

## 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 <sup>st</sup> Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 <sup>nd</sup> Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
3 <sup>rd</sup> Revision	Jul 14, 1989	Mar 12, 1990	55 FR 9125
4 <sup>th</sup> Revision	Mar 03, 1993	Aug 15, 1994	59 FR 41708

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**.0402 SULFUR OXIDES**

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

- (1) 80 micrograms per cubic meter (0.03 p.p.m.) annual arithmetic mean;
- (2) 365 micrograms per cubic meter maximum (0.14 p.p.m.) 24-hour concentration not to be exceeded more than once per year.
- (3) 1300 micrograms per cubic meter (0.5 p.p.m.) 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 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)(5);  
Eff. February 1, 1976;  
Amended Eff. July 1, 1984;  
December 1, 1976.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Re.	Jan 27, 1972	May 31, 1972	37 FR 10884
1 <sup>st</sup> Revision	Mar 23, 1976	Jun 23, 1976	41 FR 25899
2 <sup>nd</sup> Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
3 <sup>rd</sup> Revision	Nov 1, 1976	Apr 18, 1977	42 FR 20133 [minor]
4 <sup>th</sup> Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501

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**.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 <sup>st</sup> Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 <sup>nd</sup> Revision	Nov 1, 1976	Apr 18, 1977	42 FR 20133
3 <sup>rd</sup> Revision	Sep 14, 1981	Jul 26, 1982	47 FR 32118
4 <sup>th</sup> Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
5 <sup>th</sup> Revision	May 2, 1988	Jan 16, 1990	55 FR 1419

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**.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 <sup>st</sup> Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 <sup>nd</sup> Revision	Nov 1, 1976	Apr 18, 1977	42 FR 20133
3 <sup>rd</sup> Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
4 <sup>th</sup> Revision	Jul 14, 1989	Mar 12, 1990	55 FR 9125

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## **.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 0.08 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 0.08 parts per million (ppm) as determined by Appendix H I 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. 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 <sup>st</sup> Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 <sup>nd</sup> Revision	Nov 1, 1976	Apr 18, 1977	42 FR 20133
3 <sup>rd</sup> Revision	Jun 15, 1979	Apr 13, 1981	46 FR 21599
4 <sup>th</sup> Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
5 <sup>th</sup> Revision	Apr 13, 1999	Oct 22, 2002	67 FR 64989

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**.0407 NITROGEN DIOXIDE**

(a) The ambient air quality standard for nitrogen dioxide is 0.053parts per million (100 micrograms per cubic meter) annual arithmetic mean.

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

(c) The standards are 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 then 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. 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 <sup>st</sup> Revision	Mar 31, 1976	Jun 03, 1986	51 FR 19834
2 <sup>nd</sup> Revision	Mar 23, 1976	Jun 23, 1976	41 FR 25899
3 <sup>rd</sup> Revision	Nov 01, 1976	Apr 18, 1977	42 FR 20133
4 <sup>th</sup> Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501
5 <sup>th</sup> Revision	Jul 14, 1989	Mar 12, 1990	55 FR 9125

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**.0408 LEAD**

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 1.5 micrograms per cubic meter, maximum arithmetic mean over a calendar quarter.

History Note: Authority G.S. 143-215.3 (a) (1); 143-215.107(a)(3);  
Eff. April 1, 1980;  
Amended Eff. 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 <sup>st</sup> Revision	Apr 17, 1984	Oct 11, 1985	50 FR 41501

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**.0409 PARTICULATE MATTER**

(a) The ambient air quality standards for PM10 particulate matter are:

- (1) 150 micrograms per cubic meter (ug/m<sup>3</sup>), 24-hour average concentration; and
- (2) 50 micrograms per cubic meter (ug/m<sup>3</sup>), annual arithmetic mean.

These standards are attained when the arithmetic mean concentration is less than or equal to 50 ug/m<sup>3</sup>, and when the 99th percentile 24-hour concentration is less than or equal to 150 ug/m<sup>3</sup>, as determined according to Appendix N of 40 CFR Part 50.

(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);  
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Amended Eff. April 1, 1999.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg.	May 02, 1988	Jan 16, 1990	55 FR 1419

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**.0410 PM2.5 PARTICULATE MATTER**

(a) The ambient air quality standards for PM2.5 particulate matter are:

- (1) 15.0 micrograms per cubic meter (ug/m<sup>3</sup>), annual arithmetic mean concentration, and
- (2) 65 micrograms per cubic meter (ug/m<sup>3</sup>), 24-hour average concentration.

These standards are attained when the annual arithmetic mean concentration is less than or equal to 15.0 ug/m<sup>3</sup> and when the 98<sup>th</sup> percentile 24-hour concentration is less than or equal to 65 ug/m<sup>3</sup>, as determined according to Appendix N of 40 CFR Part 50.

(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 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 of 40 CFR Part 50 and designed according to 40 CFR Part 53; or
- (2) an equivalent method designed according to 40 CFR Part 53.

History Note: Authority G.S. 143-215.3(a)(1); 143-215. 107(a)(3);  
Eff. April 1, 1999;

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Original Reg.	Apr 13, 1999	Oct 22, 2002	67 FR 64989