

Respiratory Protection for Wildfire Smoke Inhalation

The California Department of Industrial Relations' Occupational Safety and Health Standards Board (Cal/OSHA) has adopted an emergency rule requiring employers to provide respiratory protection to all employees working outside for longer than one hour when the air quality index (AQI) reaches 151 or greater. The emergency regulation, "[Protection from Wildfire Smoke](#)," went into effect on July 29, 2019.

Where can I find AQI information?

The United States [AirNow system](#) contains current AQI data, which includes a clickable map for area-specific AQIs. Local resources, such as the [California Air Resources Board](#), local air pollution control district websites, or local air quality management district website may also be helpful. A direct-reading particulate monitor that meets all requirements of Appendix A of the new [California Code of Regulation Title 8 section 5141.1](#) may also be used to determine the AQI.

What does it mean for you?

When the AQI reaches levels between 151 and 500:

According to the new rule, which is enforced by the California Division of Occupational Safety and Health (Cal/OSHA), employers shall provide respirators¹ approved by the National Institute for Occupational Safety and Health (NIOSH), such as the NIOSH-approved 3M™ Particulate Respirator 8210 N95 filtering facepiece, for voluntary use in accordance with [Section 5144](#) to help protect the worker from inhalation of PM_{2.5}. Employers are required to provide training that covers the information contained in Appendix B of [Section 5141.1](#), which includes training on proper donning, use, storage, and maintenance of respirators. If the respirators provided are filtering facepiece respirators (such as the NIOSH-approved 3M model listed above), then fit testing and medical evaluations are not required under the new rule.

When the AQI reaches levels between 501 and above:

Respirator use is required in accordance with Section 5144. The employer shall provide respirators, and employee use is mandatory. The employer shall maintain a fully compliant respiratory protection program—including medical evaluation, fit testing, training, and record keeping for all employees and all types of respirators. Specifically, the employer shall provide respirators with an appropriate assigned protection factor (APF), as listed in [Section 5144](#), such that the PM_{2.5} levels inside the respirator correspond to an AQI less than 151.

What is PM_{2.5}?

PM_{2.5} means particulate matter measuring 2.5 microns or less across. A micron is a very small unit of measure—one millionth of a meter.

- These particles are so small that they cannot be seen by the human eye.
- Particles this small can be easily inhaled and travel deep into the respiratory tract and have been associated with a variety of short-term and long-term health conditions.

Source: [United States Environmental Protection Agency](#)

AQI Categories for PM_{2.5}

Air Quality Index	Level of Health Concern
0 to 50	Good
51 to 100	Moderate
101 to 150	Unhealthy for Sensitive Groups
151 to 200	Unhealthy
201 to 300	Very Unhealthy
301 to 500	Hazardous

Source: [State of California Department of Industrial Relations](#)

AQI ≤ 150

No employer requirement
No employee requirement

AQI 151 - 500

Employer **shall** provide
Employee use **voluntary**

AQI ≥ 501

Employer **shall** provide
Employee use **mandatory**

New California Respiratory Protection Requirements for PM_{2.5} levels

Source: [State of California Department of Industrial Relations](#)

¹Respirators help protect against certain airborne contaminants. Before use, the wearer must read and understand the User Instructions provided as a part of the product packaging. Follow all local regulations. In the U.S., a written respiratory protection program must be implemented meeting all the requirements of OSHA 29 CFR 1910.134 including training, fit testing, and medical evaluation. Misuse may result in sickness or death. For correct use, consult supervisor and User Instructions, or call 3M Personal Safety Division Technical Service at 1-800-243-4630.

Why is this important? What risks are associated with inhaling wildfire smoke?






Although there can be many hazardous chemicals and other constituents in wildfire smoke, one of the most significant pollutants for people who are not very close to the fire is “particulate matter,” the tiny particles suspended in the air. According to the [United States Environmental Protection Agency](#), PM_{2.5} can be easily, and often unknowingly, inhaled—and due to the small particle size, it can travel deep into the respiratory tract, potentially irritating the lungs and being accompanied by persistent coughing, wheezing, or difficulty breathing. These small particles can also enter the bloodstream from the lungs and have been associated with more serious long-term health problems such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.

What about employees in states other than California?

Although this regulation applies to California, employers in other states may choose to use this standard as a “best practice” and decide to help protect their employees similarly. Employers should follow the United States Occupational Safety and Health Administration (OSHA) [Respiratory Protection Standard 29 CFR 1910.134](#), or the Respiratory Protection standard in their state.

How 3M can help?

3M provides a variety of NIOSH-approved N95 filtering facepieces that can be used to help comply with this new regulation.

	3M™ Particulate Respirator 8210	Affordable protection from a brand you can trust.	3M ID 70-0706-1439-4 UPC 50051138464573
	3M™ Particulate Respirator 8110S	Designed for smaller faces than a typical 8210 wearer.	3M ID 70-0707-5707-8 UPC 50051138543056
	3M™ Particulate Respirator 8511	Premium protection with comfort and protection combined. Manufactured with 3M™ Cool Flow™ Exhalation Valve to help reduce heat buildup inside the respirator.	3M ID 70-0707-5755-7 UPC 50051138543438
	3M™ Aura™ Particulate Respirator 9210+	Individual packaging and flat fold design provides convenient storage and portability.	3M ID XA-0100-1754-0 UPC 58887719997152
	3M™ Aura™ Particulate Respirator 9211+	Similar to the 9210+ style, the 9211+ also includes 3M™ Cool Flow™ valve technology.	3M ID XA-0100-1755-7 UPC 58887719997169

Other 3M Resources

Center for Respiratory Protection Program

If you are implementing a respiratory protection program for the first time, or would like more information on programs, consider visiting [3M's Center for Respiratory Protection](#) for a step-by-step guide.

Medical Evaluations

The [3M™ Online Respirator Medical Evaluation](#) provides immediate medical evaluation of respirator wearers for compliance with OSHA's Respiratory Protection Standard 29 CFR 1910.134. It can be used for all brands of respirators and is available in English and Spanish.

Fit Testing

3M™ Qualitative Fit Test kits are designed to help your organization meet respirator fit testing requirements. The kits can be used to check face-to-respirator seal on any particulate respirator or gas/vapor respirator with a particulate prefilter. A free instructional video on [Qualitative Fit Testing](#) using saccharin and Bitrex™ can be found on our [YouTube channel](#).

3M™ Qualitative Fit Test Apparatus, Sweet FT-10	Uses a test solution of sodium saccharin that produces a sweet-tasting aerosol.	3M ID 70-0701-2151-5 UPC 00051138163587
3M™ Qualitative Fit Test Apparatus, Bitter FT-30	Uses a test solution of denatonium benzoate to produce a very bitter taste.	3M ID 70-0707-0964-0 UPC 00051138542030

For more information, please consult the 3M Personal Safety Division's [wildfire resource webpage](#).