

SUBCHAPTER 2D - AIR POLLUTION CONTROL REQUIREMENTS
SECTION 2D.0400 - AMBIENT AIR QUALITY STANDARDS

.0401 PURPOSE

(a) The purpose of the ambient air quality standards, set out in this Section, is to establish certain maximum limits on parameters of air quality considered desirable for the preservation and enhancement of the quality of the state's air resources. Furthermore, the objective of the commission, consistent with the North Carolina Air Pollution Control Law, shall be to prevent significant deterioration in ambient air quality in any substantial portion of the state where existing air quality is better than the standards. An atmosphere in which these standards are not exceeded should provide for the protection of the public health, plant and animal life, and property.

(b) Ground level concentrations of pollutants will be determined by sampling at fixed locations in areas beyond the premises on which a source is located. The standards are applicable at each such sampling location in the state.

(c) No facility or source of air pollution shall cause any ambient air quality standard in this Section to be exceeded or contribute to a violation of any ambient air quality standard in this Section except as allowed by rules .0531 or .0532 of this Subchapter.

History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(3);
 Eff. February 1, 1976;
 Amended Eff. December 1, 1992; October 1, 1989; July 1, 1984.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg.	Jan 27, 1972	May 31, 1972	37 FR 10884
1 st Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 nd Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
3 rd Revision	Jul 14, 1989	Mar 12, 1990	55 FR 9125
4 th Revision	Mar 03, 1993	Aug 15, 1994	59 FR 41708

.0402SULFUROXIDES

(a) The ambient air quality standard for sulfur oxides measured as sulfur dioxide are:

- (1) 80 micrograms per cubic meter (0.03 ppm) annual arithmetic mean;
- (2) 365 micrograms per cubic meter maximum (0.14 ppm) 24-hour concentration not to be exceeded more than once per year.
- (3) 1300 micrograms per cubic meter (0.5 ppm) maximum 3-hour concentration not to be exceeded more than once per year.

(b) Sampling and analysis shall be in accordance with procedures in Appendix A or A-1 40 CFR Part 50 or by a Federal Equivalent Method (FEM) designated in accordance with 40 CFR Part 53.

(c) Applicability of the standards listed in Paragraph (a)(1) and (2) of this rule is in effect until one year after the effective date of initial designations under Section 107(d) of the Clean Air Act for the sulfur dioxide standard in Paragraph (d) of this Rule.

(d) The primary one-hour annual ambient air quality standard for oxides of sulfur is 75 parts per billion (ppb, which is 1 part in 1,000,000,000), measured in the ambient air as sulfur dioxide.

(e) The one-hour primary standard is met at an ambient air quality monitoring site when the three-year average of the annual (99th percentile) of the daily maximum one-hour average concentrations is less than or equal to 75 ppb, as determined in accordance with Appendix T of 40 CFR Part 50.

History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);
Eff. February 1, 1976;
Amended Eff. September 1, 2011; July 1, 1984;
December 1, 1976.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg	Jan 27, 1972	May 31, 1972	37 FR 10884
1 st Revision	Mar 23, 1976	Jun 23, 1976	41 FR 25899
2 nd Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
3 rd Revision	Nov 1, 1976	Apr 18, 1977	42 FR 20133 [minor]
4 th Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
5 th Revision	Aug 13, 2012	Jul 20, 2015	80 FR 42733

.0403 TOTAL SUSPENDED PARTICULATES

(a) The ambient air quality standards for suspended particulate matter are:

- (1) 75 micrograms per cubic meter annual geometric mean;
- (2) 150 micrograms per cubic meter maximum 24-hour concentration not to be exceeded more than once per year.

(b) Sampling and analysis shall be in accordance with procedures in Appendix B of 40 CFR Part 50 or equivalent methods established under 40 CFR Part 53.

History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(3);
Eff. February 1, 1976;
Amended Eff. July 1, 1988; July 1, 1984; October 15, 1981.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg.	Jan 27, 1972	May 31, 1972	37 FR 10884
1 st Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 nd Revision	Nov 1, 1976	Apr 18, 1977	42 FR 20133
3 rd Revision	Sep 14, 1981	Jul 26, 1982	47 FR 32118
4 th Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
5 th Revision	May 2, 1988	Jan 16, 1990	55 FR 1419

.0404 CARBON MONOXIDE

(a) The ambient air quality standards for carbon monoxide are:

- (1) 9 parts per million (10 milligrams per cubic meter) maximum 8-hour concentration not to be exceeded more than once per year.
- (2) 35 parts per million (40 milligrams per cubic meter) maximum 1-hour concentration not to be exceeded more than once per year.

(b) Sampling and analysis shall be in accordance with procedures in Appendix C of 40 CFR Part 50 or equivalent methods established under 40 CFR Part 53.

(c) An eight-hour average shall be considered valid if at least 75 percent of the hourly averages for the eight-hour period are available. In the event that only six or seven hourly averages are available, the eight hour average shall be computed on the basis of the hours available using six or seven as the divisor.

(d) When summarizing data for comparison with the standards, averages shall be stated to one decimal place. Comparison of the data with the levels of the standards in parts per million shall be made in terms of integers with fractional parts of 0.5 or greater rounding up.

History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(3);
Eff. February 1, 1976;
Amended Eff. October 1, 1989; July 1, 1984; December 1, 1976.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg.	Jan 27, 1972	May 31, 1972	37 FR 10884
1 st Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 nd Revision	Nov 1, 1976	Apr 18, 1977	42 FR 20133
3 rd Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
4 th Revision	Jul 14, 1989	Mar 12, 1990	55 FR 9125

.0405 OZONE

The ambient air quality standard for ozone measured by a reference method based on Appendix D of 40 CFR Part 50 and designated according to 40 CFR Part 53 is 0.075 parts per million (ppm), daily maximum 8-hour average. The standard is attained at an ambient air quality monitoring site when average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.075 parts per million (ppm) as determined by Appendix P of 40 CFR Part 50, or equivalent methods established under 40 CFR Part 53.

History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(3);
Eff. February 1, 1976;
Amended Eff. January 1, 2010; April 1, 1999; July 1, 1984; July 1, 1979;
December 1, 1976.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg.	Jan 27, 1972	May 31, 1972	37 FR 10884
1 st Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 nd Revision	Nov 1, 1976	Apr 18, 1977	42 FR 20133
3 rd Revision	Jun 15, 1979	Apr 13, 1981	46 FR 21599
4 th Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
5 th Revision	Apr 13, 1999	Oct 22, 2002	67 FR 64989
6 th Revision	Feb 3, 2010	May 16, 2013	78 FR 28747

.0407 NITROGEN DIOXIDE

- (a) The primary annual ambient air quality standard for oxides of nitrogen is 53 parts per billion annual average concentration measured in the ambient air as nitrogen dioxide.
- (b) The primary one hour ambient air quality standard for oxides of nitrogen is 100 parts per billion one hour annual average concentration measured in the ambient air as nitrogen dioxide.
- (c) The secondary ambient air quality standard for nitrogen dioxide is 0.053 parts per million (100 micrograms per cubic meter) annual arithmetic mean concentration.
- (d) Sampling and analysis shall be in accordance with:
 - (1) procedures in Appendix F 40 CFR Part 50; or
 - (2) by a Federal Equivalent Method (FEM) designated in accordance with 40 CFR, Part 53.
- (e) The annual primary standard is attained when the annual average concentration in a calendar year is less than or equal to 53 parts per billion, as determined in accordance with Appendix S of 40 CFR , Part 50 for the annual standard.
- (f) The one hour primary standard is attained when the three-year average of the annual 98th percentile of the daily maximum one-hour average concentration is less than or equal to 100 ppb, as determined in accordance with Appendix S of 40 CFR, Part 50 for one hour standard.
- (g) The secondary standard is attained when the annual arithmetic mean concentration in a calendar year is less than or equal to 0.053 parts per million, rounded to three decimal places (fractional parts equal to or greater than 0.0005 parts per million are rounded up). To demonstrate attainment, an annual mean must be based on hourly data that are at least 75 percent complete or on data derived from manual methods that are at least 75 percent complete for the scheduled sampling days in each calendar quarter.

History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(3);
Eff. February 1, 1976;
Amended Eff. September 1, 2011; October 1, 1989; July 1, 1984; December 1, 1976.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg.	Jan 27, 1972	May 31, 1972	37 FR 10884
1 st Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 nd Revision	Mar 23, 1976	Jun 23, 1976	41 FR 25899
3 rd Revision	Nov 01, 1976	Apr 18, 1977	42 FR 20133
4 th Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
5 th Revision	Jul 14, 1989	Mar 12, 1990	55 FR 9125
6 th Revision	Aug 13, 2012	Jul 20, 2015	80 FR 42733

.0408LEAD

The ambient air quality standard for lead and its compounds, measured as elemental lead by a reference method based on Appendix G of 40 CFR Part 50 or by an equivalent method established under 40 CFR Part 53, is 0.15 micrograms per cubic meter. The standard is met when the maximum arithmetic three month mean concentration for a three year period, as determined in accordance with Appendix R of 40 CFR Part 50, is less than or equal to 0.15 micrograms per cubic meter.

History Note: Authority G.S. 143-215.3 (a) (1); 143-215.107(a)(3);
Eff. April 1, 1980;
Amended Eff. January 1, 2010; July 1, 1984.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg.	May 02, 1980	Apr 13, 1981	46 FR 21599
1 st Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
2 nd Revision	Feb 3, 2010	May 16, 2013	78 FR 28747

.0409 PARTICULATE MATTER

(a) The ambient air quality standard for PM10 particulate matter is:

150 micrograms per cubic meter (ug/m^3), 24-hour average concentration.

This standard is attained when $150 \text{ ug}/\text{m}^3$, as determined according to Appendix N of 40 CFR Part 50, is not exceeded more than once per year on average over a three-year period.

(b) For the purpose of determining attainment of the standards in Paragraph (a) of this Rule, particulate matter shall be measured in the ambient air as PM10 (particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers) by either:

- (1) a reference method based on Appendix M of 40 CFR Part 50 and designated according to 40 CFR Part 53; or
- (2) an equivalent method designated according to 40 CFR Part 53.

History Note: Authority G.S. 143-215.3(a)(1);143-215.107(a)(3);
Eff. July 1, 1988;
Amended Eff. January 1, 2010; April 1, 1999.

	Date Submitted	Date Approved	
		Federal to EPA	by
	EPA	Register	
Original Reg.	May 02, 1988	Jan 16, 1990	55FR 1419
1 st Revision	Feb 3, 2010	Jun 30, 2014	79 FR 36655

.0410 PM2.5 PARTICULATE MATTER

(a) The national primary ambient air quality standards for PM2.5 are 12.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) annual arithmetic mean concentration and 35 $\mu\text{g}/\text{m}^3$ 24-hour average Concentration measured in the ambient air as PM2.5 (particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers) by either:

- (1) A reference method based on appendix L to 40 C.F.R. Part 50 and designated in accordance with 40 C.F.R. Part 53; or
- (2) An equivalent method designated in accordance with 40 C.F.R. Part 53.

(b) The primary annual PM2.5 standard is met when the annual arithmetic mean concentration, as determined in accordance with appendix N of 40 C.F.R. Part 50, is less than or equal to 12.0 $\mu\text{g}/\text{m}^3$.

(c) The primary 24-hour PM2.5 standard is met when the 98th percentile 24-hour concentration, as determined in accordance with appendix N of 40 C.F.R. Part 50, is less than or equal to 35 $\mu\text{g}/\text{m}^3$.

History Note: Authority G.S. 143-215.3(a)(1); 143-215. 107(a)(3);
Eff. January 1, 2010.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg.	Apr 13, 1999	Oct 22, 2002	67 FR 64989
1 st Revision	Feb 3, 2010	Jun 30, 2014	79 FR 36655
2 nd Revision	Dec 11, 2015	Jul 14, 2016	81 FR 45421