

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

PART 3. EMISSION LIMITATIONS AND PROHIBITIONS—PARTICULATE MATTER

R 336.1331 Emission of particulate matter.

Rule 331. (1) It is unlawful for a person to cause or allow the emission of particulate matter from any process or process equipment in excess of any of the following limits:

(a) The maximum allowable emission rate listed in table 31.

(b) The maximum allowable emission rate listed by the department on its own initiative or by application. A new listed value shall be based upon the control results achievable with the application of the best technically feasible, practical equipment available. This applies only to processes and process equipment not assigned a specific emission limit in table 31.

(c) The maximum allowable emission rate specified as a condition of a permit to install or a permit to operate.

(d) The maximum allowable emission rate specified in a voluntary agreement, performance contract, stipulation, or an order of the department.

(e) The maximum allowable emission rate as determined by table 32 for processes and process equipment not covered in subdivisions (a) to (d) of this subrule.

(2) Compliance with any emission limit required by this rule shall be determined by using the corresponding reference test method specified in table 31 or the reference test method deemed appropriate by the department for processes or process equipment not listed in table 31.

(3) Tables 31, 32, 33, 34, and figure 31 read as follows:

TABLE 31
Particulate matter emission schedule

Process or process equipment	Capacity rating for each unit	Maximum allowable emission at operating conditions ¹ (lbs. Particulate/1,000 lbs. gas except as noted)	Applicable reference test method
A. Fuel burning equipment			
1. Pulverized coal (includes cyclone furnaces)	0-1,000,000 lbs. steam per hour.	See figure 31 for maximum emission limit.	5B or 5C
	Over 1,000,000 lbs. steam per hour	Apply to department for specific emission limit.	

Process or process equipment	Capacity rating for each unit	Maximum allowable emission at operating conditions ¹ (lbs. Particulate/1,000 lbs. gas except as noted)	Applicable reference test method
2. Other modes of firing coal (other than pulverized)	0-100,000 lbs. steam per hour. 100,000-300,000 lbs. ² steam per hour. Over 300,000 lbs. steam per hour.	0.65 until superseded by A.3 and A.4. 0.65 - 0.45 Apply to department for specific emission limit.	5B or 5C
3. Other modes of firing coal (other than pulverized) Existing fuel-burning equipment which is in a single structure and which has a combined coal-fired existing capacity less than 250,000,000 Btu per hour.	0-20,000,000 Btu per hour input. 20,000,001 to 100,000,000 Btu per hour input. Over 100,000,000 Btu per hour input	0.65 effective immediately. 0.45 compliance shall be achieved as expeditiously as practical, but not later than July 1, 1981. 0.30 compliance shall be achieved as expeditiously as practical, but not later than December 31, 1982.	5B or 5C 5B or 5C 5B or 5C
4. Other modes of firing coal (other than pulverized) Existing fuel-burning equipment which is in a single structure and which has a combined existing capacity equal to or greater than 250,000,000 Btu per hours.	All sizes	0.30 compliance shall be achieved as expeditiously as practical, but not later than December 31, 1982.	5B or 5C
5. Other modes of firing coal (new processes or process equipment ⁶)	All sizes	0.10	5B or 5C
6. Wood (sawdust, shavings, hogged, other) where heat input of wood fuel greater than 75% of total heat input. All other combination fuel-burning equipment that uses		0.50 Apply to department for specific emission limit.	5B or 5C
7. Combination fuel-firing or combination fuel/waste-firing (new process or process equipment)	All sizes	Apply to department for specific emission limit.	5B or 5C
	Rating in pounds waste per hour		
B. Incinerators			
1. Residential apartments, commercial and industrial ^{3, 4}	0-100 Over 100	0.65 0.30	5B or 5C 5B or 5C

Process or process equipment	Capacity rating for each unit	Maximum allowable emission at operating conditions ¹ (lbs. Particulate/1,000 lbs. gas except as noted)	Applicable reference test method
2. Municipal	All	0.30	5B or 5C
3. Pathological ⁴		0.20	5B or 5C
4. Manure drying or incineration ⁴		0.20	5B or 5C
5. Liquid waste incinerator		0.10 compliance shall be achieved as expeditiously as practical, but not later than December 31, 1982.	5B or 5C
6. Sewage sludge incinerator		0.20 compliance shall be achieved as expeditiously as practical, but not later than December 31, 1982.	5B or 5C
7. Combination fuel-firing or combination fuel/waste-firing (new process or process equipment)	All sizes	Apply to department for specific emission limit.	5B or 5C
	Rating in pounds waste per hour		
C. Steel manufacturing			
1. Basic oxygen furnaces A. Primary control equipment ¹² B. Secondary control equipment ¹³ C. Primary control equipment if also used to control charging and tapping emissions		0.057 ¹¹ 0.038 ¹¹ 0.057 ¹¹	5D 5D 5D
2. Electric furnaces A. Primary control equipment ¹⁴ B. Secondary control equipment ¹⁵ C. Primary control equipment if also used to control charging and tapping emissions		0.057 ¹¹ 0.010 ¹¹ 0.010 ¹¹	5D 5D or 5E 5D or 5E
3. New sintering plants ⁶ A. Main windbox B. Discharge		0.067 ¹¹ 0.038 ¹¹	5D or 5E 5D
4. Existing sintering plants A. Main windbox & discharge		0.125 ¹¹	5D
5. Blast furnaces Blast furnace casthouse air cleaning device ¹⁷		0.02	5D
6. Coke oven combustion stacks		0.095	5D
7. Coke oven push control equipment		0.10 lbs./ton of coke	5D

Process or process equipment	Capacity rating for each unit	Maximum allowable emission at operating conditions ¹ (lbs. Particulate/1,000 lbs. gas except as noted)	Applicable reference test method
9. Scarfing operations		0.057 ¹¹	5D during scarfing operation
D. Ferrous cupola foundry operations⁵			
1. Existing production cupolas ⁷	0-10 10-20 Over 20	0.40 0.25 0.15	5B or 5C 5B or 5C 5B or 5C
2. Existing jobbing cupolas ⁷		0.40	5B or 5C
3. Electric arc melting		0.10	5B or 5C
4. Sand handling		0.10	5B or 5C
5. All new cupolas ⁶	0-15 Over 15	1.8 - 0.7 ^{2, 8} 0.7 ⁸	5B or 5C
E. Chemical and mineral kilns			
		0.20	5B or 5C
F. Asphalt paving plants			
1. Located within a priority I or II area (before January 1, 1980)		0.30	5B or 5C
2. Located within a priority I or II area (after January 1, 1980)		0.10	5B or 5C
3. Located outside priority I and II areas		0.30	5B or 5C
G. Cement manufacture			
1. Kiln - wet or dry process		0.25	5B or 5C
2. Clinker coolers (before January 1, 1981)		0.30	5B or 5C
(after January 1, 1981)		0.10	5B or 5C
3. Grinding, crushing, and other material handling.		0.15	5B or 5C
H. Iron ore pelletizing			
Grate kilns and traveling grates	Over 600,000 300,000-600,000 100,000-300,000 0-100,000	Apply to department for specific emission limit. 0.10 0.15 0.20	5B or 5C 5B or 5C 5B or 5C
I. Fertilizer plants (including ammoniator, granulator, reactor, dryer, cooler blender and all other processes)			
Compliance shall be achieved as expeditiously as practical, but not later than January 1, 1981.		0.10	5B or 5C

Process or process equipment	Capacity rating for each unit	Maximum allowable emission at operating conditions ¹ (lbs. Particulate/1,000 lbs. gas except as noted)	Applicable reference test method
J. <u>Exhaust systems serving material handling equipment not otherwise listed in table 31</u> Compliance shall be achieved as expeditiously as practical, but not later than July 1, 1981.		0.10	5B or 5C

Footnotes:

1. Fuel burning and incineration limitation shall be calculated to 50% excess air.
2. Emission limitations for specific ratings are determined by linear interpolation between the ranges shown.
3. These emission limitations do not apply to domestic incinerators (defined as having not more than 5 cubic feet of storage capacity).
4. Afterburner or approved equivalent is mandatory.
5. Differentiation between jobbing and production foundries.
Cupolas used in a jobbing foundry are the same as those used in a production foundry and vary in size only according to the quantity of iron melted per hour. However, the cupolas in a jobbing foundry are run intermittently just long enough at one time to pour the molds that are ready on the foundry floor, job by job. This might be for a 2- to 4-hour period per day for any number of days per week.
Production foundry cupolas melt continuously to pour a succession of molds that are constantly being prepared to reserve this continuous flow of iron. This could become 8 hours, 16 hours, or 24 hours per day for any number of days per week.
6. New processes or process equipment are defined as those for which the permit to install was issued after January 18, 1980.
7. Any existing cupolas are considered to be in compliance with table 31 of R 336.1331 if they meet the particulate emission limit for new cupolas.
8. Pounds of particulate per ton of charged material.
9. Milligrams per liter of total dissolved solids in the quench water.
10. Milligrams per liter of total dissolved solids in the make-up water.
11. Compliance shall be determined by means of a comparison between the emission limit and the measured emission rate calculated on a dry basis (pounds particulate per 1,000 pounds dry gas).
12. "Primary control equipment", as applied to basic oxygen furnaces, means the control equipment designed to capture and control particulate emissions during oxygen blowing.
13. "Secondary control equipment", as applied to basic oxygen furnaces, means the control equipment designed to capture and control particulate emissions during process steps other than oxygen blowing.
14. "Primary control equipment", as applied to electric furnaces, means the control equipment designed to capture and control particulate emissions during meltdown and refining.
15. "Secondary control equipment", as applied to electric furnaces, means the control equipment designed to capture and control particulate emissions during process steps other than meltdown and refining.

16. "Standard Methods for the Examination of Water and Wastewater" (14th edition) section 208C, as modified in R336.2033, shall be used as the applicable test method.
17. The mass emission limit specified is not applicable where fume suppression technology, approved by the department, is used to control blast furnace casthouse emissions.

FIGURE 31

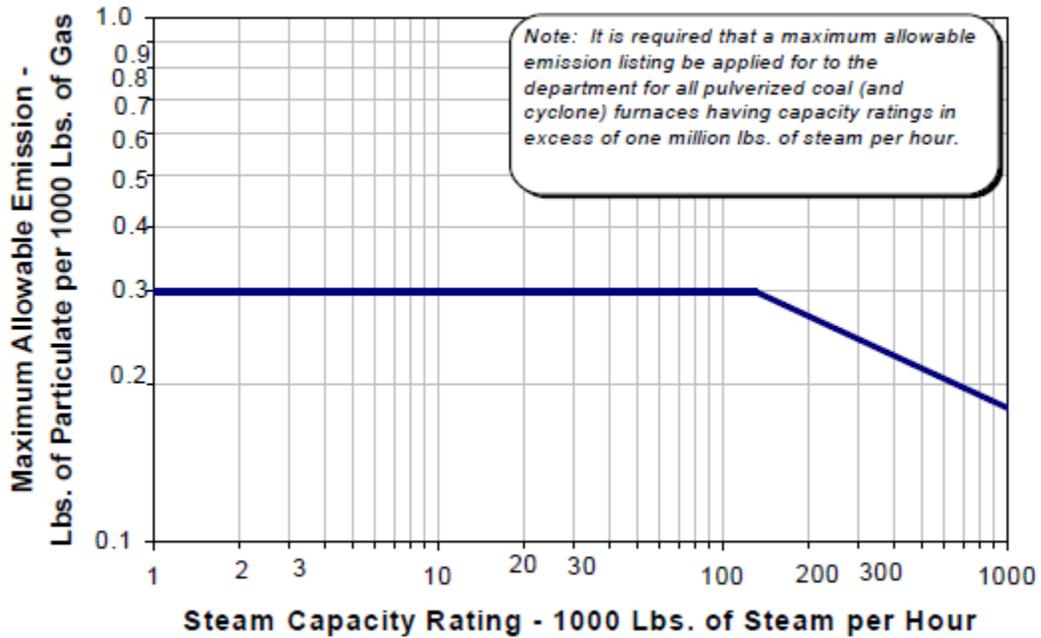


TABLE 32

Allowable rate of emission based on process weight rate ^a					
Process weight rate		Rate of Emission	Process weight rate		Rate of emission
Lb/hr	Tons/hr	Lb/hr	Lb/hr	Tons/hr	Lb/hr
100	0.05	0.55	16,000	8.0	16.5
200	0.10	0.88	18,000	9.0	17.9
400	0.20	1.40	20,000	10.0	19.2
600	0.30	1.83	30,000	15.0	25.2
800	0.40	2.22	40,000	20.0	30.5
1,000	0.50	2.58	50,000	25.0	35.4
1,500	0.75	3.38	60,000	30.0	40.0
2,000	1.00	4.10	70,000	35.0	41.3
2,500	1.25	4.76	80,000	40.0	42.5
3,000	1.50	5.38	90,000	45.0	43.6
3,500	1.75	5.95	100,000	50.0	44.6
4,000	2.00	6.52	120,000	60.0	46.3
5,000	2.50	7.58	140,000	70.0	47.8
6,000	3.00	8.56	160,000	80.0	49.0
7,000	3.50	9.49	200,000	100.0	51.2
8,000	4.00	10.40	1,000,000	500.0	69.0
9,000	4.50	11.20	2,000,000	1,000.0	77.6
10,000	5.00	12.00	6,000,000	3,000.0	92.7
12,000	6.00	13.60			

^a Interpolation of the data in this table for process weight rates up to 60,000 lb/hr shall be accomplished by use of the equation $E = 4.10 P^{0.67}$ and interpolation and extrapolation of the data for process weight rates in excess of 60,000 lb/hr shall be accomplished by use of the equation $E = 55.0 P^{0.11} - 40$, where E = rate of emission in lb/hr and P = process weight in tons/hr.

Process weight -- The total amount of all material introduced into a process, including solid fuels, but excluding liquid fuels and gaseous fuels when these are used as fuels and air introduced for purposes of combustion.

Process weight rate -- For continuous or long-term operation: The total process weight for the entire period of operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof. For batch operations: The total process weight for a period which covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such period.

TABLE 33

Priority I areas

<u>County</u>	<u>Area</u>
Calhoun	T2S, R4W, Section 34
Genesee	Starting on Industrial Avenue, north to Stewart Avenue, east to Hitchcock Street, south to Olive Avenue (extended), south to Robert T. Longway Boulevard, west and southwest to Industrial Avenue.
Lapeer	T7N, R12E, that portion of Section 17 which lies south of M-21 and east of Fairground Road.
Monroe	Starting where Sandy Creek empties into Lake Erie, northwest to Maple Avenue (extended north-northeast), southwest to Elm Avenue, west to Herr Road, south to Dunbar Road and east to Plum Creek (which empties into Lake Erie).
Saginaw	Starting at Tittabawassee Road, east to I-75, east and south to Washington Avenue, west to 6th Street, north to Carrolton Street, northeast to Zilwaukee Street, north to Westervelt Street, north to Tittabawassee Road.
Wayne	Area included within the following (counter clockwise): Lake St. Clair to Moross Road to Seven Mile Road to VanDyke Road to Eight Mile Road to Wyoming Road to Seven Mile Road to Schaeffer Road to Fenkell Road to Greenfield Avenue to Joy Road to Southfield Expressway to Ford Road to Telegraph Road to Cherry Hill Road to Beech-Daly Road (extended) to Michigan Avenue to Inkster Road to Carlisle Street to Middle Belt Road to Vanborn Road to Wayne Road to Pennsylvania Road to Middle Belt Road to Sibley Road to Telegraph Road to King Road to Grange Road to Sibley Road to Jefferson Avenue to Bridge Street (Grosse Ile) extended to Detroit River.

TABLE 34

Priority II areas

<u>County</u>	<u>Area</u>
Bay	T14N, R5E, Sections 14 to16 and 21 to 23.
Delta	T39N, R22W, Sections 19, 30, south one-half of 17, and south one-half of 18.
Genesee	Starting on Industrial Avenue, north to Pierson Road, east to Dort Highway, south to Hitchcock Street, south to Olive Avenue (extended), south to Robert T. Longway Boulevard, west and southwest to Industrial Avenue.

Macomb	T4N, R14E, Sections 27, 28, 33, and 34.
Manistee	T21N, R16W, Sections 7, 18, and 19; T21N, R17W, Sections 12 and 13.
Midland	T14N, R2E, Sections 14 to 16, 21 to 23, 26 to 28, and 33 to 35.
Monroe	T5S, RIOE, Sections 8, 9, and 15 to 17.
Muskegon	T9N, R16W, Sections 5 and 6; T10N, R16W, Sections 21, 22, and 27 to 34.
Saginaw	Northeast section: starting on Tittabawassee Road, east to I-75, south to Wadsworth Avenue, west to I-675, west and north to Tittabawassee Road. Southwest section: T12N, R4E, the eastern half of Section 34 (that which is east of Maple Street) and Section 35.
St. Clair	T6N, R17E, Sections 2 to 4, 9 to 11, 14 to 16, 21, 22, and 28.
Wayne	he area included within the following (counter clockwise): Lake St. Clair to Eight Mile Road to Schaeffer Road to McNichols Road to Greenfield Avenue to Schoolcraft Avenue to Evergreen Road to Joy Road to Telegraph Road to Ford Road to Beech-Daly Road to Cherry Hill Road to Inkster Road to Carlisle Street to Middle Belt Road to VanBorn Road to Wayne Road to Ecorse Road to Haggerty Highway to Tyler Road to Belleville Road to I-94 to Rawsonville Road to Oakville Waltz Road to Will Carleton Road to the Huron River to Lake Erie, except subarea listed in table 33.

History: 1979 ACS 1, Eff. Jan. 19, 1980; 1985 MR 2, Eff. Feb. 22, 1985; 1992 MR 9, Eff. Oct. 31, 1992; 2002 MR 5, Eff. Mar. 19, 2002.