Chapter 101: VISIBLE EMISSIONS REGULATION

SUMMARY: This regulation establishes visible emissions limitations for emissions from several categories of air contaminant sources.

# Scope/Applicability

## Geographic scope.

This regulation applies statewide.

## General requirements.

1. No person shall emit or cause to be emitted any visible air contaminants that exceed the visible emissions standards of Sections 4 or 5 of this Chapter, unless the source islisted in Section 1(C) of this Chapter.
2. Emission units subject to this Chapter may also be subject to more stringent visible emissions standards pursuant to air emission license conditions, Best Available Control Technology (BACT), National Emissions Standards for Hazardous Air Pollutants (NESHAP), Best Practical Treatment (BPT), and/or New Source Performance Standards (NSPS).
3. At all times, including periods of startup, shutdown, malfunction, and maintenance activities as described in this Chapter, the owner or operator shall maintain and operate the emissions unit and any air pollution control devices in a manner consistent with good engineering practice to minimize emissions.

Note: Copies of the ASTM standards incorporated by reference are available in the issuing organization’s Reading Room online at:

<https://www.astm.org/products-services/standards-and-publications/astm-reading-room.html>.

Copies of State rules incorporated by reference are available on the Maine Secretary of State website at: <https://www.maine.gov/sos/cec/rules/06/chaps06.htm>.

Copies of Federal regulations or test methods incorporated by reference are available on the eCFR website at: <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C>.

## Exemptions from this Chapter.

The following are exempt from this Chapter:

1. Incinerators regulated by 06-096 C.M.R. ch. 104;
2. Permitted open burning regulated by 06-096 C.M.R. ch. 102;
3. Emissions of condensed, uncombined water vapor;
4. Diesel-powered motor vehicles regulated by 06-096 C.M.R. ch. 146;
5. Visible air contaminants emitted for the purpose of either of the following:
6. visible emissions observer training pursuant to EPA Method 9 or 22, or
7. firefighter training;
8. Visible air contaminants emitted for the purpose of Predictive Emission Monitoring Systems (PEMS) research that has been approved by the Department and EPA; and
9. Emission units regulated under *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*, 40 C.F.R. Part 63, Subpart DDDDD (as published December 5, 2022), that meet one or more of the following criteria:
10. The unit was constructed or reconstructed after June 4, 2010;
11. The unit is subject to a 10% opacity limit or the highest hourly average opacity reading measured during the performance test run demonstrating compliance with the applicable particulate matter (PM) or total select metals (TSM) emission limitation as described in Table 4 of 40 C.F.R. Part 63, Subpart DDDDD; or
12. The unit is listed in Table 2 of 40 C.F.R. Part 63, Subpart DDDDD and has a filterable particulate matter limitation of less than or equal to 4E-02 pounds per million British thermal units (lb/MMBtu).

# Definitions.

Unless otherwise indicated, the following terms as used in this Chapter have the listed meanings. Additional applicable definitions may be found in *Definitions Regulation*, 06-096 C.M.R. ch. 100.

1. **Bake-out.** “Bake-out” means the removal of condensed or collected material from the heat exchanger of an RTO or the catalyst of an RCO through heating the media to elevated temperatures.
2. **Boiler.** “Boiler” means an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water. This term does not include process heaters as defined in this Chapter. A device that combusts a solid waste as defined in 40 C.F.R. § 241.3 is not a boiler.
3. **Continuous Opacity Monitoring System (COMS).** “Continuous Opacity Monitoring System” or “COMS” means the total equipment required for the determination of opacity emissions, including the associated data recording equipment, required pursuant to an air emission license condition and operated in accordance with *Source Surveillance – Emissions Monitoring*, 06‑096 C.M.R. ch. 117.
4. **Distillate fuel.** “Distillate fuel” means the following:
	1. Fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials (ASTM) in ASTM D396 as published in October 2010;
	2. Diesel fuel oil numbers 1 or 2, as defined in ASTM D975 as published in December 2013;
	3. Kerosene, as defined in ASTM D3699 as published in September 2008;
	4. Biodiesel, as defined in ASTM D6751 as published in July 2011; or
	5. Biodiesel blends, as defined in ASTM D7467 as published in August 2010.
5. **License condition.** “License condition” means a condition found in the Order section of an air emission license issued pursuant to *Major and Minor Source Air Emission License Regulation*, 06‑096 C.M.R. ch. 115, or *Part 70 Air Emission License Regulation,* 06‑096 C.M.R. ch. 140.
6. **Make-up air units.** “Make-up air units” means equipment designed to provide interior space heating or cooling to make up for ventilation loss. The make-up air unit brings fresh air into the space and heats or cools it to the desired condition.
7. **Multi-fuel boiler or process heater.** “Multi-fuel boiler or process heater” means a boiler or process heater that is designed to fire more than one type of fuel concurrently.
8. **Process heater.** “Process heater” means an enclosed device using controlled flame where the unit’s primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to heat a transfer material (e.g., glycol) for use in a process unit instead of generating steam. Process heaters are devices in which the combustion gases do not come into direct contact with the process materials.
9. **Quarter.** For standards that require compliance to be demonstrated on a quarterly basis, “quarter” means the period of time from January 1 to March 31 inclusive, April 1 to June 30 inclusive, July 1 to September 30 inclusive, and October 1 to December 31 inclusive.
10. **Recovery furnace.** “Recovery furnace” has the same meaning as “recovery boiler” as defined in *Definitions Regulation,* 06-096 C.M.R. ch. 100.
11. **Regenerative Catalytic Oxidizer (RCO).** “Regenerative Catalytic Oxidizer” or “RCO” means a pollution control device typically used to reduce emissions of volatile organic compounds and hazardous air pollutants. The RCO raises the temperature of the exhaust stream to oxidize (burn) or pyrolyze (thermally break down) the pollutants. A heat exchanger is used to preheat the exhaust and/or recover waste heat from the treated stream; a catalyst is used to facilitate oxidation at a lower temperature.
12. **Regenerative Thermal Oxidizer (RTO).** “Regenerative Thermal Oxidizer” or “RTO” means a pollution control device typically used to reduce emissions of volatile organic compounds and hazardous air pollutants. The RTO raises the temperature of the exhaust stream to oxidize (burn) or pyrolyze (thermally break down) the pollutants. A heat exchanger is used to preheat the exhaust and/or recover waste heat from the treated stream.

# Compliance Methods

## For emission units that operate a Continuous Opacity Monitoring System (COMS), the COMS shall be the primary method for demonstrating compliance with the numerical visible emissions (i.e., percent opacity) standards contained in this regulation.

## For emission units or stationary sources that do not operate a COMS, the primary method for demonstrating compliance with the numerical visible emissions (i.e., percent opacity) standards contained in this regulation shall be observations conducted in accordance with 40 C.F.R. Part 60, Appendix A, Method 9 (as published December 7, 2020), unless otherwise specified.

# Visible Emissions Standards

The following standards shall apply except as provided in Section 5 of this Chapter:

## Fuel burning equipment.

Equipment shall be subject to one of the standards in this section:

### Boilers and Process Heaters Firing #4, #5, or #6 Fuel Oil

Boilers and process heaters firing #4, #5, or #6 fuel oil shall comply with either (a) or (b) below, as applicable:

1. Units Not Monitored by a COMS
2. Visible emissions from any unit with a maximum heat input less than 100 million British thermal units per hour (MMBtu/hr) that is not monitored by a COMS shall not exceed 20 percent opacity on a six (6) minute block average basis.
3. Visible emissions from any unit with a maximum heat input of 100 MMBtu/hr or greater that is not monitored by a COMS shall not exceed 20 percent opacity on a six (6) minute block average basis, except for periods of startup, shutdown, or malfunction during which time the owner or operator must meet the normal operating visible emissions standard or the following alternative visible emissions standards.

During periods of startup, shutdown, or malfunction, visible emissions shall not exceed 30 percent opacity on a six (6) minute block average basis. This alternative visible emissions standard shall not be utilized for more than one hour (10 consecutive six-minute block averages) per event. The owner or operator shall keep records as specified in Section 6 of this Chapter.

1. Units Monitored by a COMS

Visible emissions from any unit that is monitored by a COMS shall not exceed 20 percent opacity on a six (6) minute block average basis for 95 percent of all six (6) minute block averages on a quarterly basis. The remaining 5 percent of all six (6) minute block averages on a quarterly basis shall be no greater than 40 percent opacity. Periods of startup, shutdown, and malfunctions are included for the purpose of calculating block averages under this subsection. Periods when the unit is not operating are not included for the purpose of calculating block averages under this subsection.

### Boilers, Process Heaters, and Make-up Air Units Firing Distillate Fuel

Visible emissions from any unit firing distillate fuel shall not exceed 20 percent opacity on a six (6) minute block average basis.

### Boilers, Process Heaters, and Make-up Air Units Firing Natural Gas or Propane

Visible emissions from any unit firing natural gas or propane shall not exceed 10 percent opacity on a six (6) minute block average basis.

### Stationary Internal Combustion Units

Except as provided for below, visible emissions from any stationary internal combustion unit (either reciprocating engine or combustion turbine) shall not exceed 20 percent opacity on a six (6) minute block average basis.

During periods of startup, the unit owner or operator of a stationary reciprocating engine that fires distillate fuel and was constructed prior to April 1, 2006, must meet the normal operating visible emissions standard or the following work practice standards and alternative visible emissions standard. Use of the following work practice standards and alternative visible emissions standard in lieu of the normal operating visible emissions standard is limited to no more than once per day.

1. The duration of the startup shall not exceed 30 minutes per event;
2. Visible emissions shall not exceed 50 percent opacity on a six (6) minute block average basis; and
3. The owner or operator shall keep records as specified in Section 6 of this Chapter.

### Boilers and Process Heaters Firing Wood /Biomass

Boilers and process heaters firing wood/biomass shall comply with either (a) or (b) below:

1. Units Not Monitored by a COMS

Visible emissions from any unit that is not monitored by a COMS shall not exceed 30 percent opacity on a six (6) minute block average basis, except for periods of startup, shutdown, or malfunction during which time the owner or operator must meet the normal operating visible emissions standard or the following alternative visible emissions standard.

During periods of startup, shutdown, or malfunction, visible emissions shall not exceed 40 percent opacity on a six (6) minute block average basis. This alternative visible emissions standard shall not be utilized for more than two hours (20 consecutive six‑minute block averages) per event. The owner or operator shall keep records as specified in Section 6 of this Chapter.

1. Units Monitored by a COMS

Visible emissions from any unit that is monitored by a COMS shall not exceed 20 percent opacity on a six (6) minute block average basis for 95 percent of all six (6) minute block averages on a quarterly basis. The remaining 5 percent of all six (6) minute block averages on a quarterly basis shall be no greater than 45 percent opacity. Periods of startup, shutdown, and malfunctions are included for the purpose of calculating block averages under this subsection. Periods when the unit is not operating are not included for the purpose of calculating block averages under this subsection.

### Multi-Fuel Boilers or Process Heaters

Multi-fuel boilers or process heaters shall comply with either (a) or (b) below:

1. Units Not Monitored by a COMS

Multi-Fuel boilers or process heaters that are not monitored by a COMS shall comply with either (i) or (ii) below:

1. Visible emissions from any unit that is burning multiple fuels concurrently and is not monitored by a COMS shall not exceed 30 percent opacity on a six (6) minute block average basis, except for periods of startup, shutdown, or malfunction during which time the owner or operator must meet the normal operating visible emissions standard or the following alternative visible emissions standard.

During periods of startup, shutdown, or malfunction, visible emissions shall not exceed 40 percent opacity on a six (6) minute block average basis. This alternative visible emissions standard shall not be utilized for more than two hours (20 consecutive six-minute block averages) per event. The owner or operator shall keep records as specified in Section 6 of this Chapter.

1. During periods of time when only one type of fuel is being fired in any unit that is not monitored by a COMS, visible emissions shall not exceed an opacity equivalent to the applicable standard for a unit that fires that single fuel.
2. Units Monitored by a COMS

Visible emissions from any unit that is monitored by a COMS shall not exceed 20 percent opacity on a six (6) minute block average basis for 95 percent of all six (6) minute block averages on a quarterly basis. The remaining 5 percent of all six (6) minute block averages on a quarterly basis shall be no greater than 45 percent opacity. Periods of startup, shutdown, and malfunctions are included for the purpose of calculating block averages under this subsection. Periods when the unit is not operating are not included for the purpose of calculating block averages under this subsection.

### Recovery Furnaces

1. Each recovery furnace shall be monitored by a COMS.
2. Visible emissions from any recovery furnace shall not exceed 20 percent opacity on a six (6) minute block average basis for 95 percent of all six (6) minute block averages on a quarterly basis. The average of the remaining 5 percent of all six (6) minute block averages on a quarterly basis shall not exceed 30 percent opacity. Periods of startup, shutdown, and malfunctions are included for the purpose of calculating block averages under this subsection. Periods when the unit is not operating are not included for the purpose of calculating block averages under this subsection.

Note: A recovery furnace shall be considered to be operating whenever any fuel is being fired, regardless of whether black liquor is being fired or not.

### Other Fuel Burning Equipment

Equipment that burns any fuel that is not otherwise specifically listed in this section and is not an asphalt plant shall comply with either (a) or (b) below:

1. Units Not Monitored by a COMS

Visible emissions from any unit that is not monitored by a COMS shall not exceed 30 percent opacity on a six (6) minute block average basis, except for periods of startup, shutdown, or malfunction during which time the owner or operator must meet the normal operating visible emissions standard or the following alternative visible emissions standards.

1. During periods of startup, shutdown, or malfunction, visible emissions shall not exceed 40 percent opacity on a six (6) minute block average basis. This alternative visible emissions standard shall not be utilized for more than two hours (20 consecutive six-minute block averages) per event. The owner or operator shall keep records as specified in Section 6 of this Chapter.
2. During periods of equipment maintenance as addressed in Section 5 of this Chapter, the unit owner or operator must meet the normal operating visible emissions standard or the alternative visible emissions standards and work practice standards specified in that section. The owner or operator shall keep records as specified in Section 6 of this Chapter.
3. Units Monitored by a COMS

Visible emissions from any unit that is monitored by a COMS shall not exceed 20 percent opacity on a six (6) minute block average basis for 95 percent of all six (6) minute block averages on a quarterly basis. The remaining 5 percent of all six (6) minute block averages on a quarterly basis shall be no greater than 45 percent opacity. Periods of startup, shutdown, and malfunctions are included for the purpose of calculating block averages under this subsection. Periods when the unit is not operating and periods when alternative work practice standards are used pursuant to Section 5 of this Chapter are not included for the purpose of calculating block averages under this subsection.

For any fuel burning equipment monitored by COMS, the COMS shall record opacity on a six (6) minute block average basis.

## General process sources

1. Visible emissions from any asphalt plant baghouse shall not exceed 20 percent opacity on a six (6) minute block average basis.
2. Visible emissions from rock crushers shall not exceed 10 percent opacity on a six (6) minute block average basis.
3. Visible emissions from baghouses, excluding asphalt plant baghouses, shall not exceed 10 percent opacity on a six (6) minute block average basis.
4. Visible emissions from any general process source not specifically listed in this section shall not exceed 20 percent opacity on a six (6) minute block average basis.
5. For any general process source monitored by a COMS, the COMS shall record opacity on a six (6) minute block average basis.

## Fugitive emission sources

1. No owner or operator of a facility with an active air emission license issued pursuant to *Major and Minor Source Air Emission License Regulation*, 06-096 C.M.R. ch. 115, or *Part 70 Air Emission License Regulation,* 06-096 C.M.R. ch. 140, shall cause emissions of any fugitive dust during any period of construction, reconstruction, or operation without taking reasonable precautions. Such reasonable precautions shall be included in the facility’s continuing program of best management practices for suppression of fugitive particulate matter and shall include, but not be limited to the following:
2. The use of water or other appropriate material to prevent airborne particulate matter generated by the demolition of buildings or other structures; construction operations; the clearing or grading of land; or the grading, construction, or improvement of roads;
3. The application of asphalt, water, suitable materials, wind barriers, or covers to material stockpiles, roads, and other surfaces that can be sources of airborne particulate matter;
4. The use of hoods, fans, suction devices, fabric filters, or other devices to enclose, vent, and control visible emissions from the handling of materials that can be the source of airborne particulate matter;
5. The covering, while in motion, of open-bodied trucks, open-bodied trailers, and railroad cars transporting materials that may be sources of airborne particulate matter;
6. The prompt removal of earth or other material deposited onto paved surfaces by trucking, earth moving equipment, erosion, or other means; and
7. The use of containment methods for sandblasting or similar operations.
8. No person shall cause or allow visible emissions within 20 feet of ground level, measured as any level of opacity and not including water vapor, beyond the legal boundary of the property on which such emissions occur. Compliance with this standard shall be determined pursuant to 40 C.F.R. Part 60, Appendix A, Method 22 (as published December 7, 2020).

## Combined stack emissions

Except as provided for in Section 5 of this Chapter, visible emissions from two or more of any combination of sources subject to this Chapter which are operating concurrently and emitting air contaminants through a common stack or vent shall comply with either (1) or (2) below. Sources which emit through a common stack subject to this section are subject to the standards applicable to individual sources elsewhere in this Chapter when only one of the sources is in operation.

1. Visible emissions from a common stack that is not monitored by a COMS shall not exceed an opacity equivalent to the highest applicable standard for the individual units which exhaust to the common stack. During periods when at least one unit is subject to an alternative limit due to startup, shutdown, or malfunction or is complying with an alternative work practice standard, the alternative standard or alternative work practice standard shall apply to the common stack.
2. Visible emissions from a common stack that is monitored by a COMS shall not exceed an opacity equivalent to the highest applicable standard for the individual units which exhaust to the common stack.

# Alternative Emission Standards and Work Practice Standards for Periods of Equipment Maintenance

## RTO/RCO bake-out

RTOs and RCOs that were initially designed, constructed, and permitted to allow for a bake-out as a routine maintenance activity must meet the applicable normal operating visible emissions standard in Section 4(A)(6) or the following work practice standards during periods of bake-out.

1. The owner or operator shall keep records as specified in Section 6 of this Chapter;
2. Bake-out events shall not occur more frequently than six times per calendar year;
3. Once the RTO or RCO chamber is at temperature for bake-out to begin, the duration of each bake-out event shall not exceed three hours; and
4. During the bake-out event, visible emissions shall not exceed 60 percent opacity on a six (6) minute block average basis.

## Reserved.

# Recordkeeping

Whenever an owner or operator elects to comply with an alternative emission standard or work practice standards for periods of startup, shutdown, malfunction, or equipment maintenance, the owner or operator shall keep records sufficient to document the date, time, and duration of each event. These records shall be maintained for at least six years and provided to the Department upon request.

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AMENDED:

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