7035.2836 COMPOST FACILITIES.

Subpart 1. **Scope.** The requirements of subparts 4 to 7 apply to the owner and operator of a facility used to compost solid waste, including source separated compostables except as provided in part 7035.2525, subpart 2. The owner or operator of a yard waste compost facility must comply with subparts 2 and 3 only.

Subp. 2. **Notification.** The owner or operator of a yard waste compost facility shall submit a notification form to the commissioner on a form prescribed by the commissioner before beginning facility operations. The notification must include: the facility location; the name, telephone number, and address of the contact person; the facility design capacity; the type of yard waste to be received; and the intended distribution of the finished product.

Subp. 3. **Operation requirements for yard waste compost facility.**

A. Odors emitted from the facility shall comply with the applicable provisions of any agency odor rules.

B. Composted yard waste offered for use must be produced by a process that includes turning of the yard waste on a periodic basis to aerate the yard waste, maintain temperatures, and reduce pathogens.

C. Compost will not contain greater than three percent inert materials (dry weight) that are greater than or equal to four millimeters as determined by the testing procedure under subpart 5, item J, subitem (3).

D. By-products, including residuals and recyclables, must be stored in a manner that prevents vector problems and aesthetic degradation. Materials that are not composted must be stored and removed at least weekly.

E. Surface water drainage runoff must be controlled to prevent leachate leaving the facility. Surface water drainage run-on must be diverted from the compost and storage areas.

F. The facility shall be constructed and operated to prevent discharge of yard waste, leachate, residuals, and the final product into waters of the state.

G. The facility operator shall submit an annual report to the commissioner by March 1 of each year for the preceding calendar year that includes the type and quantity, by weight or volume, of yard waste received at the compost facility; the quantity, by weight or volume, of compost produced; an average of the inert test results; the quantity, by weight or volume, of compost removed from the facility; and a market description.

Subp. 4. **Design requirements for solid waste compost facility.** The owner or operator of a compost facility shall submit an engineering design report to the commissioner

for approval with the facility permit application. The engineering report must comply with the design requirements in items A to G.

A. Site preparations must include clearing and grubbing for the compost operating and storage areas, building locations, topsoil stripping, excavations, berm construction, drainage control structures, leachate collection system, access roads, screening, fencing, and other special design features.

B. Access to the facility must be controlled by a perimeter fence and gate or enclosed structures.

C. Surface water drainage must be diverted around and away from the site operating area. A drainage control system, including changes in the site topography, ditches, berms, sedimentation ponds, culverts, energy breaks, and erosion control measures, must comply with part 7035.2855, subpart 3, items C to E.

D. The composting, curing, and storage areas for immature compost must be located on a liner capable of minimizing migration of waste or leachate into the subsurface soil, groundwater, and surface water. The liner must have a permeability no greater than 1×10^{-7} centimeters per second and, if constructed of natural soils, be at least two feet thick. The liner must comply with part 7035.2855, subparts 3, item A; 4; and 5.

E. Liquid in contact with waste, immature compost, and residuals must be diverted to a leachate collection and treatment system. The leachate collection and treatment system must comply with part 7035.2855, subpart 3, item B, and the applicable portions of part 7035.2815, subpart 9, items B to K.

F. The facility must be designed for collection of residuals and must provide for the final transportation and proper disposal of residuals.

G. The facility must be designed and operated to control odors in compliance with the applicable provisions of any agency odor rules.

Subp. 5. **Operation requirements for solid waste compost facility.** The owner or operator of a compost facility shall submit an operation and maintenance manual to the commissioner for approval with the facility permit application. The manual must include a personnel training program plan, a leachate management plan, and a compost sampling plan and must comply with the operation requirements in items A to L.

A. All access points must be secured when the facility is not open for business or when no authorized personnel are on site.

B. The personnel training program plan must address the requirements of part 7035.2545, subparts 3 and 4, and the specific training needed to operate a compost facility in compliance with this subpart and subparts 6 and 7.

C. All wastes delivered to the facility must be confined to a designated delivery area and processed or removed at least once a week to prevent nuisances such as odors, vector intrusion, and aesthetic degradation.

D. All salvageable and recyclable materials must be containerized or stored and removed from the facility in a manner that prevents nuisances such as odors, vector intrusion, and aesthetic degradation.

E. All compost residuals must be stored to prevent nuisances such as odors, vector intrusion, and aesthetic degradation. The residuals must be removed and properly disposed of at least once a week.

F. The leachate management plan must describe how the facility will store, reuse, or dispose of collected leachate. If leachate is to be recirculated into the compost, it must be added prior to initiating the PFRP process described in item I.

G. Odors emitted by the facility must comply with any applicable agency odor rules.

H. The owner or operator must cover or otherwise manage the waste to control wind dispersion of any particulate matter.

I. Compost must be produced by a process to further reduce pathogens (PFRP). The temperature and retention time for the material being composted must be monitored and recorded each working day. Three acceptable methods of a PFRP are described in subitems (1) to (3):

(1) The windrow method for reducing pathogens consists of an unconfined composting process involving periodic aeration and mixing. Aerobic conditions must be maintained during the compost process. A temperature of 55 degrees Celsius must be maintained in the windrow for at least three weeks. The windrow must be turned at least once every three to five days.

(2) The static aerated pile method for reducing pathogens consists of an unconfined composting process involving mechanical aeration of insulated compost piles. Aerobic conditions must be maintained during the compost process. The temperature of the compost pile must be maintained at 55 degrees Celsius for at least seven days.

(3) The enclosed vessel method for reducing pathogens consists of a confined compost process involving mechanical mixing of compost under controlled environmental conditions. The retention time in the vessel must be at least 24 hours with the temperature maintained at 55 degrees Celsius. A stabilization period of at least seven days must follow the enclosed vessel retention period. Temperature in the compost pile must be maintained at least at 55 degrees Celsius for three days during the stabilization period.

J. The owner or operator must comply with the compost sampling and testing plan approved by the commissioner. Proposed changes to sampling equipment or procedures must be submitted to the commissioner for review and approval. Testing must be conducted when each batch of compost matures. The plan must include the sampling and testing requirements in subitems (1) to (6).

(1) The compost maturity must be determined using testing protocol described in the sampling plan. "Mature" means more than 60 percent decomposition has been achieved as determined by an ignition-loss analysis and one test method approved by the commissioner including, but not limited to, the following:

	Test Method	**Maturity Standard**
(a)	Carbon/nitrogen ratio - U.S. EPA Method 9060A: Total Organic Carbon and Dumas	In the range of 10:1 to 20:1
(b)	Dewar Self-Heating Method	Temperature rise above ambient in C°, range of 0° - 20° Celsius
(c)	Respiration Rate, CO_2 Analysis	<2-5 (mg. CO_2-C/g compost carbon-day)
(d)	U of M Z-test - Soil and Crop Research on Municipal Solid Waste Class I Compost Utilization in Minnesota, April 10, 1994	The weight of the worms in the cellulose treatment increases and that of the worms in the noncellulose treatment remains the same
(e)	Cress Seed Germination - Recommended Test Methods, The Composting Council	Germination index in the range of 1.0 - 0.8

(2) Each batch of compost that has been determined to be mature must be analyzed for the metal contaminants listed in subpart 6, item A, subitem (1), using the U.S. EPA test methods in EPA SW-846. PCBs in the compost must be extracted using either method 3540 or 3550 and analyzed with method 8080.

(3) The amount of inert material in each batch of compost that has been determined to be mature must be determined using testing protocol described in the sampling plan. Inert content greater than four millimeters shall be determined by passing four replicates of 250 cc oven-dried (70 degrees Celsius) samples of compost through a four millimeter sieve. Material remaining on the sieve shall be visually inspected and inerts, including glass, metal, and plastic, shall be separated and weighed. The weight of the separated inert material divided by the weight of the total sample, multiplied by 100, shall be the percent dry weight of the inert material content.

(4) The mature compost must be analyzed for the following parameters using the testing protocol described in the sampling plan:

(a) pH;

(b) moisture content;

(c) particle size;

(d) NPK ratio; and

(e) soluble salt content.

(5) The sampling plan must contain techniques for collecting and processing the samples required in subitems (1) to (4), including:

(a) the training and experience qualifications of persons who collect samples;

(b) equipment used to collect, process, and store samples;

(c) sampling equipment cleaning procedures and other actions taken to prevent sample contamination;

(d) the location or locations where samples are collected;

(e) procedures used to collect grab samples;

(f) procedures used to process grab samples to form composite samples;

(g) chain-of-custody and sample storage procedures; and

(h) compost sampling quality assurance and quality control measures.

(6) The sampling plan must describe how the test results from the samples required in subitems (1) to (4) will be utilized to define the compost at distribution, and must include:

(a) a description of the batch process, statistical average, or other method used to classify the compost, and assign it physical and chemical properties; and

(b) a description of the method used to calculate the cumulative and annual pollutant loading rates for Class II compost.

K. An annual report complying with part 7035.2585 must be submitted to the commissioner by March 1 of each year for the preceding calendar year. A record of the following information must be maintained at the facility and included in the annual report:

(1) the quantity of source-separated compostables or solid waste delivered to the facility;

(2) the quantity and general material breakdown of recyclables and rejects removed from the waste;

(3) the sources and quantities of other materials used in the compost process, such as nutrient or bulking agents;

(4) a summary of temperature and retention time for all compost produced verifying that the process, set out in item I, to further reduce pathogens is being met;

(5) the quantity and classification of all compost produced;

(6) a summary of all lab analyses conducted according to the sampling plan approved under item J;

(7) a record of each Class II compost distribution, including the following:

(a) a copy of the information sheet or label accompanying all Class II compost distributions according to subpart 7;

(b) the name of the compost user and a legal description of the application site location, including the quantity of compost and acreage over which it was distributed;

(c) copies of the letters of notification to the local governments; and

(d) a copy of the United States Geological Survey map of the application site and the surrounding areas showing contours and surface waters.

L. If, for any reason, the facility becomes inoperable, the owner or operator of the facility must notify the commissioner within 48 hours and implement the contingency action plan developed under part 7035.2615.

Subp. 6. **Compost classification.** Compost produced at a solid waste compost facility must be classified as Class I or Class II compost based on the criteria outlined in items A and B. Compost test results shall be used to classify the compost according to the approved sampling plan under subpart 5, item J, the maturity standard in subpart 5, item J, subitem (1), and the PFRP requirement in subpart 5, item I.

A. Class I compost must meet the following criteria:

(1) Class I compost cannot exceed the contaminant concentrations in milligram per kilogram on a dry weight basis as listed in the following table or Code of Federal Regulations, title 40, section 503.13(b)(3), as amended, with the exception of mercury, which cannot exceed contaminant concentrations of five milligrams per kilogram.

Contaminant	**Concentration (mg/kg)**
Arsenic (As)	41
Cadmium (Cd)	39
Copper (Cu)	1,500

Lead (Pb)	300
Mercury (Hg)	5
Molybdenum (Mo)	18
Nickel (Ni)	420
Selenium (Se)	100
PCB	6
Zinc (Zn)	2,800

(2) Class I compost must not contain greater than three percent inert materials (dry weight) greater than or equal to four millimeters as determined by tests according to the approved sampling plan under subpart 5, item J, subitems (1) to (5).

B. Class II compost consists of any compost that fails to meet the Class I standards and meets the criteria in subitems (1) and (2):

(1) Class II compost must meet the following pollutant loading rates and have a PCB concentration that does not exceed six milligrams per kilogram.

Pollutant	**Cumulative Pollutant Loading Rate**	
	(lbs/acre)	**(kg/hectare)**
Arsenic	37	41
Cadmium	34	39
Copper	1,338	1,500
Lead	267	300
Mercury	5	5
Molybdenum	16	18
Nickel	374	420
Selenium	89	100
Zinc	2,497	2,800

Pollutant	**Annual Pollutant Loading Rate (for a containerized compost)**	
	(lbs/acre)	**(kg/hectare)**
Arsenic	1.8	2
Cadmium	1.7	1.9

Copper	66.8	75
Lead	13.3	15
Mercury	0.25	0.25
Molybdenum	0.5	0.5
Nickel	18.7	21
Selenium	4.5	5
Zinc	124.6	140

(2) Class II compost must not contain greater than four percent inert materials (dry weight) greater than or equal to four millimeters as determined by tests according to the approved sampling plan under subpart 5, item J, subitems (3) and (5).

Subp. 7. **Compost distribution and end use.** The owner or operator of a solid waste compost facility shall submit a compost distribution plan to the commissioner for approval with the facility permit application. The plan must comply with the requirements in items A to C.

A. Compost distributed or marketed as a fertilizer, specialty fertilizer, soil amendment, or plant amendment, as defined in Minnesota Statutes, section 18C.005, must be registered with the Minnesota Department of Agriculture.

B. The allowable end uses for the compost must be listed and described in the plan.

C. Class I compost may be distributed for unrestricted use. Class II compost may be distributed on a restricted basis. The commissioner or a compost operator trained as required in subpart 5, item B, shall determine the appropriate distribution for a Class II compost used in land application. Compost proposed to be distributed for end uses other than land application may be distributed with the commissioner's approval or as part of the approved facility compost distribution plan under this subpart. All Class II compost distributed must be accompanied by an information sheet or label describing the compost product and its physical and chemical quality, including at least the following information:

(1) the name and address of the generator;

(2) a statement from the generator certifying that the compost meets the Class II classification standards under subpart 6, item B, and providing the standards;

(3) a list of best management practices to use when applying the compost;

(4) the annual or cumulative application rate calculated according to the testing and reporting methods approved under subpart 5, item J, subitem (6);

(5) the compost maturity tested and reported according to subpart 5, item J, subitem (1);

(6) the compost inert content tested and reported according to subpart 5, item J, subitem (3); and

(7) a statement of the compost parameter values tested and reported according to subpart 5.

Statutory Authority: *MS s 116.07*

History: *21 SR 327*

Published Electronically: *September 7, 2006*