§ 70100. Definitions.

(a) Ambient Air Quality Standards. Ambient air quality standards are specified concentrations and durations of air pollutants which reflect the relationship between the intensity and composition of pollution to undesirable effects.

(b) Most Relevant Effects. "Most Relevant Effects," shown in the Table of Ambient Air Quality Standards, are the effects which the standards are intended to prevent or abate.

(c) Parts Per Million (ppm). Parts per million is a volumetric unit of gas concentration, which is numerically equal to the volume of a gaseous contaminant present in one million volumes of air.

(d) Micrograms Per Cubic Meter (ug/m3). Micrograms per cubic meter is a unit of concentration which is numerically equal to the mass of a contaminant (in micrograms) present in a one cubic meter sample of air, measured at EPA reference conditions (corrected to 25 degrees Celsius, 760 torr). (40 CFR Part 50.3, November 25, 1971).

(e) Equivalent Method. "Equivalent Method" is any procedure for measuring the concentration of a contaminant, other than that specified in the air quality standard for the contaminant, which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard.

(f) Visual Range. "Visual Range" is the distance at which a black object on the horizon has a 2 percent contrast with the horizon sky. This dis- tance can be calculated from a measured light extinction coefficient, Bext., by the formula: V_r = 3.912 divided by Bext. = 3.912 divided by Bext.

(g) Carbon Monoxide (CO). Carbon Monoxide is a colorless gas, odorless under atmospheric conditions, having the molecular form CO.

(h) Sulfur Dioxide (SO_2). Sulfur dioxide is a colorless, irritating gas under atmospheric conditions, having the molecular form SO_2.

(i) Suspended Particulate Matter (PM10). Suspended particulate matter (PM10) refers to atmospheric particles, solid and liquid, except uncombined water as measured by a (PM10) sampler which collects 50 percent of all particles of 10 mm aerodynamic diameter and which collects a declining fraction of particles as their diameter increases and an increasing fraction of particles as their diameter decreases, reflecting the characteristics of lung deposition.

(j) Fine Suspended Particulate Matter (PM2.5). Fine suspended particulate matter (PM2.5) refers to suspended atmospheric particles solid and liquid, except uncombined water as measured by a PM2.5 sampler which collects 50 percent of all particles of 2.5 mm aerodynamic diameter and which collects a declining fraction of particles as their diameter increases and an increasing fraction of particles as their diameter decreases,

reflecting the characteristics of lung deposition.

(k) Visibility Reducing Particles. Visibility reducing particles are atmospheric particles which significantly scatter or absorb light. The effect of these particles on light extinction is to be determined by instrumental monitoring of light scattering and absorption by ARB Method V, as adopted August 18, 1989, or by an equivalent method.

(l) Hydrogen Sulfide (H_2S). Hydrogen sulfide is a colorless gas having the molecular form H_2S.

(m) Nitrogen Dioxide (NO_2). Nitrogen dioxide is a red-brown gas, odorless under atmospheric conditions, having the molecular form NO_2.

(n) Lead (particulate). Lead (particulate) is suspended particulate matter containing lead (Pb).

(o) Sulfates. Sulfates are the water soluble fraction of suspended particulate matter (PM10) containing the sulfate ion (SO_4^{2-}) including but not limited to strong acids and sulfate salts, as measured by MLD Method 007 (based on high-volume size-selective inlet (SSI) sampling and ion chromatography), dated January 19, 1988.%l) including but not limited to strong acids and sulfate salts, as measured by MLD Method 007 (based on high-volume size-selective inlet (SSI) sampling and ion chromatography), dated January 19, 1988.%l

(p) Vinyl Chloride. Vinyl chloride is a colorless gas with the molecular form CH_2 -CHCl; chloroethene.

(q) Ozone. Ozone is a colorless gas with a pungent odor, having the molecular form O_3.

(r) Extinction Coefficient. The "Extinction Coefficient" of a homogenous air mass is the natural logarithm of the fractional transmission of a beam of light per kilometer along the beam's path.

➡§ 70100.1. Methods, Samplers, and Instruments for Measuring Pollutants.

(a) PM10 Methods. The method for determining compliance with the PM10 ambient air quality standard shall be the Federal Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere (40 CFR, Chapter 1, part 50, Appendix M, as published in 62 Fed. Reg., 38753, July 18, 1997). California Approved Samplers for PM10 are set forth in "Air Monitoring Quality Assurance Manual Volume IV, Part A: Monitoring Methods for PM10," adopted March 10, 2006, which is incorporated by reference herein. Samplers, methods, or instruments determined in writing by the Air Resources Board or the Executive Officer to produce equivalent results for PM10 shall also be California Approved Samplers for PM10. These include those continuous samplers that have been demonstrated to the satisfaction of the Air Resources Board to produce measurements equivalent to the Federal Reference Method.

(b) PM2.5 Methods. The method for determining compliance with the PM2.5 ambient air quality standard shall be the Federal Reference Method for the Determination of Particulate Matter as PM2.5 in the Atmosphere, 40 CFR, Chapter 1, part 50, Appendix L, as published in 62 Fed. Reg., 38714, July 18, 1997 and as amended in 64 Fed. Reg., 19717, April 22, 1999. The samplers listed in the Federal Reference Method must use either the WINS impactor or the U.S. EPA-approved very sharp cut cyclone (67 Fed. Reg., 15566, April 2, 2002) to separate PM2.5 from PM10. California Approved Samplers for PM2.5 are set forth in "Air Monitoring Quality Assurance Manual Volume IV, Part B: Monitoring Methods for PM2.5," adopted March 10, 2006, which is incorporated by reference herein. Samplers, methods, or instruments determined in writing by the Air Resources Board or the Executive Officer to produce equivalent results for PM2.5 shall also be California Approved Samplers for PM2.5. These include those continuous samplers that have been demonstrated to the satisfaction of the Air Resources Board to produce measurements equivalent to the Federal Reference Method.

(c) Ozone Methods. The method for determining compliance with the ozone ambient air quality standard shall be the Federal Equivalent Method for the Determination of Ozone in the Atmosphere (40 CFR, part 53). California Approved Samplers for ozone are set forth in "Air Monitoring Quality Assurance Manual Volume IV, Part C: Monitoring Methods for Ozone", as adopted March 10, 2006. Samplers, methods, or instruments determined in writing by the Air Resources Board or the Executive Officer to produce equivalent results for ozone shall also be California Approved Samplers for ozone.

(d) NO_2 Methods. The method for determining compliance with the NO_2 ambient air quality standard shall be the chemiluminescence Federal Reference Method for the determination of NO_2 in the atmosphere (40 CFR, Part 50, Appendix F - Measurement, as published in 41 Fed.Reg. 52688, Dec. 1, 1976, as amended at 48 Fed.Reg. 2529, Jan. 20, 1983). California Approved Samplers for NO_2 are set forth in the Air Monitoring Quality Assurance Manual, Volume IV, Part D: Monitoring Methods for NO_2 as adopted on February 22, 2007, which is incorporated by reference herein. Samplers, methods, or instruments determined in writing by the Air Resources Board or the Executive Officer to produce equivalent results for NO_2 shall also be California Approved Samplers for NO_2.

§ 70101. General Statement of Policy and Scope.

The objective of ambient air quality standards is to provide a basis for preventing or abating the effects of air pollution, including effects on health, esthetics and economy. The standards should not be interpreted as permitting, encouraging, or condoning degradation of present air quality in any air basin which now has an air quality superior to that stipulated in the standards. Pollution levels below those shown in the standards should not ordinarily produce the associated effects.
In determining compliance with the standards through air monitoring, the sites and conditions of air sampling should be so chosen as to realistically represent the exposures of people, animals, vegetation and materials.

Ambient air quality standards shall be reviewed and subject to modification whenever substantial pertinent new information becomes available and at least once every five years. To the extent feasible, review of a standard shall be coordinated with the review of any corresponding federal standard by the Environmental Protection Agency.

§ 70200. Table of Standards ***

Substance	Concentration and Methods *	Duration of Averaging Periods	Most Relevant Effects	Comments
Ozone	0.09 ppm ** ultraviolet photometry	1 hour	a. Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals. (2) Risk to public health implied by alterations in pulmonary morphology and host defence in animals. b. Long-term exposures: Risk to public health implied by altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans. c. Welfare effects: (1) Yield loss in important crops and predicted economic loss to growers and consumers. (2) Injury and damage to native plants and potential changes in species diversity and number. (3) Damage to rubber and elastomers and to paints, fabric, dyes, pigments, and plastics.	a. The standard is intended to prevent adverse health ef-fects. b. The standard, when achieved, will not prevent all injury to crops and other types of vegitation, but is intended to place an acceptable upper limit on the amount of yield and economic los, as well as on adverse environmental im-pacts.
Carbon Monoxide	9.0 ppm NDIR **	8 hours	a. Aggravation of angina pectoris and other aspects of coronary heart disease. b. Decreased exercise tolerance in persons with peripheral vascular disease and lung disease. c. Possible increased risk to fetuses.	The relevant effects were found to be due to decreased capacity of the blood to carry oxygen, as measured by car-boxyhemoglobin content.
	20 ppm NDIR **	1 hour		
Carbon Monoxide (Applicable only in the Lake Tahoe Air Basin)	6 ppm NDIR	8 hours	Will increase COHb by 1-1 ½ %	At altitude the lowered oxy- gen tension leads to greater absorption of CO. Persons participating in strenuous rec-reational activities at higher altitudes are often unac-climated.

Substance	Concentration and Methods *	Duration of Averaging Periods	Most Relevant Effects	Comments
Sulfur Dioxide (SO_2)	0.25 ppm ** flour-escence method	1 hour	a. Bronchoconstruction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, activity in persons with asthma.	The standard is designed to protect against adverse effects from short-term (5–10 min.) peak exposures.
	0.04 ppm ** fluor-esence method.	24 hours	b. Increased incidence of pulmonary disease and symptoms, decreased pulmonary function, and increased risk of mortality.	a. Further studies on co-carcinogenic role are necessary. b. Does not include effects on vegetation, ecosystems and materials. c. Effects may not be due to SO_2 alone, but also suspended particulate matter, including sulfates and acids.
Visibility Reducing Particles	In sufficient **** amount to produce extinction of 0.23 per kilometer due to particle when relative humidity is less than 70 percent. Measurement in accordance with ARB Method V.	8 hour (10 AM–6PM Pacific Standard Time)	Visibility impairment on days when relative humidity is less than 70 percent.	This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10–mile visual range when relative humidity is less than 70 percent.
Visibility Reducing Particles (Applicable only in Lake Tahoe Air Basin)	In sufficient **** amount to produce extinction of 0.07 per kilometer due to particles when relative humidity is less than 70 percent. Measurement in accordance with ARB Method V.	8 hour (10 AM–6PM Pacific Standard Time)	Reduction in scenic quality on days when the relative humidity is less than 70 percent.	This standard is equivalent to a 30–mile visual range when relative humidity is less than 70 percent.

Substance	Concentration and Methods *	Duration of Averaging Periods	Most Relevant Effects	Comments
Suspended Particle Matter (PM_{10})	50µg/m^3 PM_{10} **	24 hour sample	Prevention of excess deaths from short-term exposures and of exacerbation of symp-toms in sensitive patients with respiratory disease. Pre-vention of excess seasonal de-clines in pulmonary function, especially in children.	This standard applies to sus-pended matter as measured by PM_{10} sampler, which col-lects 50% of all particles of 10 µm aerodynamic diameter and collects a declining frac-tion of particles as their diam-eter increases and an in-creasing fraction of particles as their diameter decreases, reflecting the characteristic of lung deposition.
	30µg/m^3 PM_{10} ** SSI Method in ac-cordance with ARB Method P	24 hour samples, annual geometric mean		
Lead (Particulate)	1.5µg/m^3 AIHL Method No. 54 (December 1974) (Atomic Absorp-tion) or average equivalent	30 day average	Increased body burden, im-pairment of blood formation and nerve conduction	
Hydrogen Sulfide	0.03 ppm, cadmium hydroxide STRac-tan Method	1 hour	Exceeds the odor threshold	
Nitrogen Dioxide	0.25 ppm. Gas Phase Chemi-luminescence **	1 hour	a (1). Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups. a (2). Risk to public health implied by pulmonary and extra-pulmonary biochemi-cal and cellular changes and pulmonary structural changes, which are observed in short-term animal tests at or above concentration of the standard. b Contribution to atmos-pheric discoloration.	a. The standard is intended to prevent adverse health ef-fects. b. The standard imposes an upper limit on adverse ef-fects on welfare, including atmospheric discoloration by NO_2.
Sulfates	25µg/m^3 total sul-fates, AIHL #61 (Turbidimetric Barium Sulfate)	24 hours	a. Decrease in ventilatory function b. Aggravation of asthmatic symptoms c. Aggravation of cardio-pul-monary disease d. Vegetation damage e. Degradation of visibility f. Property damage	This standard is based on a Critical Harm Level, not a threshold level.

*Any equivalent procedure which can be shown to the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

**These standards are violated when concentrations exceed those set forth in the body of the regulation. All other standards are violated when concentrations equal or exceed those set forth in the body of the regulation.

***Applicable statewide unless otherwise noted.

****These standards are violated when particle concentrations cause measured light extinction values to exceed those set forth in the regulations.

➡§ 70200.5 Ambient Air Quality Standards for Hazardous Substances

Substance	Concentration and Methods	Duration of Averaging Periods	Most Relevant Effects	Comments
Vinyl Chloride (Chloroethene $CH_2 = CHC1$)	0.010 ppm ARB Haagan-Smit Lab Method No. 101 (Tedlar Bag collection gas chromatography)	24 hours	Known human and animal carcinogen	Low-level effects are undefined, but are potentially serious. Level is not a threshold level and does not necessarily protect against harm. Level specified is lowest level at which violation can be reliably detected by the method specified. Ambient concentrations at or above the standard constitute an endangerment to the health of the public.

* Applicable statewide unless otherwise noted.