenic pentoxide
P012	Arsenic trioxide
P038	Arsine, diethyl-
P054	Aziridine
P013	Barium cyanide
P024	Benzenamine, 4-chloro-
P077	Benzenamine, 4-nitro-
P028	Benzene, (chloromethyl)-
P042	1,2-Benzenediol, 4-[1-hydroxy-2-(methyl-amino)ethyl]-
P014	Benzenethiol
P028	Benzyl chloride
P015	Beryllium dust
P016	Bis(chloromethyl) ether
P017	Bromoacetone
P018	Brucine
P021	Calcium cyanide
P123	Camphene, octachloro-
P103	Carbamimidoselenoic acid
P022	Carbon bisulfide
P022	Carbon disulfide
P095	Carbonyl chloride
P033	Chlorine cyanide
P023	Chloroacetaldehyde
P024	p-Chloroaniline
P026	1-(o-Chlorophenyl)thiourea
P027	3-Chloropropionitrile
P029	Copper cyanides
P030	Cyanides (soluble cyanide salts), not elsewhere specified
P031	Cyanogen
P033	Cyanogen chloride
P036	Dichlorophenylarsine
P037	Dieldrin
P038	Diethylarsine
P039	O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate
P041	Diethyl-p-nitrophenyl phosphate
P040	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	Diisopropyl fluorophosphate
P044	Dimethoate
P045	3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino)carbonyl] oxime
P071	O,O-Dimethyl O-p-nitrophenyl phosphorothioate
P082	Dimethylnitrosamine
P046	alpha, alpha-Dimethylphenethylamine
P047	4,6-Dinitro-o-cresol and salts
P034	4,6-Dinitro-o-cyclohexylphenol
P048	2,4-Dinitrophenol
P020	Dinoseb
P085	Diphosphoramide, octamethyl-
P039	Disulfoton
P049	2,4-Dithiobiuret
P109	Dithiopyrophosphoric acid, tetraethyl ester
P050	Endosulfan
P088	Endothall

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P051	Endrin	
P042	Epinephrine	
P046	Ethanamine, 1,1-dimethyl-2-phenyl-	
P084	Ethenamine, N-methyl-N-nitroso-	
P101	Ethyl cyanide	
P054	Ethylemmine	
P097	Famphur	
P056	Fluorine	
P057	Fluoroacetamide	
P058	Fluoroacetic acid, sodium salt	
P065	Fulminic acid, mercury(II) salt	(R,T)
P059	Heptachlor	
P051	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,endo-1,4:5,8-dimethanonaphthalene	
P037	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,exo-1,4:5,8-dimethanonaphthalene	
P060	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,endo-dimethanonaphthalene	
P004	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,exo-dimethanonaphthalene	
P060	Hexachlorohexahydro-endo,endo-dimethanonaphthalene	
P062	Hexaethyl tetraphosphate	
P116	Hydrazinecarbothioamide	
P068	Hydrazine, methyl-	
P063	Hydrocyanic acid	
P063	Hydrogen cyanide	
P096	Hydrogen phosphide	
P064	Isocyanic acid, methyl ester	
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-	
P092	Mercury, (acetato-O)phenyl-	
P065	Mercury fulminate	(R,T)
P016	Methane, oxybis(chloro)-	
P112	Methane, tetranitro-	(R)
P118	Methanethiol, trichloro-	
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	
P066	Methomyl	
P067	2-Methylaziridine	
P068	Methyl hydrazine	
P064	Methyl isocyanate	
P069	2-Methyllactonitrile	
P071	Methyl parathion	
P072	alpha-Naphthylthiourea	
P073	Nickel carbonyl	
P074	Nickel cyanide	
P074	Nickel(II) cyanide	
P073	Nickel tetracarbonyl	
P075	Nicotine and salts	
P076	Nitric oxide	
P077	p-Nitroaniline	
P078	Nitrogen dioxide	
P076	Nitrogen(II) oxide	
P078	Nitrogen(IV) oxide	
P081	Nitroglycerine	(R)
P082	N-Nitrosodimethylamine	

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P084	N-Nitrosomethylvinylamine	
P050	5-Norbornene-2,3-dimethanol, 1,4,5,6,7,7-hexachloro, cyclic sulfite	
P085	Octamethylpyrophosphoramide	
P087	Osmium oxide	
P087	Osmium tetroxide	
P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	
P089	Parathion	
P034	Phenol, 2-cyclohexyl-4,6-dinitro-	
P048	Phenol, 2,4-dinitro-	
P047	Phenol, 2,4-dinitro-6-methyl-, and salts	
P020	Phenol, 2,4-dinitro-6-(1-methylpropyl)-	
P009	Phenol, 2,4,6-trinitro-, ammonium salt	(R)
P036	Phenyl dichloroarsine	
P092	Phenylmercuric acetate	
P093	N-Phenylthiourea	
P094	Phorate	
P095	Phosgene	
P096	Phosphine	
P041	Phosphoric acid, diethyl p-nitrophenyl ester	
P044	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl]ester	
P043	Phosphorofluoridic acid, bis(1-methylethyl) ester	
P094	Phosphorothioic acid, O,O-diethyl S-(ethylthio)methyl ester	
P089	Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl) ester	
P040	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	
P097	Phosphorothioic acid, O,O-dimethyl O-[p-((dimethylamino)-sulfonyl)phenyl]ester	
P110	Plumbane, tetraethyl-	
P098	Potassium cyanide	
P099	Potassium silver cyanide	
P070	Propanal, 2-methyl-2-(methylthio)-, O- [(methylamino)carbonyl]oxime	
P101	Propanenitrile	
P027	Propanenitrile, 3-chloro-	
P069	Propanenitrile, 2-hydroxy-2-methyl-	
P081	1,2,3-Propanetriol, trinitrate-	(R)
P017	2-Propanone, 1-bromo-	
P102	Propargyl alcohol	
P003	2-Propenal	
P005	2-Propen-1-ol	
P067	1,2-Propylenimine	
P102	2-Propyn-1-ol	
P008	4-Pyridmamine	
P075	Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts	
P111	Pyrophosphoric acid, tetraethyl ester	
P103	Selenourea	
P104	Silver cyanide	
P105	Sodium azide	
P106	Sodium cyanide	
P107	Strontium sulfide	
P108	Strychmdin-10-one, and salts	
P018	Strychnidin-10-one, 2,3-dimethoxy-	
P108	Strychnine and salts	

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P115	Sulfuric acid, thallium(I) salt	
P109	Tetraethyldithiopyrophosphate	
P110	Tetraethyl lead	
P111	Tetraethylpyrophosphate	
P112	Tetranitromethane	(R)
P062	Tetraphosphoric acid, hexaethyl ester	
P113	Thallic oxide	
P113	Thallium(III) oxide	
P114	Thallium(I) selenide	
P115	Thallium(I) sulfate	
P045	Thiofanox	
P049	Thioimidodicarbonic diamide	
P014	Thiophenol	
P116	Thiosemicarbazide	
P026	Thiourea, (2-chlorophenyl)-	
P072	Thiourea, 1-naphthalenyl-	
P093	Thiourea, phenyl-	
P123	Toxaphene	
P118	Trichloromethanethiol	
P119	Vanadic acid, ammonium salt	
P120	Vanadium pentoxide	
P120	Vanadium(V) oxide	
P001	Warfarin when present at concentrations greater than 0.3 percent	
P121	Zinc cyanide	
P122	Zinc phosphide when present at concentrations greater than 10 percent	(R,T)

F. The commercial chemical products or manufacturing chemical intermediates, or off-specification commercial chemical products referred to in items A to D, and listed in the following table are identified as toxic wastes (T) unless otherwise designated and are subject to the small quantity exclusion defined in part 7045.0219, subpart 1, item A. The primary hazardous properties of these materials have been indicated by the letters T (toxicity), R (reactivity), I (ignitability), and C (corrosivity). Absence of a letter indicates that the compound is listed only for toxicity. These wastes and their corresponding hazardous waste numbers are listed as follows:

Hazardous Wastes from Commercial Chemical Products

Hazardous Waste No.	Substance	Hazard Code
U001	Acetaldehyde	(I)
U034	Acetaldehyde, trichloro-	
U187	Acetamide, N-(4-ethoxyphenyl)-	
U005	Acetamide, N-9H-fluoren-2-yl-	
U112	Acetic acid, ethyl ester	(I)
U144	Acetic acid, lead salt	
U214	Acetic acid, thallium(I) salt	
U002	Acetone	(I)
U003	Acetonitrile	(I,T)
U248	3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin and salts when present at concentrations of 0.3 percent or less	
U004	Acetophenone	
U005	2-Acetylaminofluorene	
U006	Acetyl chloride	(C,R,T)
U007	Acrylamide	

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U008	Acrylic acid	(I)
U009	Acrylonitrile	
U150	Alanine, 3-[p-bis(2-chloroethyl)amino] phenyl-,L-	
U011	Amitrole	
U012	Aniline	(I,T)
U014	Auramine	
U015	Azaserine	
U010	Azirino(2',3':3,4)pyrrolo(1,2-a)indole-4, 7-dione, 6-amino-8-[((aminocarbonyl) oxy)methyl]-1,1a,2,8,8a,8b-Hexahydro-8a-methoxy-5-methyl-,	
U157	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	
U016	Benz[c]acridine	
U016	3,4-Benzacridine	
U017	Benzal chloride	
U018	Benz[a]anthracene	
U018	1,2-Benzanthracene	
U094	1,2-Benzanthracene, 7,12-dimethyl-	
U012	Benzenamine	(I,T)
U014	Benzenamine, 4,4'-carbommidoylbis (N,N-dimethyl)-	
U049	Benzenamine, 4-chloro-2-methyl-	
U093	Benzenamme, N,N'-dimethyl-4-phenylazo-	
U158	Benzenamine, 4,4'-methylenebis (2-chloro)-	
U222	Benzenamine, 2-methyl-, hydrochloride	
U181	Benzenamine, 2-methyl-5-nitro	
U019	Benzene	(I,T)
U038	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy, ethyl ester	
U030	Benzene, 1-bromo-4-phenoxy-	
U037	Benzene, chloro-	
U190	1,2-Benzenedicarboxylic acid anhydride	
U028	1,2-Benzenedicarboxylic acid, [bis(2-ethyl-hexyl)] ester	
U069	1,2-Benzenedicarboxylic acid, dibutyl ester	
U088	1,2-Benzenedicarboxylic acid, diethyl ester	
U102	1,2-Benzenedicarboxylic acid, dimethyl ester	
U107	1,2-Benzenedicarboxylic acid, di-n-octyl ester	
U070	Benzene, 1,2-dichloro-	
U071	Benzene, 1,3-dichloro-	
U072	Benzene, 1,4-dichloro-	
U017	Benzene, (dichloromethyl)-	
U223	Benzene, 1,3-diisocyanatomethyl-	(R,T)
U239	Benzene, dimethyl-	(I,T)
U201	1,3-Benzenediol	
U127	Benzene, hexachloro-	
U056	Benzene, hexahydro-	(I)
U188	Benzene, hydroxy-	
U220	Benzene, methyl-	
U105	Benzene, 1-methyl-1-2,4-dimtro-	
U106	Benzene, 1-methyl-2,6 dinitro-	
U203	Benzene, 1,2-methylenedioxy-4-allyl-	
U141	Benzene, 1,2-methylenedioxy-4-propenyl-	
U090	Benzene, 1,2-methylenedioxy-4-propyl-	
U055	Benzene, (1-methylethyl)-	(I)
U169	Benzene, nitro-	(I,T)
U183	Benzene, pentachloro-	

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U185	Benzene, pentachloronitro-	
U020	Benzenesulfonic acid chloride	(C,R)
U020	Benzenesulfonyl chloride	(C,R)
U207	Benzene, 1,2,4,5-tetrachloro-	
U023	Benzene, (trichloromethyl)-	(C,R,T)
U234	Benzene, 1,3,5-trinitro-	(R,T)
U021	Benzidine	
U202	1,2-Benzisothiazolin-3-one,1,1-dioxide and salts	
U120	Benzo[j,k]fluorene	
U022	Benzo[a]pyrene	
U022	3,4-Benzopyrene	
U197	p-Benzoquinone	
U023	Benzotrichloride	(C,R,T)
U050	1,2-Benzphenanthrene	
U085	2,2'-Bioxirane	(I,T)
U021	(1,1'-Biphenyl)-4,4'-diamine	
U073	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-	
U091	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-	
U095	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-	
U024	Bis(2-chloroethoxy) methane	
U027	Bis(2-chloroisopropyl) ether	
U244	Bis(dimethylthiocarbamoyl) disulfide	
U028	Bis(2-ethylhexyl) phthalate	
U246	Bromine cyanide	
U225	Bromoform	
U030	4-Bromophenyl phenyl ether	
U128	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	
U172	1-Butanamine, N-butyl-N-nitroso-	
U035	Butanoic acid, 4-[bis(2-chloroethyl) ammo] benzene-	
U031	1-Butanol	(I)
U159	2-Butanone	(I,T)
U160	2-Butanone peroxide	(R,T)
U053	2-Butenal	
U074	2-Butene, 1,4-dichloro-	(I,T)
U031	n-Butyl alcohol	(I)
U136	Cacodylic acid	
U032	Calcium chromate	
U238	Carbamic acid, ethyl ester	
U178	Carbamic acid, methylnitroso-, ethyl ester	
U176	Carbamide, N-ethyl-N-nitroso-	
U177	Carbamide, N-methyl-N-nitroso-	
U219	Carbamide, thio-	
U097	Carbamoyl chloride, dimethyl-	
U215	Carbonic acid, dithallium(I) salt	
U156	Carbonochloridic acid, methyl ester	(I,T)
U033	Carbon oxyfluoride	(R,T)
U211	Carbon tetrachloride	
U033	Carbonyl fluoride	(R,T)
U034	Chloral	
U035	Chlorambucil	
U036	Chlordane, technical	
U026	Chlornaphazine	
U037	Chlorobenzene	
U039	4-Chloro-m-cresol	
U041	1-Chloro-2,3-epoxypropane	
U042	2-Chloroethyl vinyl ether	

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U044	Chloroform	
U046	Chloromethyl methyl ether	
U047	beta-Chloronaphthalene	
U048	o-Chlorophenol	
U049	4-Chloro-o-toluidine, hydrochloride	
U032	Chromic acid, calcium salt	
U050	Chrysene	
U051	Creosote	
U052	Cresols	
U052	Cresylic acid	
U053	Crotonaldehyde	
U055	Cumene	(I)
U246	Cyanogen bromide	
U197	1,4-Cyclohexadienedione	
U056	Cyclohexane	(I)
U057	Cyclohexanone	(I)
U130	1,3-Cyclopentadiene, 1,2,3,4,5, 5-hexachloro-	
U058	Cyclophosphamide	
U240	2,4-D, salts and esters	
U059	Daunomycin	
U060	DDD, 1,1-(2,2-dichloroethylidene)-bis-4-chlorobenzene	
U061	DDT, 1,1'-(2,2,2-trichloroethylidene)-bis -4-chlorobenzene	
U142	Decachlorooctahydro-1,3,4-metheno -2H-cyclobuta[c,d]-pentalen-2-one	
U062	Diallate	
U133	Diamine	(R,T)
U221	Diaminotoluene	
U063	Dibenz[a,h]anthracene	
U063	1,2:5,6-Dibenzanthracene	
U064	1,2:7,8-Dibenzopyrene	
U064	Dibenz[a,i]pyrene	
U066	1,2-Dibromo-3-chloropropane	
U069	Dibutyl phthalate	
U062	S-(2,3-Dichloroallyl) diisopropylthiocarbamate	
U070	o-Dichlorobenzene	
U071	m-Dichlorobenzene	
U072	p-Dichlorobenzene	
U073	3,3'-Dichlorobenzidine	
U074	1,4-Dichloro-2-butene	(I,T)
U075	Dichlorodifluoromethane	
U192	3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide	
U060	Dichloro diphenyl dichloroethane	
U061	Dichloro diphenyl trichloroethane	
U078	1,1-Dichloroethylene	
U079	1,2-Dichloroethylene	
U025	Dichloroethyl ether	
U081	2,4-Dichlorophenol	
U082	2,6-Dichlorophenol	
U240	2,4-Dichlorophenoxyacetic acid, salts and esters	
U083	1,2-Dichloropropane	
U084	1,3-Dichloropropene	
U085	1,2:3,4-Diepoxybutane	(I,T)
U108	1,4-Diethylene dioxide	
U086	N,N-Diethylhydrazine	

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U087	O,O-Diethyl-S-methyl-dithiophosphate	
U088	Diethyl phthalate	
U089	Diethylstilbestrol	
U148	1,2-Dihydro-3,6-pyridazinedione	
U090	Dihydrosafrole	
U091	3,3'-Dimethoxybenzidine	
U092	Dimethylamine	(I)
U093	Dimethylaminoazobenzene	
U094	7,12-Dimethylbenz[a]anthracene	
U095	3,3'-Dimethylbenzidine	
U096	alpha,alpha-Dimethylbenzylhydroperoxide	(R)
U097	Dimethylcarbamoyl chloride	
U098	1,1-Dimethylhydrazine	
U099	1,2-Dimethylhydrazine	
U101	2,4-Dimethylphenol	
U102	Dimethyl phthalate	
U103	Dimethyl sulfate	
U105	2,4-Dinitrotoluene	
U106	2,6-Dinitrotoluene	
U107	Di-n-octyl phthalate	
U108	1,4-Dioxane	
U109	1,2-Diphenylhydrazine	
U110	Dipropylamine	(I)
U111	Di-n-propylnitrosamine	
U001	Ethanal	(I)
U174	Ethanamine, N-ethyl-N-nitroso-	
U067	Ethane, 1,2-dibromo-	
U076	Ethane, 1,1-dichloro-	
U077	Ethane, 1,2-dichloro-	
U114	1,2-Ethanediylbiscarbamodithioic acid	
U131	Ethane, 1,1,1,2,2,2-hexachloro-	
U024	Ethane, 1,1'[methylenebis(oxy)]bis [2-chloro]-	
U003	Ethanemtrile	(I,T)
U117	Ethane, 1,1'-oxybis-	(I)
U025	Ethane, 1,1'-oxybis[2-chloro]-	
U184	Ethane, pentachloro-	
U208	Ethane, 1,1,1,2-tetrachloro-	
U209	Ethane, 1,1,2,2-tetrachloro-	
U218	Ethanethioamide	
U227	Ethane, 1,1,2-trichloro-	
U247	Ethane, 1,1,1-trichloro-2,2-bis(p-methoxyphenyl)	
U043	Ethene, chloro-	
U042	Ethene, 2-chloroethoxy-	
U078	Ethene, 1,1-dichloro-	
U079	Ethene, trans-1,2-dichloro-	
U210	Ethene, 1,1,2,2-tetrachloro-	
U173	Ethanol, 2,2'-(nitrosoimino)bis-	
U004	Ethanone, 1-phenyl-	
U006	Ethanoyl chloride	(C,R,T)
U112	Ethyl acetate	(I)
U113	Ethyl acrylate	(I)
U238	Ethyl carbamate(urethan)	
U038	Ethyl 4,4'-dichlorobenzilate	
U114	Ethylenebis(dithiocarbamic acid), salts and esters	
U067	Ethylene dibromide	
U077	Ethylene dichloride	
U115	Ethylene oxide	(I,T)

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U116	Ethylene thiourea	
U117	Ethyl ether	(I)
U076	Ethylidene dichloride	
U118	Ethyl methacrylate	
U119	Ethyl methanesulfonate	
U139	Ferric dextran	
U120	Fluoranthene	
U122	Formaldehyde	
U123	Formic acid	(C,T)
U124	Furan	(I)
U125	2-Furancarboxaldehyde	(I)
U147	2,5-Furandione	
U213	Furan, tetrahydro-	(I)
U125	Furfural	(I)
U124	Furfuran	(I)
U206	D-Glucopyranose, 2-deoxy-2(3-methyl-3-nitrosoureido)-	
U126	Glycidylaldehyde	
U163	Guanidine, N-nitroso-N-methyl-N'-mtro-	
U127	Hexachlorobenzene	
U128	Hexachlorobutadiene	
U129	Hexachlorocyclohexane (gamma isomer)	
U130	Hexachlorocyclopentadiene	
U131	Hexachloroethane	
U132	Hexachlorophene	
U243	Hexachloropropene	
U133	Hydrazine	(R,T)
U086	Hydrazine, 1,2-diethyl-	
U098	Hydrazine, 1,1-dimethyl-	
U099	Hydrazine, 1,2-dimethyl-	
U109	Hydrazine, 1,2-diphenyl-	
U134	Hydrofluoric acid	(C,T)
U134	Hydrogen fluoride	(C,T)
U135	Hydrogen sulfide	
U096	Hydroperoxide, 1-methyl-1-phenylethyl-	(R)
U136	Hydroxydimethylarsine oxide	
U116	2-Imidazolidinethione	
U137	Indeno[1,2,3-cd]pyrene	
U139	Iron dextran	
U140	Isobutyl alcohol	(I,T)
U141	Isosafrole	
U142	Kepone	
U143	Lasiocarpine	
U144	Lead acetate	
U145	Lead phosphate	
U146	Lead subacetate	
U129	Lindane	
U147	Maleic anhydride	
U148	Maleic hydrazide	
U149	Malononitrile	
U150	Melphalan	
U151	Mercury	
U152	Methacrylonitrile	(I,T)
U092	Methanamine, N-methyl-	(I)
U029	Methane, bromo-	
U045	Methane, chloro-	(I,T)
U046	Methane, chloromethoxy-	

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U068	Methane, dibromo-	
U080	Methane, dichloro-	
U075	Methane, dichlorodifluoro-	
U138	Methane, iodo-	
U119	Methanesulfonic acid, ethyl ester	
U211	Methane, tetrachloro-	
U121	Methane, trichlorofluoro-	
U153	Methanethiol	(I,T)
U225	Methane, tribromo-	
U044	Methane, trichloro-	
U121	Methane, trichlorofluoro-	
U123	Methanoic acid	(C,T)
U036	4,7-Methanoindan, 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-	
U154	Methanol	(I)
U155	Methapyrilene	
U247	Methoxychlor	
U154	Methyl alcohol	(I)
U029	Methyl bromide	
U186	1-Methylbutadiene	(I)
U045	Methyl chloride	(I,T)
U156	Methyl chlorocarbonate	(I,T)
U226	Methyl chloroform	
U157	3-Methylcholanthrene	
U158	4,4'-Methylenebis(2-chloroaniline)	
U132	2,2'-Methylenebis(3,4,6-trichlorophenol)	
U068	Methylene bromide	
U080	Methylene chloride	
U122	Methylene oxide	
U159	Methyl ethyl ketone	(I,T)
U160	Methyl ethyl ketone peroxide	(R,T)
U138	Methyl iodide	
U161	Methyl isobutyl ketone	(I)
U162	Methyl methacrylate	(I,T)
U163	N-Methyl-N'-nitro-N-nitrosoquamdine	
U161	4-Methyl-2-pentanone	(I)
U164	Methylthiouracil	
U010	Mitomycin C	
U059	5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxyl]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-	
U165	Naphthalene	
U047	Naphthalene, 2-chloro-	
U166	1,4-Naphthalenedione	
U236	2,7-Naphthalenedisulfonic acid, 3,3'-[3,3'-dimethyl-(1,1'-biphenyl)-4,4'diyl)]-bis (azo)bis(5-amino-4-hydroxy)-,tetrasodium salt	
U166	1,4 -Naphthoquinone	
U167	1-Naphthylamine	
U168	2-Naphthylamine	
U167	alpha-Naphthylamine	
U168	beta-Naphthylamine	
U026	2-Naphthylamine, N,N-bis(2-chloro-ethyl)-	
U169	Nitrobenzene	(I,T)
U170	p-Nitrophenol	
U171	2-Nitropropane	(I)

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U172	N-Nitrosodi-n-butylamine	
U173	N-Nitrosodiethanolamine	
U174	N-Nitrosodiethylamine	
U111	N-Nitrosodi-N-propylamine	
U176	N-Nitroso-N-ethylurea	
U177	N-Nitroso-N-methylurea	
U178	N-Nitroso-N-methylurethane	
U179	N-Nitrosopiperidine	
U180	N-Nitrosopyrrolidine	
U181	5-Nitro-o-toluidine	
U193	1,2-Oxathiolane, 2,2-dioxide	
U058	2H-1,3,2-Oxazaphosphorine, 2 [bis(2-chloro-ethyl)amino]-tetrahydro-, 2-oxide	
U115	Oxirane	(I,T)
U041	Oxirane, 2-(chloromethyl)-	
U182	Paraldehyde	
U183	Pentachlorobenzene	
U184	Pentachloroethane	
U185	Pentachloronitrobenzene	
U186	1,3-Pentadiene	(I)
U187	Phenacetin	
U188	Phenol	
U048	Phenol, 2-chloro-	
U039	Phenol, 4-chloro-3-methyl-	
U081	Phenol, 2,4-dichloro-	
U082	Phenol, 2,6-dichloro-	
U101	Phenol, 2,4-dimethyl-	
U170	Phenol, 4-nitro-	
U137	1,10-(1,2-Phenylene)pyrene	
U145	Phosphoric acid, lead salt	
U087	Phosphorodithioic acid, O,O-diethyl S-methyl ester	
U189	Phosphorus sulfide	(R)
U190	Phthalic anhydride	
U191	2-Picoline	
U192	Pronamide	
U194	1-Propanamine	(I,T)
U110	1-Propanamine, N-propyl-	(I)
U066	Propane, 1,2-dibromo-3-chloro-	
U149	Propanedinitrile	
U171	Propane, 2-nitro-	(I)
U027	Propane, 2,2'oxybis[2-chloro]-	
U193	1,3-Propane sultone	
U235	1-Propanol, 2,3-dibromo-, phosphate (3:1)	
U126	1-Propanol, 2,3-epoxy-	
U140	1-Propanol, 2-methyl-	(I,T)
U002	2-Propanone	(I)
U007	2-Propenamide	
U084	Propene, 1,3-dichloro-	
U243	1-Propene, 1,1,2,3,3,3-hexachloro-	
U009	2-Propenenitrile	
U152	2-Propenemtrile, 2-methyl-	(I,T)
U008	2-Propenoic acid	(I)
U113	2-Propenoic acid, ethyl ester	(I)
U118	2-Propenoic acid, 2-methyl-, ethyl ester	
U162	2-Propenoic acid, 2-methyl-, methyl ester,	(I,T)
U194	n-Propylamine	(I,T)
U083	Propylene dichloride	

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U196	Pyridine	
U155	Pyridine, 2-[(2-dimethylamino)ethyl]-2-thenylamino-	
U179	Pyridine, hexahydro-N-nitroso-	
U191	Pyridine, 2-methyl-	
U164	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	
U180	Pyrrole, tetrahydro-N-nitroso-	
U200	Reserpine	
U201	Resorcinol	
U202	Saccharin and salts	
U203	Safrole	
U204	Selenious acid	
U204	Selenium dioxide	
U205	Selenium disulfide	(R,T)
U015	L-Serine, diazoacetate (ester)	
U089	4,4'-Stilbenediol, alpha,alpha'-diethyl-	
U206	Streptozotocin	
U135	Sulfur hydride	
U103	Sulfuric acid, dimethyl ester	
U189	Sulfur phosphide	(R)
U205	Sulfur selenide	(R,T)
U207	1,2,4,5-Tetrachlorobenzene	
U208	1,1,1,2-Tetrachloroethane	
U209	1,1,2,2-Tetrachloroethane	
U210	Tetrachloroethylene	
U213	Tetrahydrofuran	(I)
U214	Thallium(I) acetate	
U215	Thallium(I) carbonate	
U216	Thallium(I) chloride	
U217	Thallium(I) nitrate	
U218	Thioacetamide	
U153	Thiomethanol	(I,T)
U219	Thiourea	
U244	Thiram	
U220	Toluene	
U221	Toluenediamine	
U223	Toluene diisocyanate	(R,T)
U222	o-Toluidine hydrochloride	
U011	1H-1,2,4-Triazol-3-amine	
U226	1,1,1-Trichloroethane	
U227	1,1,2-Trichloroethane	
U228	Trichloroethene	
U228	Trichloroethylene	
U121	Trichloromonofluoromethane	
U234	sym-Trinitrobenzene	(R,T)
U182	1,3,5-Trioxane, 2,4,6-trimethyl-	
U235	Tris (2,3-dibromopropyl) phosphate	
U236	Trypan blue	
U237	Uracil, 5[bis(2-chloroethyl)amino]-	
U237	Uracil mustard	
U043	Vinyl chloride	
U248	Warfarin when present at concentrations of 0.3 percent or less	
U239	Xylene	(I)
U200	Yohimban-16-carboxylic acid, 11, 17-di-methoxy-18-[(3,4,5-trimethoxy-benzoyl)oxy]-, methyl ester,	
U249	Zinc phosphide when present at	

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concentrations of 10 percent or less

[For text of subp 5, see M R 1985]

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 70; 10 SR 1212; 10 SR 1688*

7045.0139 BASIS FOR LISTING HAZARDOUS WASTES.

The following table lists the constituents which caused the agency to list wastes as hazardous in part 7045.0135, subparts 2 and 3. The notation "N.A." indicates the waste is hazardous because it fails the test for the characteristics of ignitability, corrosivity, reactivity, or toxicity, and the listing of a chemical name is not applicable.

Basis for Listing Hazardous Wastes

Hazardous Waste No.	Hazardous Constituents For Which Listed
F001	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons
F002	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, o-dichlorobenzene, trichlorofluoromethane
F003	N.A.
F004	Cresols and cresylic acid, nitrobenzene
F005	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine
F006	Cadmium, hexavalent chromium, nickel, cyanide (complexed)
F007	Cyanide (salts)
F008	Cyanide (salts)
F009	Cyanide (salts)
F010	Cyanide (salts)
F011	Cyanide (salts)
F012	Cyanide (complexed)
F019	Hexavalent chromium, cyanide (complexed)
F020	Tetra- and pentachlorodibenzo-p-dioxins; tetra- and pentachlorodibenzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine, and other salts
F021	Penta- and hexachlorodibenzo-p-dioxins; penta- and hexachlorodibenzofurans; pentachlorophenol and its derivatives
F022	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans
F023	Tetra- and pentachlorodibenzo-p-dioxins; tetra- and pentachlorodibenzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine, and other salts
F024	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1,2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane,

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	trichloroethylene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3-chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, hexachlorocyclohexane, benzene, chlorobenzene, dichlorobenzenes, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene
F026	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans
F027	Tetra-, penta-, and hexachlorodibenzo-p-dioxins, tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine, and other salts
F028	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans, tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine, and other salts
K001	Pentachlorophenol, phenol, 2-chlorophenol, p-chloro-m-cresol, 2,4-dimethylphenyl, 2,4-dinitrophenol, trichloro-, phenols, tetrachlorophenols, 2,4-dimtrophenol, cresosote, chrysene, naphthalene, fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene, indeno (1,2,3,cd)pyrene, benz(a)-anthracene, dibenz(a)anthracene, acenaphthalene
K002	Hexavalent chromium, lead
K003	Hexavalent chromium, lead
K004	Hexavalent chromium
K005	Hexavalent chromium, lead
K006	Hexavalent chromium
K007	Cyanide (complexed), hexavalent chromium
K008	Hexavalent chromium
K009	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid
K010	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid, chloroacetaldehyde
K011	Acrylonitrile, acetomtrile, hydrocyanic acid
K013	Hydrocyanic acid, acrylomtrile, acetonitrile
K014	Acetonitrile, acrylamide
K015	Benzyl chloride, chlorobenzene, toluene, benzotrichloride
K016	Hexachlorobenzene, hexachlorobutadiene, carbon tetrachloride, hexachloroethane, perchloroethylene
K017	Epichlorohydrin, chloroethers [bis (chloromethyl) ether and bis (2-chloroethyl) ethers], trichloropropane, dichloropropanols
K018	1,2-dichloroethane, trichloroethylene, hexachlorobutadiene, hexachlorobenzene
K019	Ethylene dichloride, 1,1,1-trichloroethane,1,1,2-trichloroethane, tetrachloroethanes(1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride
K020	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-

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	trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride
K021	Antimony, carbon tetrachloride, chloroform
K022	Phenol, tars (polycyclic aromatic hydrocarbons
K023	Phthalic anhydride, maleic anhydride
K024	Phthalic anhydride, 1,4-naphthoquinone
K025	Meta-dinitrobenzene, 2,4-dinitrotoluene
K026	Paraldehyde, pyridines, 2-picoline
K027	Toluene diisocyanate, toluene-2, 4-diamine
K028	1,1,1-trichloroethane, vinyl chloride
K029	1,2-dichloroethane, 1,1,1-trichloroethane, vinyl chloride, vinylidene chloride, chloroform
K030	Hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, ethylene dichloride
K031	Arsenic
K032	Hexachlorocyclopentadiene
K033	Hexachlorocyclopentadiene
K034	Hexachlorocyclopentadiene
K035	Creosote, chrysene, naphthalene, fluoranthene, benzo-(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(a)anthracene, dibenzo(a)anthracene, acenaphthalene
K036	Toluene, phosphorodithioic and phosphorothioic acid esters
K037	Toluene, phosphorodithioic and phosphorothioic acid esters
K038	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters
K039	Phosphorodithioic and phosphorothioic acid esters
K040	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters
K041	Toxaphene
K042	Hexachlorobenzene, ortho-dichlorobenzene
K043	2,4-dichlorophenol, 2,6-dichlorophenol, 2,4,6-trichlorophenol
K044	N.A.
K045	N.A.
K046	Lead
K047	N.A.
K048	Hexavalent chromium, lead
K049	Hexavalent chromium, lead
K050	Hexavalent chromium
K051	Hexavalent chromium, lead
K052	Lead
K060	Cyanide, naphthalene, phenolic compounds, arsenic
K061	Hexavalent chromium, lead, cadmium
K062	Hexavalent chromium, lead
K069	Hexavalent chromium, lead, cadmium
K071	Mercury
K073	Chloroform, carbon tetrachloride, hexachloroethane, trichloroethane, tetrachloroethylene, dichloro-ethylene, 1,1,2,2-tetrachloroethane
K083	Aniline, diphenylamine, nitrobenzene, phenylenediamine
K084	Arsenic
K085	Benzene, dichlorobenzenes, trichlorobenzenes, tetra-chlorobenzenes, pentachlorobenzene, hexachlorobenzene, benzyl chloride

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K086	Lead, hexavalent chromium
K087	Phenol, naphthalene
K093	Phthalic anhydride, maleic anhydride
K094	Phthalic anhydride
K095	1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane
K096	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane
K097	Chlordane, heptachlor
K098	Toxaphene
K099	2,4-dichlorophenol, 2,4,6-trichlorophenol
K100	Hexavalent chromium, lead, cadmium
K101	Arsenic
K102	Arsenic
K103	Aniline, nitrobenzene, phenylenediamine
K104	Aniline, benzene, diphenylamine, nitrobenzene, phenylenediamine
K105	Benzene, monochlorobenzene, dichlorobenzenes, 2,4,6-trichlorophenol
K106	Mercury

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1212*

7045.0141 HAZARDOUS CONSTITUENTS.

Hazardous constituents are as follows:

Acetonitrile
Acetophenone
3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin and salts
2-Acetylaminofluorene
Acetyl chloride
1-Acetyl-2-thiourea
Acrolein
Acrylamide
Acrylonitrile
Aflatoxins
Aldrin
Allyl alcohol
Aluminum phosphide
4-Aminobiphenyl
6-Amino-1,1a,2,8,8a,8b-hexahydro-8-(hydroxymethyl)-8a-methoxy-5-methylcarbamate azirino(2',3':3,4) pyrrolo(1,2-a)indole-4,7-dione, (ester), (Mitomycin C)
5-(Aminomethyl)-3-isoxazolol
Amitrole
Aniline
Antimony and compounds not otherwise specified in this list
Aramite
Arsenic and compounds not otherwise specified in this list
Arsenic acid
Arsenic pentoxide
Arsenic trioxide
Auramine
Azaserine
Barium and compounds not otherwise specified in this list
Barium cyanide
Benz[c]acridine

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Benz[a]anthracene
Benzene
Benzenearsonic acid
Benzene, dichloromethyl-
Benzenethiol
Benzidine
Benzo[b]fluoranthene
Benzo[j]fluoranthene
Benzo[a]pyrene
p-Benzoquinone
Benzotrichloride
Benzyl chloride
Beryllium and compounds not otherwise specified in this list
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether
N,N-Bis(2-chloroethyl)-2-naphthylamme
Bis(2-chloroisopropyl) ether
Bis(chloromethyl) ether
Bis(2-ethylhexyl) phthalate
Bromoacetone
Bromomethane
4-Bromophenyl phenyl ether
Brucine
2-Butanone peroxide
Butyl benzyl phthalate
2-sec-Butyl-4,6-dinitrophenol (DNBP)
Cadmium and compounds not otherwise specified in this list
Calcium chromate
Calcium cyanide
Carbon disulfide
Carbon oxyfluoride
Chloral
Chlorambucil
Chlordane (alpha and gamma isomers)
Chlorinated benzenes not otherwise specified in this list
Chlorinated ethane not otherwise specified in this list
Chlorinated fluorocarbons not otherwise specified in this list
Chlorinated naphthalene not otherwise specified in this list
Chlorinated phenol not otherwise specified in this list
Chloroacetaldehyde
Chloroalkyl ethers not otherwise specified in this list
p-Chloroaniline
Chlorobenzene
Chlorobenzilate
2-Chloro-1,3-butadiene (chloroprene)
p-Chloro-m-cresol
1-Chloro-2,3-epoxybutane
1-Chloro-2,3-epoxypropane
2-Chloroethyl vinyl ether
Chloroform
Chloromethane
Chloromethyl methyl ether
2-Chloronaphthalene
2-Chlorophenol
1-(o-Chlorophenyl)thiourea
3-Chloropropene (allyl chloride)
3-Chloropropionitrile

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Chromium and compounds not otherwise specified in this list
Chrysene
Citrus red No. 2
Coal Tars
Copper cyanide
Creosote
Cresols
Crotonaldehyde
Cyanides (soluble salts and complexes) not otherwise specified in this list
Cyanogen
Cyanogen bromide
Cyanogen chloride
Cycasin
2-Cyclohexyl-4,6-dinitrophenol
Cyclophosphamide
Daunomycin
DDD (1,1-(2,2-dichloroethylidene)-bis-4-chlorobenzene)
DDE (Ethylene, 1,1-dichloro-2,2-bis(4-chlorophenyl)-)
DDT (1,1'-(2,2,2-trichloroethylidene)-bis-4-chlorobenzene)
Diallate
Dibenz[a,h]acridine
Dibenz[a,j]acridine
Dibenz[a,h]anthracene
7H-Dibenzo[c,g]carbazole
Dibenzo[a,e]pyrene
Dibenzo[a,h]pyrene
Dibenzo[a,i]pyrene
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
Dibromomethane
Di-n-butyl phthalate
o-Dichlorobenzene
m-Dichlorobenzene
p-Dichlorobenzene
Dichlorobenzene not otherwise specified in this list
3,3'-Dichlorobenzidine
1,4-Dichloro-2-butene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
trans-1,2-Dichloroethene
Dichloroethylene not otherwise specified in this list
1,1-Dichloroethylene
Dichloromethane
2,4-Dichlorophenol
2,6-Dichlorophenol
2,4-Dichlorophenoxyacetic acid, salts and esters (2,4-D)
Dichlorophenylarsine
Dichloropropane not otherwise specified in this list
1,2-Dichloropropane
Dichloropropanol not otherwise specified in this list
Dichloropropene not otherwise specified in this list
1,3-Dichloropropene
Dieldrin
1,2:3,4-Diepoxybutane
Diethylarsine

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N,N-Diethylhydrazine
O,O-Diethyl-S-methyl ester of phosphorodithioic acid
O,O-Diethylphosphoric acid, O-p-nitrophenyl ester
Diethyl phthalate
O,O-Diethyl-O-(2-pyrazinyl)phosphorothioate
Diethylstilbestrol
Dihydrosafrole
3,4-Dihydroxy-alpha-(methylamino)methyl benzyl alcohol
Di-isopropylfluorophosphate (DFP)
Dimethoate
3,3'-Dimethoxybenzidine
p-Dimethylaminoazobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
Dimethylcarbamoyl chloride
1,1-Dimethylhydrazine
1,2-Dimethylhydrazine
3,3-Dimethyl-1-(methylthio)-2-butanone-O-[(methylamino) carbonyl] oxime
alpha, alpha-Dimethylphenethylamine
2,4-Dimethylphenol
Dimethyl phthalate
Dimethyl sulfate
Dinitrobenzene not otherwise specified in this list
4,6-Dinitro-o-cresol and salts
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
1,4-Dioxane
Diphenylamine
1,2-Diphenylhydrazine
Di-n-propylnitrosamine
Disulfoton
2,4-Dithiobiuret
Endosulfan
Endrin and metabolites
Ethyl carbamate
Ethyl cyanide
Ethylenebisdithiocarbamic acid, salts and esters
Ethyleneimine
Ethylene oxide
Ethylenethiourea
Ethyl methacrylate
Ethyl methanesulfonate
Fluoranthene
Fluorine
2-Fluoroacetamide
Fluoroacetic acid, sodium salt
Formaldehyde
Formic acid
Glycidylaldehyde
Halomethane not otherwise specified in this list
Heptachlor
Heptachlor epoxide (alpha, beta, and gamma isomers)
Hexachlorobenzene
Hexachlorobutadiene

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Hexachlorocyclohexane (all isomers)
Hexachlorocyclopentadiene
Hexachlorodibenzo-p-dioxins
Hexachlorodibenzofurans
Hexachloroethane
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo, endo-dimethanonaphthalene
Hexachlorophene
Hexachloropropene
Hexaethyl tetraphosphate
Hydrazine
Hydrocyanic acid
Hydrofluoric acid
Hydrogen sulfide
Hydroxydimethylarsine oxide
Indeno(1,2,3-cd)pyrene
Iodomethane
Iron dextran
Isocyanic acid, methyl ester
Isobutyl alcohol
Isosafrole
Kepone
Lasiocarpine
Lead and compounds not otherwise specified in this list
Lead acetate
Lead phosphate
Lead subacetate
Maleic anhydride
Maleic hydrazide
Malononitrile
Melphalan
Mercury fulminate
Mercury and compounds not otherwise specified in this list
Methacrylonitrile
Methanethiol
Methapyrilene
Methomyl
Methoxychlor
2-Methylaziridine
3-Methylcholanthrene
Methyl chlorocarbonate
4,4'-Methylene-bis-(2-chloroaniline)
Methyl ethyl ketone (MEK)
Methyl hydrazine
2-Methyllactonitrile
Methyl methacrylate
Methyl methanesulfonate
2-Methyl-2-(methylthio)propionaldehyde-o-(methylcarbonyl) oxime
N-Methyl-N'-nitro-N-nitrosoguanidine
Methyl parathion
Methylthiouracil
Mustard gas
Naphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
1-Naphthyl-2-thiourea

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Nickel and compounds not otherwise specified in this list
Nickel carbonyl
Nickel cyanide
Nicotine and salts
Nitric oxide
p-Nitroaniline
Nitrobenzene
Nitrogen dioxide
Nitrogen mustard and hydrochloride salt
Nitrogen mustard N-oxide and hydrochloride salt
Nitroglycerine
4-Nitrophenol
4-Nitroquinolme-1-oxide
Nitrosamine not otherwise specified in this list
N-Nitrosodi-N-butylamine
N-Nitrosodiethanolamine
N-Nitrosodiethylamine
N-Nitrosodimethylamine
N-Nitroso-N-ethylurea
N-Nitrosomethylethylamine
N-Nitroso-N-methylurea
N-Nitroso-N-methylurethane
N-Nitrosomethylvinylamine
N-Nitrosomorpholine
N-Nitrosonornicotine
N-Nitrosopiperidine
N-Nitrosopyrrolidine
N-Nitrososarcosine
5-Nitro-o-toluidine
Octamethylpyrophosphoramide
Osmium tetroxide
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
Paraldehyde
Parathion
Pentachlorobenzene
Pentachlorodibenzo-p-dioxins
Pentachlorodibenzofurans
Pentachloroethane
Pentachloromtrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenol
Phenylenediamine
Phenylmercury acetate
N-Phenylthiourea
Phosgene
Phosphine
Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl]ester (Phorate)
Phosphorothioic acid, O,O-dimethyl O-[p-(dimethylamino-sulfonyl)phenyl] ester
Phthalic acid esters not otherwise specified in this list
Phthalic anhydride
2-Picoline
Polychlorinated biphenyl not otherwise specified in this list
Potassium cyanide
Potassium silver cyanide

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Pronamide
1,3-Propane sultone
n-Propylamine
Propylthiouracil
2-Propyn-1-ol
Pyridine
Reserpine
Recorcinol
Saccharin and salts
Safrole
Selenious acid
Selenium and compounds not otherwise specified in this list
Selenium sulfide
Selenourea
Silver and compounds not otherwise specified in this list
Silver cyanide
Sodium cyanide
Streptozotocin
Strontium sulfide
Strychnine and salts
1,2,4,5-Tetrachlorobenzene
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)
Tetrachlorodibenzo-p-dioxins not otherwise specified in this list
Tetrachlorodibenzofurans
Tetrachloroethane not otherwise specified in this list
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Tetrachloromethane
2,3,4,6-Tetrachlorophenol
Tetraethyldithiopyrophosphate
Tetraethyl lead
Tetraethylpyrophosphate
Tetranitromethane
Thallium and compounds not otherwise specified in this list
Thallic oxide
Thallium (I) acetate
Thallium (I) carbonate
Thallium (I) chloride
Thallium (I) nitrate
Thallium selenide
Thallium (I) sulfate
Thioacetamide
Thiosemicarbazide
Thiourea
Thiuram
Toluene
Toluenediamine
o-Toluidine hydrochloride
Tolylene diisocyanate
Toxaphene
Tribromomethane
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichloromethanethiol

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Trichloromonofluoromethane
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP) (Silvex)
Trichloropropane not otherwise specified in this list
1,2,3-Trichloropropane
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene
Tris(1-azridinyl)phosphine sulfide
Tris(2,3-dibromopropyl) phosphate
Trypan blue
Uracil mustard
Vanadic acid, ammonium salt
Vanadium pentoxide
Vinyl chloride
Zinc cyanide
Zinc phosphide

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1212*

7045.0142 [Repealed, 10 SR 1688]

7045.0214 EVALUATION OF WASTES.

Subpart 1. **General requirement.** Any person who produces a waste within the state of Minnesota or any person who produces a waste outside the state of Minnesota that is managed within the state of Minnesota, must evaluate the waste to determine if it is hazardous. A material is determined to be a waste in accordance with the conditions specified under the definition of other waste material in part 7045.0020. Any waste evaluated and exempted under part 7045.0075 or 7045.0120 does not need to be reevaluated under this part.

[For text of subp 2, see M.R. 1985]

Subp. 3. **Wastes generated by treatment, storage, or disposal.** Wastes generated by treatment, storage, or disposal of hazardous waste are as follows:

A. Except as provided in items B and C, any waste generated from the treatment, storage, or disposal of hazardous waste, including any sludge, spill residue, ash, emission control dust or leachate, but not including precipitation run-off, is a hazardous waste if it meets the criteria of subpart 2 or if it is derived from a waste that is listed in part 7045.0135.

B. Waste pickle liquor sludge generated by lime stabilization of spent pickle liquor from the iron and steel industry, standard industrial classification codes 331 and 332, is not a hazardous waste unless it exhibits one or more characteristics of hazardous waste under part 7045.0131.

C. Materials that have been reclaimed from hazardous wastes and from wastes that have been reclaimed that are beneficially used are not hazardous wastes unless the reclaimed material is used in a manner constituting disposal under part 7045.0665 or burned for energy recovery under part 7045.0125, subpart 10.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 70, 10 SR 1688*

7045.0219 SPECIAL REQUIREMENTS FOR SMALL QUANTITY GENERATORS OF HAZARDOUS WASTE.

Subpart 1 **Applicability; quantities.** A generator is a small quantity generator subject to the requirements of subparts 2 to 6 if, in a calendar month, he generates less than:

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A. a total of 1,000 kilograms of hazardous waste not listed as acute hazardous waste in part 7045.0135, subpart 2, 3, or 4, item E; and

B a total of one kilogram of acute hazardous waste listed in part 7045.0135, subpart 2, 3, or 4, item E; and

C. a total of 100 kilograms of any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill, into or on any land or water, of any acute hazardous waste listed in part 7045.0135, subpart 2, 3, or 4, item E.

A generator shall not consider the wastes specified under part 7045.0125, subparts 4, 5, and 6 when calculating the volume of waste generated.

[For text of subps 2 to 4, see M.R. 1985]

Subp. 5. **Management requirements.** A small quantity generator shall comply with the following requirements:

[For text of subp 5, items A to D, see M.R. 1985]

E. part 7045.0292, subpart 1, items D to G and as applicable, subpart 4;

[For text of subp 5, item F, see M R. 1985]

G. Either treat or dispose of the hazardous waste in an on-site facility or ensure delivery to an off-site storage, treatment, or disposal facility. The facility used must be:

[For text of subp 5, item G, subitems (1) to (4), see M.R 1985]

(5) another site belonging to the same owner for consolidation of shipments providing the receiving site complies with parts 7045.0205 to 7045.1030 and the waste is ultimately managed according to subitems (1) to (4);

H. Transport hazardous waste in accordance with all applicable requirements of Minnesota Statutes, section 221.033 and Code of Federal Regulations, title 49, parts 171 to 179 (1983);

I. part 7045.0626, subparts 2, 3, and 4; and

J. each container is marked with the words "Hazardous Waste."

[For text of subp 6, see M.R. 1985]

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 929, 10 SR 1212; 10 SR 1688*

7045.0292 ACCUMULATION OF HAZARDOUS WASTE.

Subpart 1. **When allowed without a permit.** A generator may accumulate hazardous waste on-site or hazardous waste received from off-site pursuant to part 7045.0219, subpart 5, item G, subitem (5) without a permit or without having interim status if:

A. all accumulated hazardous waste is, within 90 days of the accumulation start date, shipped off-site to a designated facility or placed in an on-site facility either of which has interim status under parts 7045.0552 to 7045.0642 or has a hazardous waste facility permit issued by the agency; or has a hazardous waste facility permit issued by a state with a hazardous waste program authorized by the Environmental Protection Agency pursuant to Code of Federal Regulations, title 40, part 271 (1983); or has a hazardous waste facility permit issued by the Environmental Protection Agency;

B. the waste is placed in containers which meet the standards of part 7045.0270, subpart 4 and are managed in accordance with part 7045.0626, subparts 4 to 6; or in tanks provided the generator complies with the requirements of part 7045.0628 except part 7045.0628, subpart 3;

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C. the date upon which each period of accumulation begins is clearly marked and visible for inspection on each container or the generator maintains a record of the accumulation starting date for each tank used for storage and the words "Hazardous Waste" are clearly labeled or marked and visible for inspection on each container or tank,

[For text of subpart 1, items D to H, see M R 1985]

[For text of subps 2 and 3, see M.R. 1985]

Subp. 4. **Accumulation of waste by generator.** The following apply to generators of hazardous waste:

A. A generator may, without a permit or interim status and without complying with subpart 1 provided the generator complies with items B and C, accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste listed in part 7045.0135, subpart 4, item E, in containers located at or near any point of generation where wastes initially accumulate that is under the control of the operator of the process generating the waste.

B. The generator must:

(1) comply with part 7045.0626, subparts 2, 3, and 4; and

(2) mark each container with the words "Hazardous Waste."

C. A generator who accumulates either hazardous waste or acutely hazardous waste listed in part 7045.0135, subpart 4, item E in excess of the amounts listed in item A at or near any point of generation must, with respect to the amount of excess waste, comply within three days with subpart 1 or, if applicable, part 7045.0219 or other applicable provisions of this chapter. During the three-day period for compliance the generator must continue to comply with item B. The generator must mark the container holding the excess accumulation of hazardous waste with the date the excess amount began accumulating.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 929*

7045.0296 ANNUAL REPORTING.

[For text of subps 1 to 4, see M.R. 1985]

Subp. 5. **Wastes which are recycled.** Generators of wastes that are recycled in accordance with the provisions of part 7045.0125 and are exempt from the requirements of parts 7045.0261 and 7045.0265 must include the following information in the annual report:

A. evidence that the waste was recycled as indicated in the management plan; and

B. evidence that a continuing market exists for the waste.

Statutory Authority: *MS s 116 07 subd 4*

History: *10 SR 1688*

7045.0365 TRANSFER FACILITY REQUIREMENTS.

Subpart 1. **Applicability.** A transporter who stores manifested shipments of hazardous waste in containers meeting the requirements of part 7045.0270, subpart 4 at a transfer facility for a period of ten days or fewer is not subject to regulation under parts 7045.0450 to 7045.0642 and a hazardous waste facility permit with respect to the storage of those wastes. The owner or operator must notify the director in writing of his or her activity.

Subp. 2. **Storage of less than 1,000 kilograms.** A transporter who stores less than 1,000 kilograms of hazardous waste is exempt from further regulation.

Subp. 3. **Storage of 1,000 kilograms or more.** A transporter who stores 1,000

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kilograms or more of hazardous waste at any time shall comply with the following requirements:

A. part 7045.0275, subparts 2 and 3,

B. part 7045.0292, subpart 1, items E to G;

C. part 7045.0556, subpart 5, items A, C, and D;

D. part 7045.0558;

E. part 7045.0562, subpart 1;

F part 7045.0566, subparts 2 to 4, and 6;

G. part 7045.0572, subparts 2 to 6;

H. part 7045.0626, subpart 4;

I. the transporter shall keep at the transfer facility a written operating record that contains the following information for each shipment:

(1) the generator name and manifest document number,

(2) the date the waste was received by the transfer facility; and

(3) the date the waste was shipped by the transfer facility, and

J. storage areas must be protected from unauthorized access and inadvertent damage from vehicles or equipment.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 929*

7045.0450 FACILITIES GOVERNED BY FACILITY STANDARDS.

[For text of subps 1 and 2, see M.R. 1985]

Subp. 3. **Exemptions.** Parts 7045.0450 to 7045.0544 do not apply to the following:

A. the owner or operator of a facility managing recyclable hazardous wastes subject to regulation under part 7045.0125, 7045.0665, 7045.0675, or 7045.0685; however, this exemption does not apply where part 7045.0125, 7045.0665, 7045.0675, or 7045.0685 makes the requirements of parts 7045.0450 to 7045.0544 applicable by cross-reference.

[For text of subp 3, items B to G, see M.R. 1985]

H. a transporter storing manifested shipments of hazardous waste in containers meeting the requirements of part 7045.0270, subpart 4 at a transfer facility for a period of ten days or less in compliance with part 7045.0365;

[For text of subp 3, items I and J, see M R 1985]

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 929; 10 SR 1688*

7045.0526 USE AND MANAGEMENT OF CONTAINERS.

[For text of subps 1 to 5, see M R. 1985]

Subp. 6. **Containment.** Requirements for containment systems are as follows:

[For text of subp 6, items A to C, see M.R. 1985]

D. Except as provided by item E, storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system defined by item A if:

(1) the storage area is sloped or is otherwise designed and operated to drain and remove liquid resulting from precipitation; or

(2) the containers are elevated or are otherwise protected from contact with accumulated liquid.

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E. Storage areas that store containers holding wastes F020, F021, F022, F023, F026, F027, and F028 from part 7045 0135, subpart 2 that do not contain free liquids must have a containment system defined by item A.

[For text of subps 7 to 9, see M R. 1985]

Statutory Authority: *MS s 116 07 subd 4*

History: *10 SR 1212*

7045.0528 TANKS.

[For text of subps 1 to 3, see M R 1985]

Subp. 4. **Inspections.** The following apply to inspections:

[For text of subp 4, items A and B, see M.R. 1985]

C. As part of the contingency plan required under parts 7045.0464 to 7045.0470, the owner or operator must specify:

(1) the procedures he or she intends to use to respond to tank spills or leakage, including procedures and timing for expeditious removal of leaked or spilled waste and repair of the tank. As required in part 7045.0452, subpart 5, item D, the owner or operator shall remedy any leak, crack, or wall thinning in violation of subpart 2, or equipment or process malfunction in violation of subpart 3, which he or she discovers during inspection; and

(2) for tanks holding wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2, the contingency plan must also include the procedures for responding to a spill or leak of these wastes from tanks into the containment system. These procedures shall include measures for immediate removal of the waste from the system and replacement or repair of the leaking tank.

[For text of subps 5 to 8, see M.R. 1985]

Subp. 9. **Special requirements for hazardous wastes F020, F021, F022, F023, F026, F027, and F028.** In addition to the other requirements of subparts 1 to 8, the following requirements apply to tanks storing or treating hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2:

A Tanks must have systems designed and operated to detect and adequately contain spills or leaks that reflect consideration of all relevant factors, including:

(1) the capacity of the tank;

(2) the volumes and characteristics of wastes stored or treated in the tank;

(3) the method of collection of spills or leaks;

(4) the design and construction materials of the tank and containment system; and

(5) the need to prevent precipitation and run-on from entering into the system.

B. As part of the contingency plan required under parts 7045.0464 to 7045.0470, the owner or operator must specify those procedures for responding to a spill or leak from the tank into the containment system that may be necessary to protect human health and the environment, including measures for immediate removal of the waste from the system and replacement or repair of the leaking tank.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1212*

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7045.0532 SURFACE IMPOUNDMENTS.

Subpart 1. **Scope.** This part applies to owners and operators of facilities that use surface impoundments to treat, store, or dispose of hazardous waste, except as part 7045.0450 provides otherwise.

[For text of subps 2 to 9, see M R. 1985]

Subp. 10. **Special requirements for hazardous wastes F020, F021, F022, F023, F026, F027, and F028.** The following requirements apply to the hazardous wastes indicated:

A. Hazardous waste F020, F021, F022, F023, F026, and F027 listed under part 7045.0135, subpart 2 must not be placed in a surface impoundment.

B. Hazardous waste F028 and treatment residues and soils contaminated with hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2, must not be placed in surface impoundments unless the owner or operator operates the surface impoundment in accordance with all applicable requirements of this part and in accordance with a management plan that is approved by the director considering the following factors:

(1) the volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

(2) the attenuative properties of underlying and surrounding soils or other materials;

(3) the mobilizing properties of other materials codisposed with these wastes; and

(4) the effectiveness of additional treatment, design, or monitoring techniques.

C. The director shall impose additional design, operating, and monitoring requirements if the director finds that additional requirements are necessary for surface impoundments used to treat, store, or dispose of hazardous waste F028 and treatment residues and soils contaminated with hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1212*

7045.0534 WASTE PILES.

Subpart 1. **Scope.** This part applies to owners and operators of facilities that store or treat hazardous waste in piles, except as part 7045.0450 provides or as otherwise provided in this subpart.

The requirements of this part do not apply to owners or operators of waste piles that are closed with wastes left in place. Such waste piles are subject to regulation under part 7045.0538.

The owner or operator of a waste pile that is inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated is not subject to subparts 2, items A and B; 3; or part 7045.0484 if:

[For text of subpart 1, items A to D, see M.R. 1985]

[For text of subps 2 to 9, see M R 1985]

Subp 10. **Special requirements for hazardous wastes F020, F021, F022, F023, F026, F027, and F028.** The following requirements apply to the hazardous wastes indicated.

A. Hazardous wastes F020, F021, F022, F023, F026, and F027 listed under part 7045.0135, subpart 2 must not be placed in waste piles.

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B. Hazardous waste F028 and treatment residues and soils contaminated with hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2, must not be placed in waste piles that are not enclosed as provided by subpart 1, unless the owner or operator operates the waste pile in accordance with all applicable requirements of this part and in accordance with a management plan for these wastes that is approved by the director considering the following factors:

(1) the volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere,

(2) the attenuative properties of underlying and surrounding soils or other materials;

(3) the mobilizing properties of other materials codisposed with these wastes; and

(4) the effectiveness of additional treatment, design, or monitoring techniques.

C. The director shall impose additional design, operating, and monitoring requirements if the director determines that the additional requirements are necessary for piles used to store or treat hazardous waste F028 and treatment residues and soils contaminated with hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1212*

7045.0536 LAND TREATMENT.

Subpart 1. **Scope.** This part applies to owners and operators of facilities that treat or dispose of hazardous waste in land treatment units except as part 7045.0450 provides otherwise.

[For text of subps 2 to 10, see M R 1985]

Subp. 11. **Special requirements for hazardous wastes F020, F021, F022, F023, F026, F027, and F028.** The following requirements apply to the hazardous wastes indicated:

A. Hazardous wastes F020, F021, F022, F023, F026, and F027 listed under part 7045.0135, subpart 2 must not be placed in a land treatment unit.

B. Hazardous waste F028 and treatment residues and soils contaminated with hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2 must not be managed at land treatment units unless the owner or operator operates the land treatment unit in accordance with all applicable requirements of this part and in accordance with a management plan that is approved by the director considering the following factors:

(1) the volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

(2) the attenuative properties of underlying and surrounding soils or other materials;

(3) the mobilizing properties of other materials codisposed with these wastes; and

(4) the effectiveness of additional treatment, design, or monitoring techniques.

C. The director shall impose additional design, operating, and monitoring requirements if the director finds that the additional requirements are neces-

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sary for land treatment facilities used to treat or dispose of hazardous waste F028 and treatment residues and soils contaminated with hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1212*

7045.0538 LANDFILLS.

Subpart 1. **Scope.** This part applies to owners and operators of facilities that dispose of hazardous waste in landfills, except as part 7045.0450 provides otherwise.

[For text of subps 2 to 12, see M R. 1985]

Subp. 13. **Special requirements for hazardous wastes F020, F021, F022, F023, F026, F027, and F028.** The following requirements apply to the hazardous wastes indicated:

A. Hazardous wastes F020, F021, F022, F023, F026, and F027 listed under part 7045.0135, subpart 2 must not be placed in a landfill.

B. Hazardous waste F028 and treatment residues and soils contaminated with hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2, must not be managed at landfills unless the owner or operator operates the landfill in accordance with all applicable requirements of this part and in accordance with a management plan that is approved by the director considering the following factors:

(1) the volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

(2) the attenuative properties of underlying and surrounding soils or other materials;

(3) the mobilizing properties of other materials codisposed with these wastes, and

(4) the effectiveness of additional treatment, design, or monitoring techniques.

C. The director shall impose additional design, operating, and monitoring requirements if the director finds that the additional requirements are necessary for landfills used to dispose of hazardous waste F028 and treatment residues and soil contaminated with hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

Statutory Authority: *MS s 116 07 subd 4*

History: *10 SR 1212*

7045.0542 THERMAL TREATMENT.

Subpart 1. **Scope.** This part applies as follows:

A. This part applies to owners and operators of facilities that thermally treat hazardous waste, except as part 7045.0450 provides otherwise. The following facility owners or operators are considered to thermally treat hazardous waste: owners or operators of hazardous waste incinerators as defined in part 7045.0020; and owners or operators who burn hazardous waste in boilers or in industrial furnaces in order to destroy the waste.

[For text of subpart 1, items B to F, see M.R 1985]

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[For text of subps 2 and 3, see M R. 1985]

Subp. 4. **Performance standards.** A thermal treatment facility thermally treating hazardous waste must be designed, constructed, and maintained so that, when operated in accordance with operating requirements specified under subpart 6 it will comply with all federal and state air quality rules and regulations and will meet the performance standards of items A to E, whichever are applicable:

A. Except as provided in item E, a thermal treatment facility thermally treating hazardous waste must achieve a destruction and removal efficiency of 99.99 percent for each principal organic hazardous constituent designated in its permit for each waste feed. The destruction and removal efficiency (DRE) is determined for each principal organic hazardous constituent from the following equation:

$$DRE = \frac{(Win - Wout)}{Win} \times 100\%$$

where:

Win = Mass feed rate of one principal organic hazardous constituent in the waste stream feeding the thermal treatment process, and

Wout = Mass emission rate of the same principal organic hazardous constituent present in exhaust emissions prior to release to the atmosphere.

[For text of subp 4, items B to D, see M.R. 1985]

E. A thermal treatment facility thermally treating hazardous wastes F020, F021, F022, F023, F026, and F027 listed under part 7045.0135, subpart 2 must achieve a destruction and removal efficiency ("DRE") of 99.9999 percent for each principal organic hazardous constituent designated in its permit. This performance must be demonstrated on principal organic hazardous constituents that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. DRE is determined for each principal organic hazardous constituent from the equation in item A. In addition, the owner or operator of the thermal treatment facility must notify the director of the intent to burn waste F020, F021, F022, F023, F026, or F027.

[For text of subps 5 to 9, see M R. 1985]

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1212; 10 SR 1688*

7045.0552 FACILITIES GOVERNED BY INTERIM STATUS.

Subpart 1. **General requirements.** Parts 7045.0552 to 7045.0642 establish minimum standards for the management of hazardous waste during the period of interim status and until certification of final closure or, if the facility is subject to post-closure requirements, until post-closure responsibilities are fulfilled. These standards apply to owners and operators of existing facilities who have fully complied with the requirements for state or federal interim status until a permit is issued or until applicable interim status closure and post-closure responsibilities are fulfilled, and those who have failed to achieve state or federal interim status. These standards apply to all treatment, storage, or disposal of hazardous waste at these facilities after July 16, 1984, except as specifically provided otherwise.

For existing facilities which were not required to obtain federal interim status under the Resource Conservation and Recovery Act, United States Code, title 42, sections 6901 to 6986, as amended through June 30, 1983, but are required to obtain state interim status, the requirements of parts 7045.0590;

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7045.0592; 7045.0632, subpart 4, items A and B; 7045.0634, subpart 2; 7045.0638, subparts 2, 7, and 8, become effective 12 months after July 16, 1984, and the requirements of parts 7045.0608 to 7045.0624 become effective 90 days after July 16, 1984.

[For text of subp 2, see M R 1985]

Subp. 3. **Exemptions.** The requirements of parts 7045.0522 to 7045.0642 do not apply to:

[For text of subp 3, item A, see M.R. 1985]

B. The owner or operator of a facility managing recyclable hazardous wastes subject to regulation under part 7045.0125, 7045.0665, 7045.0675, or 7045.0685; however, this exemption does not apply where part 7045.0125, 7045.0665, 7045.0675, or 7045.0685 makes the requirements of parts 7045.0522 to 7045.0642 applicable by cross-reference.

[For text of subp 3, items C to G, see M R. 1985]

H. A transporter storing manifested shipments of hazardous waste in containers meeting the requirements of part 7045.0270, subpart 4 at a transfer facility for a period of ten days or less in compliance with part 7045.0365.

[For text of subp 3, items I and J, see M.R. 1985]

Subp. 4. **Restrictions.** Hazardous wastes F020, F021, F022, F023, F026, F027, and F028 listed under part 7045.0135, subpart 2 must not be managed at facilities governed by interim status unless:

A. the wastewater treatment sludge is generated in a surface impoundment as part of the plant's wastewater treatment system;

B. the waste is stored in tanks or containers; or

C. the waste is stored or treated in waste piles that are enclosed in accordance with part 7045.0534, subpart 1 and comply with all other provisions of part 7045.0534.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 929; 10 SR 1212; 10 SR 1688*

7045.0638 LANDFILLS.

[For text of subps 1 to 3, see M R. 1985]

Subp. 4. **Closure and post-closure.** Closure and post-closure requirements are as follows:

A. At final closure of the landfill or upon closure of any landfill cell, the owner or operator shall cover the landfill or landfill cell with a final cover designed and constructed to:

(1) provide long-term minimization of migration of liquids through the closed landfill;

(2) function with minimum maintenance;

(3) promote drainage and minimize erosion or abrasion of the cover;

(4) accommodate settling and subsidence so that the cover's integrity is maintained; and

(5) have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

B. After final closure, the owner or operator shall comply with all post-closure requirements contained in parts 7045.0600 to 7045.0606 including

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maintenance and monitoring throughout the post-closure care period. The owner or operator must:

(1) maintain the integrity and effectiveness of the final cover, including making repairs to the cover as necessary to correct the effect of settling, subsidence, erosion, or other events;

(2) maintain and monitor the ground water monitoring system and comply with all other applicable requirements of parts 7045.0590 and 7045.0592;

(3) prevent run-on and run-off from eroding or otherwise damaging the final cover; and

(4) protect and maintain surveyed bench marks used in complying with part 7045.0638, subpart 3.

[For text of subps 5 to 7, see M R 1985]

Subp. 8. **Special requirements for containers.** Unless they are very small, such as an ampule, containers must be either:

A. at least 90 percent full when placed in the landfill; or

B. crushed, shredded, or similarly reduced in volume to the maximum practical extent before burial in the landfill.

[For text of subp 9, see M.R 1985]

Statutory Authority: *MS s 116 07 subd 4*

History: *10 SR 1688*

7045.0640 THERMAL TREATMENT FACILITIES.

Subpart 1. **Scope.** This part applies to owners and operators of facilities that thermally treat hazardous waste, except as part 7045.0552 provides otherwise.

The following facility owners or operators are considered to thermally treat hazardous waste: owners or operators of hazardous waste incinerators as defined in part 7045.0020; and owners or operators who burn hazardous wastes in boilers or in industrial furnaces in order to destroy the wastes.

Owners and operators of thermal treatment facilities that thermally treat hazardous waste are exempt from all the requirements of this part except subpart 5, if the owner or operator has documented, in writing, that the waste would not reasonably be expected to contain constituents listed in part 7045.0141, and the documentation is kept at the facility, and the waste to be treated is:

[For text of subpart 1, items A to D, see M R 1985]

[For text of subps 2 to 6, see M R 1985]

Statutory Authority: *MS s 116 07 subd 4*

History: *10 SR 1688*

7045.0665 USE CONSTITUTING DISPOSAL.

Subpart 1. **Scope.** This part applies to hazardous wastes that are used in a manner constituting disposal. For the purposes of this part, use constituting disposal means the application or placement of recyclable wastes in or on the land:

A. without mixing with other substances;

B. after mixing with any other substances unless the recyclable waste undergoes a chemical reaction so as to become inseparable from the other substances by physical means, or

C. after combination with any other substances if the resulting material is not produced for the general public's use. Products produced for the general public's use that are used in a manner constituting disposal and that contain

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recyclable wastes that have undergone a chemical reaction in the course of producing a product so as to become inseparable by physical means are exempt from regulation under this part. Commercial fertilizers that are produced for the general public's use that contain recyclable materials also are not subject to regulation under this chapter.

Subp. 2. **Standards applicable to generators of wastes used in a manner that constitutes disposal.** Generators of wastes that are used in a manner that constitutes disposal are subject to the requirements of parts 7045.0205 to 7045.0304.

Subp. 3. **Standards applicable to transporters of wastes used in a manner that constitutes disposal.** Transporters of wastes that are used in a manner that constitutes disposal are subject to the requirements of parts 7045.0351 to 7045.0397.

Subp. 4. **Standards applicable to facilities managing wastes that are to be used in a manner that constitutes disposal.** Facilities managing wastes in a manner that constitutes disposal are subject to the following requirements:

A. owners or operators of facilities that store recyclable wastes that are to be used in a manner that constitutes disposal, but who are not the ultimate users of the wastes are subject to all applicable provisions of parts 7045.0450 to 7045.0534, 7045.0544, 7045.0552 to 7045.0632, and chapter 7001; and

B. owners or operators of facilities that use recyclable wastes that are to be used in a manner that constitutes disposal are subject to all applicable provisions of parts 7045.0450 to 7045.0538, 7045.0544, 7045.0552 to 7045.0638, and chapter 7001.

Statutory Authority: *MS s 116 07 subd 4*

History: *10 SR 1688*

7045.0675 RECYCLABLE HAZARDOUS WASTE UTILIZED FOR PRECIOUS METAL RECOVERY.

Subpart 1. **Scope.** This part applies to recyclable hazardous waste that is reclaimed to recover economically significant amounts of gold, silver, platinum, paladium, irridium, osmium, rhodium, ruthenium, or any combination of these.

Subp. 2. **Requirements for generators.** Generators of recyclable hazardous waste regulated under this part are subject to the requirements of parts 7045.0205 to 7045.0304.

Subp. 3. **Requirements for transporters.** Transporters of recyclable hazardous waste regulated under this part are subject to the requirements of parts 7045.0351 to 7045.0397.

Subp. 4. **Requirements for persons who store.** Persons who store recyclable hazardous waste that is regulated under this part are subject to the following requirements:

A. If the hazardous waste is not being accumulated speculatively as defined in part 7045.0020, the following apply:

(1) parts 7045.0556, subpart 2, 7045.0580, and 7045.0582;

(2) the generator and facility owner or operator must keep records showing: the volume of the hazardous wastes stored at the beginning of the calendar year; the amount of the hazardous wastes generated or received during the calendar year; and the amount of hazardous wastes remaining at the end of the calendar year.

B. If the hazardous waste is being accumulated speculatively as defined in part 7045.0020, the recyclable hazardous waste is subject to all applicable requirements of parts 7045.0205 to 7045.0642 and chapter 7001.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1688*

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7045.0685 SPENT LEAD-ACID BATTERIES BEING RECLAIMED.

Subpart 1. **Scope.** The requirements of this part apply to persons who generate, transport, collect, store, or reclaim spent lead-acid batteries that are recyclable. Except as provided in subpart 2, persons who generate, transport, or collect spent batteries, or who store spent batteries but do not reclaim them are not subject to regulation under parts 7045.0205 to 7045.0685 and chapter 7001 for such generation, transportation, and storage of spent batteries. For the purpose of this part, indoor storage is storage within a permanently constructed building consisting of at least a roof and three walls permanently affixed to a masonry or other composition floor placed on the ground.

Subp. 2. **Standards for storage of spent batteries.** Storage of spent batteries by persons who do not reclaim them is subject to the following requirements:

A. Storage of batteries indoors shall be on an impermeable curbed surface and provisions shall be made to recontainerize leaking or broken batteries, with regular inspection to assure the integrity of the stored batteries.

B. Storage of spent batteries in a manner other than by indoor storage as defined in subpart 1 shall be subject to the following requirements:

(1) If the storage does not meet the criteria of speculative accumulation as described in part 7045.0020, the storage is subject to the following requirements: storage shall be on an impermeable curbed surface and provisions shall be made to recontainerize leaking or broken batteries, with regular inspection to assure the integrity of the stored batteries; and the requirements of part 7045.0526, subparts 2 to 6, and 9.

(2) If the storage of spent batteries meets the criteria of speculative accumulation as defined in part 7045.0020, the storage is subject to the following requirements: parts 7045.0452 to 7045.0456; 7045.0460 to 7045.0470; 7045.0478 to 7045.0534; 7045.0544; 7045.0552 to 7045.0562; 7045.0566 to 7045.0578; 7045.0584 to 7045.0632; and the permitting requirements of chapter 7001 for hazardous waste storage facilities.

Subp. 3. **Standards for owners or operators of facilities that store spent batteries before reclaiming them.** The owners or operators of facilities that store batteries before reclaiming them are subject to regulation under parts 7045.0452 to 7045.0456; 7045.0460 to 7045.0470; 7045.0478 to 7045.0534; 7045.0544; 7045.0552 to 7045.0562; 7045.0566 to 7045.0578; 7045.0584 to 7045.0632; and the permitting requirements of chapter 7001 for hazardous waste storage facilities.

Statutory Authority: *MS s 116.07 subd 4*

History: *10 SR 1688*

7045.1240 [Repealed, 10 SR 1688]

7045.1250 [Repealed, 10 SR 1688]

7045.1260 [Repealed, 10 SR 1688]

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