

## SECTION .0400 - AMBIENT AIR QUALITY STANDARDS

### 15A NCAC 02D .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 shall be determined by sampling at fixed locations in areas beyond the premises on which a source is located. The standards shall be 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 15A NCAC 02D .0531 or .0532.

*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;  
Readopted Eff. January 1, 2018.

**15A NCAC 02D .0402 SULFUR OXIDES**

(a) The ambient air quality standards for sulfur oxides measured as sulfur dioxide shall be:

- (1) 80 micrograms per cubic meter (0.03 ppm) annual arithmetic mean;
- (2) 365 micrograms per cubic meter (0.14 ppm) maximum 24-hour concentration not to be exceeded more than once per year; and
- (3) 1300 micrograms per cubic meter (0.5 ppm) maximum three-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 of 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 Subparagraph (a)(1) and (2) of this Rule shall be 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 shall be 75 parts per billion (ppb), measured in the ambient air as sulfur dioxide.

(e) The one-hour primary standard shall be 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)(3);  
Eff. February 1, 1976;  
Amended Eff. September 1, 2011; July 1, 1984; December 1, 1976;  
Readopted Eff. January 1, 2018.*

**15A NCAC 02D .0403 TOTAL SUSPENDED PARTICULATES**

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

- (1) 75 micrograms per cubic meter annual geometric mean; and
- (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 40 CFR Part 50, Appendix B or equivalent methods established pursuant to 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;  
Readopted Eff. November 1, 2020.*

**15A NCAC 02D .0404 CARBON MONOXIDE**

- (a) The ambient air quality standards for carbon monoxide shall be:
- (1) 9 parts per million (10 milligrams per cubic meter) maximum eight-hour average concentration not to be exceeded more than once per year; and
  - (2) 35 parts per million (40 milligrams per cubic meter) maximum one-hour average 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 to the standards in parts per million shall be made in terms of integers with fractional parts of 0.5 or greater rounded 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;  
Readopted Eff. January 1, 2018.*

**15A NCAC 02D .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 shall be 0.070 parts per million (ppm), daily maximum eight-hour average. The standard shall be deemed attained at an ambient air quality monitoring site when the average of the annual fourth-highest daily maximum eight-hour average ozone concentration is less than or equal to 0.070 parts per million (ppm) as determined by Appendix U 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;  
Readopted Eff. January 1, 2018.*

**15A NCAC 02D .0406    HYDROCARBONS**

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

**15A NCAC 02D .0407 NITROGEN DIOXIDE**

- (a) The primary annual ambient air quality standard for oxides of nitrogen shall be 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 shall be 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 shall be 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 of 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 shall be deemed 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 shall be deemed 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 shall be deemed 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 shall 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;  
Readopted Eff. January 1, 2018.

**15A NCAC 02D .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, shall be 0.15 micrograms per cubic meter. The standard shall be deemed 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. June 1, 1980;  
Amended Eff. January 1, 2010; July 1, 1984;  
Readopted Eff. January 1, 2018.*



**15A NCAC 02D .0409 PM10 PARTICULATE MATTER**

(a) The ambient air quality standard for PM10 particulate matter shall be 150 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), 24-hour average concentration. This standard shall be deemed attained when 150 ( $\mu\text{g}/\text{m}^3$ ), 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;  
Readopted Eff. January 1, 2018.*

**15A NCAC 02D .0410 PM2.5 PARTICULATE MATTER**

(a) The national primary ambient air quality standards for PM2.5 shall be 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 CFR Part 50 and designated in accordance with 40 CFR Part 53; or
- (2) An equivalent method designated in accordance with 40 CFR Part 53.

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

(c) The primary 24-hour PM2.5 standard shall be deemed met when the 98<sup>th</sup> percentile 24-hour concentration, as determined in accordance with Appendix N of 40 CFR 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. April 1, 1999;  
Amended Eff. September 1, 2015; January 1, 2010;  
Readopted Eff. January 1, 2018.