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# **AIR POLLUTION CONTROL RULES**

## **PART 4. EMISSION LIMITATIONS AND PROHIBITIONS - SULFUR-BEARING COMPOUNDS**

**As Amended January 31, 2008**

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**Jennifer M. Granholm, Governor**  
**Steven E. Chester, Director**

**Air Quality Division**  
**Michigan Department of Environmental Quality**

*INTERNET: <http://www.michigan.gov/deqair>*



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G. Vinson Hellwig, Chief  
Air Quality Division  
Constitution Hall, 3<sup>rd</sup> Floor North  
525 West Allegan Street  
P.O. Box 30260  
Lansing, Michigan 48909-7760  
Phone: (517) 373-7023  
Fax: (517) 241-7440

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

As Amended January 31, 2008

**PART 4. EMISSION LIMITATIONS AND PROHIBITIONS - SULFUR-BEARING COMPOUNDS**

**R 336.1401 Emission of sulfur dioxide from power plants.**

Rule 401. (1) In a power plant, it is unlawful for a person to burn fuel that does not comply with the sulfur content limitation of table 41 or which, when burned, results in sulfur dioxide emissions exceeding an equivalent emission rate as shown in table 41. In a power plant located in Wayne county, it is unlawful for a person to burn fuel that does not comply with the sulfur content limitation of table 42 and unlawful to cause or permit a discharge into the atmosphere from fuel-burning equipment sulfur dioxide in excess of the sulfur dioxide concentration limit shown in table 42.

(2) Tables 41 and 42 read as follows:

TABLE 41

Fuel and sulfur dioxide emission limitations for fuel burning equipment

Plant Capacity <sup>(a)</sup>	Maximum average sulfur content in fuel <sup>(b)</sup> Percent by weight	Equivalent emission rates			
		Parts per million by volume (ppmv) corrected to 50% excess air		Pounds of sulfur dioxide per million Btu of heat input	
		Solid fuel <sup>(c)</sup> (12,000 Btu/lb)	Liquid fuel <sup>(d)</sup> (18,000 Btu/lb)	Solid fuel <sup>(c)</sup> (12,000 Btu/lb)	Liquid fuel <sup>(d)</sup> (18,000 Btu/lb)
0-500,000 lbs steam per hour plant capacity	1.5	890	630	2.5	1.67
Greater than 500,000 lbs steam per hour plant capacity	1.0	590	420	1.67	1.11
(a) The total steam production capacity of all coal- and oil-burning equipment in a power plant as of August 17, 1971.					
(b) "Maximum average sulfur content in fuel" means the average sulfur content in all fuels burned at any 1 time in a power plant. The sulfur content shall be calculated on the basis of 12,000 Btu per pound for solid fuels and 18,000 Btu per pound for liquid fuels. The determination of sulfur content (percent by weight) of fuel shall be carried out in accordance with a procedure acceptable to the department.					
(c) Solid fuels include both pulverized coal and all other coal.					
(d) Liquid fuels include distillate oil (No. 1 and No. 2), heavy oil (No. 4, No. 5, and No. 6), and crude oil.					

TABLE 42  
Fuel and sulfur dioxide concentration limitations for fuel burning equipment located in  
Wayne county

Fuel type	Maximum weight percent sulfur content in fuel <sup>(a)</sup> limitations for fuel-burning equipment	SO <sub>2</sub> ppmv emission rates corrected to 50% excess air <sup>(b)</sup>
Pulverized coal	1.00	550
Other coal	0.75	420
Distillate oil Nos. 1 & 2	0.30	120
Waste and used oil	1.0	300 <sup>(c)</sup>
Crude and heavy oil Nos. 4, 5, & 6	1.00	400

(a) The determination of sulfur content (percent by weight) of fuel shall be carried out in accordance with a procedure acceptable to the department.

(b) Recordkeeping necessary to demonstrate compliance with the requirements of this rule and compliance testing must be conducted with a frequency and in a manner acceptable to the department.

(c) A certain degree of control would be required to meet this limit if 1.0% sulfur fuel is used in lieu of 0.75% sulfur fuel which must be documented and demonstrated in a manner acceptable to the department.

(3) The use of fuels having sulfur contents as set forth in table 41 and table 42 shall not allow degradation in the mass rate of particulate emissions, unless otherwise authorized by the department. The department may require source emission tests which may be performed by, or under the supervision of, the department at the expense of the owners and may require the submission of reports to the department both before and after changes are made in the sulfur content in fuel.

(4) The following provisions apply to persons in Wayne county:

(a) The maximum weight percent sulfur content in fuel limitations for fuel-burning equipment provisions of table 42 of this rule shall not apply to any person who uses a combination of fuels in such ratios as to meet the sulfur dioxide concentration limitations specified in table 42 and has obtained written approval from the department for this exemption. The allowable concentration limit will be based on the value in the table for the fuel having the higher allowable concentration limit.

(b) The maximum weight percent sulfur content in fuel limitations for fuel-burning equipment provisions of table 42 of this rule shall not apply to any person who has received an installation permit from the department on a control device to desulfurize the stack gases and the control device is installed and operating properly.

*History: 1979 ACS 1, Eff. Jan. 19, 1980; 2002 MR 5, Eff. Mar. 19, 2002; 2008 MR 2, Eff. Jan. 31, 2008.*

### **R 336.1401a Definitions.**

Rule 401a. As used in this part:

(a) "Power plant" means a single structure devoted to steam or electric generation, or both, and may contain multiple boilers.

(b) "Sulfur recovery plant" means any plant that recovers elemental sulfur from any gas stream.

History: 2008 MR 2, Eff. Jan. 31, 2008.

**R 336.1402 Emission of sulfur dioxide from fuel-burning sources other than power plants.**

Rule 402. (1) At a fuel burning source other than a power plant it is unlawful for a person to cause or allow the emission of sulfur dioxide from the combustion of any coal or oil fuel in excess of 1.7 pounds per million Btu of heat input for oil fuel or in excess of 2.4 pounds per million Btu of heat input for coal fuel.

(2) The provisions of subrule (1) of this rule do not apply to a fuel-burning source that is unable to comply with the specified emission limits because of sulfur dioxide emissions caused by the presence of sulfur in other raw materials charged to the fuel-burning source. This exception shall apply if at any time the actual sulfur dioxide emission rate exceeds the expected theoretical sulfur dioxide emission rate from fuel burning. The expected theoretical sulfur dioxide emission rate shall be based on the quantity of fuel burned and the average sulfur content of the fuel.

(3) At a fuel burning source located in Wayne county other than a power plant, it is unlawful for a person to burn fuel that does not comply with the sulfur content limitation of table 43 and unlawful to cause or allow a discharge into the atmosphere from a fuel burning source of sulfur dioxide in excess of the sulfur dioxide concentration limit shown in table 43.

(4) Table 43 reads as follows:

Table 43

Fuel and sulfur dioxide concentration limitations for fuel burning sources located in Wayne county at a source other than power plants

Fuel type	Maximum weight percent sulfur content in fuel <sup>(a)</sup> limitations for fuel-burning equipment	SO <sub>2</sub> ppmv emission rates corrected to 50% excess air <sup>(b)</sup>
Coal	0.75	420
Distillate oil Nos. 1 & 2	0.30	120
Waste and used oil	1.0	300 <sup>(c)</sup>
Crude and heavy oil Nos. 4, 5, & 6	1.00	400
<p>(a) The determination of sulfur content (percent by weight) of fuel shall be carried out in accordance with a procedure acceptable to the department.</p> <p>(b) Recordkeeping necessary to demonstrate compliance with the requirements of this rule and compliance testing must be conducted with a frequency and in a manner acceptable to the department.</p> <p>(c) A certain degree of control would be required to meet this limit if 1.0% sulfur fuel is used in lieu of 0.75% sulfur fuel which must be documented and demonstrated in a manner acceptable to the department.</p>		

(5) The use of fuels having sulfur contents as set forth in table 43 shall not allow degradation in the mass rate of particulate emissions, unless otherwise authorized by the

department. The department may require source emission tests which may be performed by, or under the supervision of, the department at the expense of the owners and may require the submission of reports to the department both before and after changes are made in the sulfur content in fuel.

(6) The following provisions apply to persons in Wayne county:

(a) The maximum weight percent sulfur content in fuel limitations for fuel-burning equipment provisions of table 43 of this rule shall not apply to a person who uses a combination of fuels in such ratios as to meet the sulfur dioxide concentration limitations specified in table 43 and has obtained written approval from the department for this exemption. The allowable concentration limit will be based on the value in the table for the fuel having the higher allowable concentration limit.

(b) The maximum weight percent sulfur content in fuel limitations for fuel-burning equipment provisions of table 43 of this rule shall not apply to a person who has received an installation permit from the department for a control device to desulfurize the stack gases and the control device is installed and operating properly.

*History: 1979 ACS 1, Eff. Jan. 19, 1980; 2008 MR 2, Eff. Jan. 31, 2008.*

**R 336.1403 Oil- and natural gas-producing or transporting facilities and natural gas-processing facilities; emissions; operation.**

Rule 403. (1) Except as provided in subrule (3) of this rule, it is unlawful for a person to cause or allow the emission of sour gas from an oil- or natural gas-producing or transporting facility or a natural gas- processing facility without burning or equivalent control of hydrogen sulfide and mercaptans.

(2) Except as provided in subrule (3) of this rule, sour gas that is burned at an oil- or natural gas-producing or transporting facility or at a natural gas-processing facility shall be burned in a properly engineered flare, incinerator, or other combustion system with elevated discharge to the atmosphere. If the flare, incinerator, or other combustion system burns sour gas in such volume and with such hydrogen sulfide concentration that the daily quantity of hydrogen sulfide in the gas is less than 28 pounds, then it shall be equipped with either a pilot flame which will burn continuously when gas flows to the flare, incinerator, or other combustion system or with an automatic ignition system, unless otherwise authorized by the department. If the flare, incinerator, or other combustion system burns sour gas in such volume and with such hydrogen sulfide concentration that the daily quantity of hydrogen sulfide in the gas is 28 pounds or more, then it shall be equipped with a continuously burning pilot flame and a mechanism which will operate, upon failure of the pilot flame, to shut off the flow of gas, unless otherwise authorized by the department.

(3) The provisions of subrules (1) and (2) of this rule do not apply to either of the following:

(a) Crude oil-producing facilities that serve a well or group of wells which attained an average production level of 10 or less barrels per day per well before January 1, 1978, unless the department has received 1 complaint of odors regarding the facility, and the owner or operator is unable to or fails to demonstrate, to the satisfaction of the department,

that the uncontrolled hydrogen sulfide and mercaptan emissions do not cause an odor nuisance or health hazard.

(b) A vessel or a battery of vessels that releases a total daily volume of vapors of less than 5,000 standard cubic feet, if the owner or operator demonstrates both of the following:

(i) Combustion of the vapors is not economically reasonable.

(ii) The uncontrolled release of the vapors will not cause a violation of the provisions of R 336.1901.

(4) A person shall not cause or allow the emission of sulfur dioxide from a new sweetening facility, unless such emissions are controlled using the best available control technology.

(5) The operator of a sour gas-, crude-, or condensate-sweetening facility shall do all of the following:

(a) Monitor the mass flow rate of hydrogen sulfide either entering the plant or going to the waste gas flare or flares on a periodic schedule specified by the department. The monitoring program shall include a determination of the hydrogen sulfide concentration using colorimetric detector tubes or their equivalent and a determination of the volumetric gas flow rate. The monitoring data shall be submitted to the department in an acceptable format within 30 days following the end of the month in which the data were collected.

(b) Provide fencing, warning signs, or other measures as necessary to warn or deter unauthorized individuals from entering the plant property or buildings. Signs shall read: "Danger--Poison Gas," with at least 1 sign on each side of the plant property.

(c) Provide control of malodorous emissions from any pressure relief valve or valves, storage tanks, and dehydrator vent or vents by burning or equivalent control.

(d) Conduct a program of continuous monitoring of concentrations of hydrogen sulfide in any building enclosing a sweetening process. The sensor shall be placed as close to process equipment as practicable. The system shall be designed, installed, and maintained to provide a visual alarm when the hydrogen sulfide concentration is more than 50 ppm.

(e) Automatically begin a safe and orderly shutdown of all process inflow streams to the facility if the concentration of hydrogen sulfide is more than 100 ppm in any building enclosing a sweetening process. Full operation may be resumed only after successful corrective measures have been applied.

(f) Automatically commence shut-in of the facility within 1 second after extinguishment of the flare flame, unless otherwise authorized by the department. Operation of the facility shall not continue unless corrective measures taken to reignite the flame are successful.

(6) A new sweetening facility shall not be installed at a distance of less than 1,300 feet from an existing residence, unless otherwise authorized by the department. Such authorization shall depend upon a satisfactory showing by a permit applicant that an odor nuisance shall not result from a lesser setback distance.

*History: 1979 ACS 1, Eff. Jan. 19, 1980; 1989 MR 4, Eff. Apr. 20, 1989; 2002 MR 5, Eff. Mar. 19, 2002.*

**R 336.1404 Emission of sulfur dioxide and sulfuric acid mist from sulfuric acid plants.**

Rule 404. (1) It is unlawful for a person to cause or allow the emission of sulfuric acid mist from any sulfuric acid plant in excess of 0.50 pounds per ton of acid produced, the production being expressed as 100% sulfuric acid.

(2) It is unlawful for a person in Wayne county to cause or allow sulfur dioxide emissions into the atmosphere from any sulfuric acid plant to exceed 6.5 pounds per ton of acid produced.

(3) Compliance with this rule shall be demonstrated using a procedure acceptable to the department.

*History: 1979 ACS 1, Eff. Jan. 19, 1980; 2008 MR 2, Eff. Jan. 31, 2008.*

**R 336.1405 Emissions from sulfur recovery plants located within Wayne county.**

Rule 405. At sulfur recovery plants located in Wayne county, a person shall not cause or allow the emission into the atmosphere of sulfur dioxide, sulfur trioxide, or sulfuric acid from any such sulfur recovery plant to exceed 0.01 pounds per pound of sulfur produced.

*History: 2008 MR 2, Eff. Jan. 31, 2008.*

**R 336.1406 Hydrogen sulfide emissions from facilities located within Wayne county.**

Rule 406. (1) A person in Wayne county shall not cause or allow the combustion of any refinery process gas stream that contains hydrogen sulfide in a concentration of greater than 100 grains per 100 cubic feet of gas without removal of the hydrogen sulfide in excess of this concentration.

(2) When the odor of hydrogen sulfide is found to exist beyond the property line of a source, a person in Wayne county shall not cause or allow the concentration of hydrogen sulfide to exceed 0.005 parts per million by volume for a maximum period of 2 minutes.

*History: 2008 MR 2, Eff. Jan. 31, 2008.*

**R 336.1407 Sulfur compound emissions from sources located within Wayne county and not previously specified.**

Rule 407. Both of the following apply to process and fuel burning sources located within Wayne county to which the provisions of R 336.1401 to R 336.1406 do not apply.

(a) A person shall not cause or allow the emission into the atmosphere gases with a concentration of sulfur dioxide greater than 300 parts per million by volume, which shall be corrected to 50% excess air.

(b) A person shall not cause or allow the emission into the atmosphere gases with a concentration of sulfuric acid or sulfur trioxide or a combination thereof greater than 15 milligrams per cubic meter, which shall be corrected to 50% excess air.

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*History: 2008 MR 2, Eff. Jan. 31, 2008.*

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**R 336.1420 Applicability determinations, definitions, and permitting requirements under CAIR sulfur dioxide trading program.**

Rule 420. (1) As used in this rule, “CAIR” means clean air interstate rule.

(2) The provisions of 40 C.F.R. §97.202, §97.220 to §97.224 and the appropriate opt-in provisions of 40 C.F.R. §97.280 to §97.288 (2006) are adopted by reference in this rule and are applicable to these rules. Copies of 40 C.F.R. §97.202, §97.220 to §97.224, and §97.280 to §97.288 are available for inspection and purchase at the Department of Environmental Quality, Air Quality Division, 525 West Allegan Street, P.O. Box 30260, Lansing, Michigan 48909-7760, at a cost as of the time of adoption of this rule of \$70.00. Copies may also be obtained from the Superintendent of Documents, Government Printing Office, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954, at a cost as of the time of adoption of this rule of \$60.00; or on the United States government printing office internet web site at [www.access.gpo.gov](http://www.access.gpo.gov).

(3) Each CAIR sulfur dioxide source, as defined in 40 C.F.R. §97.202 is required to apply for a CAIR permit in accordance with 40 C.F.R. §97.220 to §97.224. This permit shall be administered in accordance with the procedural requirements of R 336.1214 and shall be incorporated into the facility's renewable operating permit as an attachment.

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*History: 2008 MR 2, Eff. Jan. 31, 2008.*

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