Chapter NR 404

AMBIENT AIR QUALITY

Note: Chapter NR 155 as it existed on March 31, 1972 was repealed and a new chapter NR 155 was created, Register, March, 1972, No. 195, effective April 1, 1972. Chapter NR 155 was renumbered chapter NR 404, Register, July, 1985.

Note: Air standards are definitions of the characteristics of ambient air quality which, in terms of present day knowledge, need to be maintained in order to protect the public health and welfare and our environment from adverse effects of air pollution.

The purpose of air standards should be viewed as goals or objectives to be achieved by these and other rules of the department, by regional implementation plans, and by enforcement programs of both state and local governments as population, industrial activity and land use changes.

The standards are meaningful for pollution control when applied to achieve and maintain desired air quality as expressed by the standards.

Because of variation in population, transportation, and industrial densities, in addition to variation in terrain and meteorology, equal air quality may not be achieved throughout a region or area.

These standards conform to national ambient air quality standards. They are subject to review as knowledge of the effects of air pollution on health, plant and animal life, property, visibility, and our environment increases.

These standards are promulgated pursuant to ch. 285, Stats., which directs the department of natural resources to undertake a comprehensive program to manage and protect the state's air resources. These rules are one part of that program.

NR 404.01 Applicability; purpose. (1) APPLICABILITY. The air standards of this chapter apply to the entire state without exception. The ambient air increments of this chapter apply to all attainment areas of the state.

(2) PURPOSE. This chapter is adopted under ss. 285.11, 285.13 and 285.21, Stats., to establish geographic air regions, air standards and ambient air increments, to specify the methods to be used to measure air quality and to interpret air quality data and to establish guidelines for the application of air standards.

History: Cr. Register, September, 1986, No. 369, eff. 10−1−86; corrections made under s. 13.93 (2m) (b) 7., Stats., Register, December, 1996, No. 492.

NR 404.02 Definitions. The definitions contained in ch. NR 400 apply to the terms used in this chapter. In addition, the following definitions apply to the terms used in this chapter:

(3) "Equivalent method" means a monitoring method which has been designated as an equivalent method by the department and which has been published in a list by the department under s. NR 404.06 (4) (a).

(4) "Monitoring method" means a method for sampling and analyzing or for continuously monitoring a discrete parcel of ambient air for an air contaminant. Monitoring methods include reference methods and equivalent methods.

(5) "Primary air standard" means the level of air quality which provides protection for public health with an adequate margin of safety.

(6) "Quality assurance system" means the system of activities which provides evidence that the quality control systems are performing adequately.

(7) "Quality control system" means the system of activities which are used to control the quality of ambient monitoring or air emissions data, including all activities involved in the collection, processing and analysis of such data.

(8) "Reference method" means a method of sampling and analyzing the ambient air for an air pollutant that is specified as a reference method in 40 CFR part 50, Appendices A to N, incorporated by reference in s. NR 484.04 (2), a method that has been designated as a reference method in accordance with 40 CFR part 53, or a method that has been so designated by the department. It does not include a method for which a reference method designation has been canceled in accordance with 40 CFR 53.11 or 53.16.

(9) "Secondary air standard" means the level of air quality which may be necessary to protect public welfare from unknown or anticipated adverse effects.

(10) "Suspended particulate matter" means any solid or liquid particle dispersed and suspended in air which is capable of being trapped on the filter of a high volume air particulate sampler.

History: Cr. Register, March, 1972, No. 195, eff. 4−1−72; cr. (intro.), Register, August, 1981, No. 308, eff. 9−1−81; renum. from NR 155.01, r. (5) to (7), renum. (4) to (5) and am., am. (1) to (3), cr. (4) and (6) to (13), Register, July, 1985, No. 355, eff. 8−1−85; renum. from NR 404.01 and am. (intro.), r. (3) and (5), renum. (4) to (13) to be (3), (4), NR 400.02 (64), (5) to (10), Register, September, 1986, No. 369, eff. 10−1−86; cr. (4m) and (11), am. (8), Register, December, 1988, No. 396, eff. 1−1−89; am. (intro.), (4m), (8) and (11), renum. (1) to be NR 400.02 (5s) and am., Register, May, 1992, No. 437, eff. 6−1−92; am. (4m), (8) and (11), Register, December, 1995, No. 480, eff. 1−1−96; am. (intro.), Register, October, 1999, No. 526, eff. 11−1−99; CR 03−066: renum. (2) to be NR 400.02 (19m), am. (8) Register May 2005 No. 593, eff. 6−1−05; CR 07−082: cr. (4e) Register September 2009 No. 645, eff. 10−1−09; CR 10−050: renum. (4e), (4m) to be NR 400.02 (123e), (123s) and am. Register November 2010 No. 659, eff. 12−1−10; CR 07−082: r. (11) Register November 2011 No. 671, eff. 12−1−11.

NR 404.03 Air quality control regions. The following air quality control regions, which include counties in Wisconsin, have been designated:

(1) INTERSTATE AIR QUALITY CONTROL REGIONS. (a) The Duluth (Minnesota) — Superior (Wisconsin) Interstate Air Quality Control Region includes the counties of Ashland, Bayfield, Burnett, Douglas, Iron, Price, Rusk, Sawyer, Taylor, and Washburn in Wisconsin, and the counties of Aitkin, Carlton, Cook, Itasca, Koochicing, Lake, and St. Louis in Minnesota.

(b) The Southeast Minnesota — La Crosse (Wisconsin) Interstate Air Quality Control Region includes the counties of Barron, Buffalo, Chippewa, Clark, Crawford, Dunn, Eau Claire, Jackson, La Crosse, Monroe, Pepin, Pierce, Polk, St. Croix, Trempealeau, and Vernon in Wisconsin, and the counties of Blue Earth, Brown, Dodge, Faribault, Fillmore, Freeborn, Goodhue, Houston, LeSueur, Martin, Mower, Nicollet, Olmsted, Rice, Sibley, Steele, Wabasha, Waseca, Watonwan, and Winona in Minnesota.

(c) The Metropolitan Dubuque Interstate Air Quality Control Region includes Grant county in Wisconsin and Clayton, Dubuque, and Jackson counties in Iowa.

(d) The Rockford (Illinois) — Janesville−Beloit (Wisconsin) Interstate Air Quality Control Region includes Rock county in Wisconsin, and Boone, DeKalb, Ogle, Stephenson, and Winnebago counties in Illinois.

(2) INTRASTATE AIR QUALITY CONTROL REGIONS. (a) The Lake Michigan Intrastate Air Quality Control Region consists of the counties of Brown, Calumet, Door, Fond du Lac, Green Lake, Kewaunee, Manitowoc, Marinette, Marquette, Menominee, Oconto, Outagamie, Shawano, Sheboygan, Waupaca, Waushara, and Winnebago. For purposes of applying rules and regulations the Lake Michigan Air Region is divided into 2 subregions. Winnebago, Outagamie and Brown counties constitute subregion I. Calumet, Door, Fond du Lac, Green Lake, Kewaunee, Manitowoc, Marinette, Marquette, Menominee, Oconto, Shawano, Sheboygan, Waupaca, and Waushara counties constitute subregion 2.

(b) The Southeastern Wisconsin Intrastate Air Quality Control Region consists of the counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington and Waukesha.

(c) The Southern Wisconsin Intrastate Air Quality Control Region consists of the counties of Columbia, Dane, Dodge, Green, Iowa, Jefferson, Lafayette, Richland and Sauk.

(d) The North Central Wisconsin Intrastate Air Quality Control Region consists of the counties of Adams, Forest, Florence, Juneau, Langlade, Lincoln, Marathon, Oneida, Portage, Vilas and Wood.

History: Cr. Register, March, 1972, No. 195, eff. 4−1−72; r. and recr. Register, July, 1985, No. 355, eff. 8−1−85; renum. from NR 404.02, Register, September, 1986, No. 369, eff. 10−1−86.

NR 404.04 Ambient air quality standards. (1) APPLICABILITY OF AIR STANDARDS. The air standards apply to the entire state without exception.

(2) SULFUR OXIDES. (a) *Primary standard.* The primary standard for sulfur oxides, measured as sulfur dioxide, is 0.075 ppm — maximum 1−hour concentration. The 1−hour primary standard is met at an ambient air quality monitoring site when the 3−year average of the annual (99^{th} percentile) of the daily maximum 1−hour average concentrations is less than or equal to 0.075 ppm, as determined by the methodology of 40 CFR part 50, Appendix T, incorporated by reference in s. NR 484.04 (7m).

(b) *Secondary standard.* The secondary standard for sulfur oxides, measured as sulfur dioxide, is: 0.5 ppm — maximum 3−hour average concentration, not to be exceeded more than once per year.

(4) CARBON MONOXIDE: PRIMARY AND SECONDARY STANDARDS. The primary and secondary standards for carbon monoxide are:

(a) 10 milligrams per cubic meter (9 ppm) — maximum 8−hour average concentration, not to be exceeded more than once per year.

(b) 40 milligrams per cubic meter (35 ppm) — maximum 1−hour concentration, not to be exceeded more than once per year.

(5) OZONE: PRIMARY AND SECONDARY STANDARDS. The primary and secondary standards for ozone are:

(a) 0.12 ppm (235 micrograms per cubic meter) — maximum 1−hour average concentration. The 1−hour ozone standards are attained when the expected number of days per calendar year with maximum hourly average concentrations above the designated level is equal to or less than one, as determined by the methodology of 40 CFR part 50, Appendix H, incorporated by reference in s. NR 484.04 (4).

(b) 0.08 ppm — maximum 8−hour concentration. The 8−hour ozone standards are attained when the arithmetic mean of the fourth highest daily maximum 8−hour concentration at an ambient air quality monitoring site is less than or equal to 0.08 ppm, as determined by the methodology of 40 CFR part 50, Appendix I, incorporated by reference in s. NR 484.04 (4m).

(c) 0.075 ppm — maximum 8−hour concentration. The 8−hour primary and secondary ozone ambient air quality standards are attained at an ambient air quality monitoring site when the 3−year average of the annual fourth−highest daily maximum 8−hour average ozone concentration is less than or equal to 0.075 ppm, as determined in accordance with 40 CFR part 50, Appendix P, incorporated by reference in s. NR 484.04 (6t).

Note: The Department promulgated the 1−hour and the 8−hour ozone standards, in pars. (a) and (b), respectively, in response to actions by the US EPA. Since the US EPA did not repeal these standards when it promulgated the 8−hour standard reflected in par. (c), the Department has retained them consistent with its statutory obligation under s. 285.21 (1) (a), Stats.

(6) NITROGEN DIOXIDE. (a) *Primary standards.* The primary standards for nitrogen dioxide are:

1. 0.053 ppm — primary annual average concentration. The primary annual standard is met when the annual average concentration in a calendar year is less than or equal to 0.053 ppm, as determined by the methodology of 40 CFR part 50, Appendix S, incorporated by reference in s. NR 484.04 (7).

2. 0.100 ppm — primary 1−hour average concentration. The primary 1−hour standard is met when the 3−year average of the annual 98th percentile of the daily maximum 1−hour average concentration is less than or equal to 0.100 ppm, as determined by the methodology of 40 CFR part 50, Appendix S, incorporated by reference in s. NR 484.04 (7).

(b) *Secondary Standard.* The secondary standard for nitrogen dioxide is 0.053 ppm. The secondary standard is attained when the annual arithmetic mean concentration in a calendar year is less than or equal to 0.053 ppm, rounded to three decimal places. Fractional parts equal to or greater than 0.0005 ppm shall be rounded up. To demonstrate attainment, an annual mean shall be based upon hourly data that are at least 75% complete or upon data derived from manual methods that are at least 75% complete for the scheduled sampling days in each calendar quarter.

(7) LEAD: PRIMARY AND SECONDARY STANDARDS. The primary and secondary standards for lead and its compounds, measured as elemental lead, are the following:

(a) 1.5 micrograms per cubic meter, maximum arithmetic mean averaged over a calendar quarter, as a constituent of suspended particulate matter. The primary and secondary standards for lead and its compounds, measured as elemental lead are attained when the maximum arithmetic mean averaged over a calendar quarter is less than or equal to 1.5 micrograms per cubic meter, as determined in accordance with 40 CFR part 50, Appendix B, incorporated by reference in s. NR 484.04 (3).

(b) 0.15 micrograms per cubic meter – maximum arithmetic mean. The primary and secondary ambient air quality standards for lead are attained when the maximum arithmetic 3−month mean concentration for a 3−year period is less than or equal to 0.15 micrograms per cubic meter, as determined in accordance with 40 CFR part 50, Appendix R, incorporated by reference in s. NR 484.04 (6v).

(8) PM_{10}: PRIMARY AND SECONDARY STANDARDS. (a) The primary and secondary standards for PM_{10} are 150 micrograms per cubic meter ($\mu g/m^3$) — maximum 24−hour average concentration.

(b) The PM_{10} standards are attained when the expected number of days per calendar year with a 24−hour average concentration above 150 $\mu g/m^3$, the level designated in par. (a), is equal to or less than one.

(c) The expected concentrations and number of days shall be determined by the methodology contained in 40 CFR part 50, Appendix K, incorporated by reference in s. NR 484.04 (6).

(9) $PM_{2.5}$: PRIMARY AND SECONDARY STANDARDS. (a) The primary and secondary standards for $PM_{2.5}$ are:

1. 15.0 micrograms per cubic meter ($\mu g/m^3$) — annual arithmetic mean concentration.

2. 35 micrograms per cubic meter ($\mu g/m^3$) — 24−hour average concentration.

(b) The $PM_{2.5}$ standards are attained when all of the following are met:

1. The annual arithmetic mean concentration is less than or equal to 15.0 $\mu g/m^3$, the level designated in par. (a) 1.

2. The ninety−eighth percentile 24−hour average concentration is less than or equal to 35$\mu g/m^3$, the level designated in par. (a) 2.

(c) The calculated concentrations shall be determined by the methodology contained in 40 CFR part 50, Appendix N, incorporated by reference in s. NR 484.04 (6r).

History: Cr. Register, March, 1972, No. 195, eff. 4−1−72; r. (1) (b)1. and 2., renum. (1) (b) 3., to be 1., Register, June, 1975, No. 234, eff. 7−1−75; am. (4), Register, August, 1981, No. 308, eff. 9−1−81; reprinted to correct error in (3), Register, November, 1981, No. 311; cr. (7), Register, April, 1983, No. 328, eff. 5−1−83; r. (5), Register, November, 1983, No. 335, eff. 12−1−83; am. Register, July, 1985, No. 355, eff. 8−1−85; renum. from NR 404.03, Register, September, 1986, No. 369, eff. 10−1−86; r. (3) (a), renum. (3) (b) to be (3) and am., cr. (8), Register, September, 1989,

No. 405, eff. 10–1–89; am. (5) and (8) (b) 3., Register, May, 1992, No. 437, eff. 6–1–92; am. (5) and (8) (b) 3., Register, December, 1995, No. 480, eff. 1–1–96; am. (8) (b), Register, December, 1996, No. 492, eff. 1–1–97; CR 03–066: am. (2) (a) 1. and 2. and (b), (5) and (6), cr. (5) (b) Register May 2005 No. 593, eff. 6–1–05; CR 07–082: am. (8), cr. (9) Register September 2009 No. 645, eff. 10–1–09; CR 09–088: cr. (5) (c), (7) (a) and (b), renum. (7) to be (7) (intro.) and am. Register May 2010 No. 653, eff. 6–1–10; CR 07–082: r. (3) Register November 2011 No. 671, eff. 12–1–11; **CR 15–033: am. (2) (a) (title), renum. (a) (intro.) to (a) and am., r. 1. and 2., r. and recr. (6) Register July 2016 No. 727, eff. 8–1–16.**

NR 404.05 Ambient air increments. (1) SCOPE. The ambient air increments apply to all attainment areas of the state.

(2) CLASS I INCREMENTS. In any area of this state classified under the Act as a class I area, the ambient air increments for PM_{10}, $PM_{2.5}$, sulfur dioxide, and nitrogen dioxide may not exceed the following amounts:

(a) *PM_{10}.*

1. Annual arithmetic mean	4 micrograms per cubic meter
2. Twenty–four hour maximum	8 micrograms per cubic meter

(am) *$PM_{2.5}$.*

1. Annual arithmetic mean	1 microgram per cubic meter
2. Twenty–four hour maximum	2 micrograms per cubic meter

(b) *Sulfur dioxide.*

1. Annual arithmetic mean	2 micrograms per cubic meter
2. Twenty–four hour maximum	5 micrograms per cubic meter
3. Three hour maximum	25 micrograms per cubic meter

(c) *Nitrogen dioxide.*

1. Annual arithmetic mean	2.5 micrograms per cubic meter

(3) CLASS II INCREMENTS. In any area of this state classified under the Act as a class II area, the ambient air increments for PM_{10}, $PM_{2.5}$, sulfur dioxide, and nitrogen dioxide may not exceed the following amounts:

(a) *PM_{10}.*

1. Annual arithmetic mean	17 micrograms per cubic meter
2. Twenty–four hour maximum	30 micrograms per cubic meter

(am) *$PM_{2.5}$.*

1. Annual arithmetic mean	4 micrograms per cubic meter
2. Twenty–four hour maximum	9 micrograms per cubic meter

(b) *Sulfur dioxide.*

1. Annual arithmetic mean	20 micrograms per cubic meter
2. Twenty–four maximum	91 micrograms per cubic meter
3. Three hour maximum	512 micrograms per cubic meter

(c) *Nitrogen dioxide.*

1. Annual arithmetic mean	25 micrograms per cubic meter

(4) CLASS III INCREMENTS. In any area of this state classified under the Act as a class III area, the ambient air increments for PM_{10}, $PM_{2.5}$, sulfur dioxide, and nitrogen dioxide may not exceed the following amounts:

(a) *PM_{10}.*

1. Annual arithmetic mean	34 micrograms per cubic meter
2. Twenty–four hour maximum	60 micrograms per cubic meter

(am) *$PM_{2.5}$.*

1. Annual arithmetic mean	8 micrograms per cubic meter
2. Twenty–four hour maximum	18 micrograms per cubic meter

(b) *Sulfur dioxide.*

1. Annual arithmetic mean	40 micrograms per cubic meter
2. Twenty–four hour maximum	182 micrograms per cubic meter
3. Three hour maximum	700 micrograms per cubic meter

(c) *Nitrogen dioxide.*

1. Annual arithmetic mean	50 micrograms per cubic meter

(5) EXCEPTION FOR NON–ANNUAL CONCENTRATIONS. Notwithstanding subs. (2) (intro.), (3) (intro.) and (4) (intro.), the ambient air increment of an air contaminant based on concentrations for any period other than an annual period may be exceeded during one such period per year.

(6) MAXIMUM CONCENTRATION. The maximum allowable concentration of any air contaminant in any attainment area may not exceed a concentration for such contaminant for each period of exposure equal to the maximum concentrations permitted under the primary or secondary air standards in s. NR 404.04.

History: Cr. Register, April, 1983, No. 238, eff. 5–1–83; renum. from NR 155.035, Register, July, 1985, No. 355, eff. 8–1–85; renum. from NR 404.04, Register, September, 1986, No. 369, eff. 10–1–86; am. (2) (intro.), (3) (intro.) and (4) (intro.), cr. (2) (c), (3) (c) and (4) (c), Register, May, 1992, No. 437, eff. 6–1–92; am. (2) (intro.), (a), (3) (intro.), (a), (4) (intro.), (a), Register, April, 1995, No. 472, eff. 5–1–95; am. (3) (intro.) and (4) (intro.), Register, December, 1996, No. 492, eff. 1–1–97; **CR 15–077: am. (2) (intro.), cr. (2) (am), am. (3) (intro.), cr. (3) (am), am. (4) (intro.), cr. (4) (am) Register July 2016 No. 727, eff. 8–1–16.**

NR 404.06 Measurement of ambient air quality. (1) APPLICABILITY. (a) The department and any person conducting ambient air quality monitoring on its behalf shall use only reference or equivalent methods as specified in sub. (2) or (3) for all ambient air quality monitoring for any air contaminant identified in s. NR 404.04. The ambient monitoring shall conform with the department's guidebooks, plans and procedures for air monitoring quality assurance.

(b) Any person required by the department to conduct ambient air quality monitoring shall use only reference or equivalent methods for sampling and analysis as specified in sub. (2) or (3) and shall comply with quality assurance and quality control procedures and the data reporting format which are specified and approved by the department for the collection, analysis, processing and reporting of ambient air quality monitoring data.

(c) Any person who voluntarily conducts ambient air quality monitoring in Wisconsin may request the department to determine that the data being collected are comparable to the air quality data collected under par. (a) or (b). The department may determine that the data are comparable if the voluntary ambient air quality monitoring and the data meet the requirements specified in par. (b).

(d) The department may determine that air quality data submitted to the department for purposes of demonstrating compliance with existing regulations under chs. NR 400 to 499 or in support of a permit or permit application are unacceptable if such monitoring was not conducted in compliance with pars. (a) to (c).

(2) REFERENCE METHODS. Ambient air quality monitoring which utilizes a reference monitoring method shall use monitoring methods which conform to the federal reference methods which are specified in 40 CFR part 50, Appendices A to T, incorporated by reference in s. NR 484.04 (2), or which have been so designated by the department.

(3) EQUIVALENT METHODS. (a) Ambient air quality monitoring which utilizes an equivalent monitoring method shall use monitoring methods which have been published by the department under sub. (4) (a).

(b) The department may list a monitoring method as an equivalent method if the department determines that the method satisfies the same requirements for a federal equivalent method as specified in 40 CFR part 53, incorporated by reference in s. NR 484.03.

(c) The department shall maintain a list of equivalent methods and shall send a copy of the list to any person upon request. A current copy of the list shall be available for inspection or copying at the department's headquarters office.

Note: The department's headquarters office is located at 101 South Webster Street, Madison, Wisconsin. Mail requests should be addressed to the Department of Natural Resources, Bureau of Air Management, PO Box 7921, Madison WI 53707.

(4) AIR QUALITY PUBLICATIONS. The department shall publish documents relating to air quality or to air monitoring, including the following:

(a) The department shall publish or revise a list of equivalent monitoring methods as specified in sub. (3).

(b) The department shall publish, revise and maintain quality assurance plans and guidebooks which describe the activities and procedures of the quality assurance and quality control systems.

(c) The department shall publish reports on air quality and related information and data.

History: Cr. Register, July, 1985, No. 355, eff. 8−1−85; renum. from NR 404.05, Register, September, 1986, No. 369, eff. 10−1−86; am. (2) and (3) (b), Register, May, 1992, No. 437, eff. 6−1−92; am. (1) (a), (2), (3) (b) and (4) (b), Register, December, 1995, No. 480, eff. 1−1−96; CR 03−066: am. (2) Register May 2005 No. 593, eff. 6−1−05; **CR 15−033: am. (2) Register July 2016 No. 727, eff. 8−1−16.**

NR 404.07 Interpretation of air quality data with respect to air standards. The department shall, for implementation purposes, take into account levels and variations in natural background levels of contaminants, the quality of air entering a region, abnormal local short−term activities and the numbers and types of persons and property affected.

History: Cr. Register, March, 1972, No. 195, eff. 4−1−72; renum. from NR 155.05, Register, July, 1985, No. 355, eff. 8−1−85; renum. from NR 404.06, Register, September, 1986, No. 369, eff. 10−1−86.

NR 404.08 Guidelines for application of air standards. (1) LIMITATIONS ON LOCAL PROGRAMS. No local programs may grant variances or construction or operation permits in conflict with the implementation plan for that region.

(2) MORE RESTRICTIVE LIMITS. Any person may be required to reduce emissions below limits established in an implementation plan or by air pollution control rules where emissions cause or substantially contribute to exceeding an air standard in a localized area. In this case, appropriate special orders, which are not general in application, may be issued.

(3) FUELS AND RAW MATERIALS. The department may prescribe characteristics of fuels and raw materials for existing and planned facilities in order to assure attainment or maintenance of an air standard, to prevent the degradation of air quality or to prevent air pollution.

History: Cr. Register, March, 1972, No. 195, eff. 4−1−72; r. (4), Register, April, 1983, No. 328, eff. 5−1−83; renum. from NR 155.06 and am. (3), Register, July, 1985, No. 355, eff. 8−1−85; correction in (2) made under s. 13.93 (2m) (b) 5., Stats., Register, July, 1985, No. 355; renum. from NR 404.07, Register, September, 1986, No. 369, eff. 10−1−86; am. (1), Register, December, 1996, No. 492, eff. 1−1−97.