

Protecting Workers Exposed to Wildfire Smoke

Cal/OSHA's regulation T8CCR, [section 5141.1](#), Protection From Wildfire Smoke, addresses the hazards workers may be exposed to from the small particles in wildfire smoke, known as PM2.5. This fact sheet provides an overview, not all of the requirements of section 5141.1.

Which employers must comply with the standard?

Section 5141.1 applies to workplaces when there are two conditions in place:

1. The current Air Quality Index (AQI) for airborne particulate matter 2.5 micrometers or smaller (PM2.5) is 151 or greater.
2. The employer should reasonably anticipate that employees could be exposed to wildfire smoke.

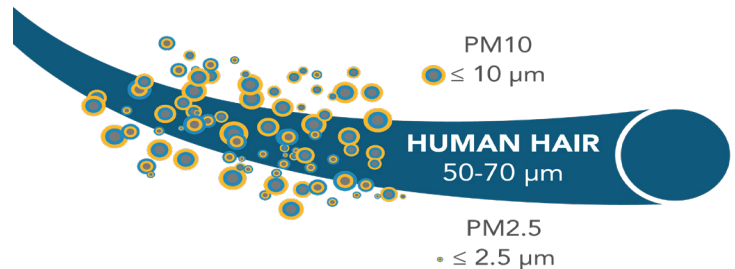
What is "current AQI"?

The Current AQI is the method used by the U.S. Environmental Protection Agency (U.S. EPA) to report air quality on a real-time basis. Current AQI is also referred to as the "NowCast," and represents data collected over time periods of varying length in order to reflect present conditions as accurately as possible.

Which employers are exempt from the standard?

Employers with workplaces and operations in any of the following conditions are exempt from section 5141.1:

- Enclosed buildings or structures in which the air is filtered by a mechanical ventilation system and the employer ensures that windows, doors, bays and other openings are kept closed except when it is necessary to open doors to enter or exit.
- Enclosed vehicles in which the air is filtered by a cabin air filter and the employer ensures that windows, doors and other openings are kept closed except when it is necessary to open doors to enter or exit.
- The employer demonstrates that the concentration of PM2.5 in the air does not exceed a concentration that corresponds to a current AQI of 151 or greater by measuring PM2.5 levels at the worksite in accordance with [Appendix A](#).
- Employees are exposed to a current AQI for PM2.5 of 151 or greater for a total of one hour or less during a shift.
- Firefighters engaged in wildland firefighting.



What are the hazards?

Wildfire smoke is composed of harmful chemicals and tiny particles suspended in the air. The small particulates (PM2.5) can present a significant health hazard for workers exposed to the smoke, even when they are not working near a wildfire. These particles can irritate the lungs and cause serious or even fatal health effects, such as:

- Reduced lung function
- Bronchitis
- Worsening of asthma
- Heart failure

What do employers have to do?

- **Identify harmful exposures:** determine employee exposure to PM2.5 at the start of each shift and periodically thereafter, as needed.
- **Communicate with employees:** implement a system for communicating wildfire smoke hazards in a language and manner readily understandable by all employees. This includes encouraging employees to inform their employer of worsening air quality and adverse symptoms that might be related to wildfire smoke.
- **Train and instruct employees:** provide effective training—in a language and manner readily understandable by the employees—that includes at least the information contained in [Appendix B](#) of section 5141.1.
- **Control harmful exposures to employees:** reduce workers' exposure to wildfire smoke in the following ways:
 1. **Engineering Controls:** Where feasible, provide engineering controls such as an enclosed location with filtered air so that employee exposure to PM2.5 is less than a current AQI of 151, or to the extent feasible.
 2. **Administrative Controls:** If engineering controls are not feasible or adequate, use practicable administrative controls such as relocate to another

location where the current AQI for PM2.5 is lower, change work schedules, reduce work intensity or provide more rest periods.

3. **Respirators:** Provide a sufficient number of NIOSH-approved respirators if workers' exposure to PM2.5 cannot be reduced to a current AQI of 150 or lower.

- **Where the current AQI for PM2.5 is from 151 to 500:** employers must provide—and encourage the use of—NIOSH-approved particulate respirators, such as N95 masks, to all employees for voluntary use. Employers must ensure that:

- Respirators are cleaned or replaced as appropriate, stored and maintained so that they do not present a health hazard to users.
- The content of Appendix B of section 51441.1 is included in employee training.

Respirators, whether voluntary or required, must be used in accordance with T8CCR section 5144 requirements. When it comes to voluntary use of respirators, Appendix B of section 5141.1 must be used in lieu of Appendix D of section 5144.

- **Where the current AQI for PM2.5 is higher than 500:** employers must provide—and require—employees to use NIOSH-approved particulate respirators that will reduce employee exposure to PM2.5 to an equivalent of an AQI less than 151.

from any of the following websites or directly by telephone, email, text or other effective means:

- [The U.S. EPA AirNow](#)
- [The U.S. Forest Service Interagency Wildland Fire Air Quality Response Program](#)
- [The California Air Resources Board](#)
- [The local air pollution control district](#)
- [The local air quality management district](#)
- Measure PM2.5 levels at the worksite and convert the PM2.5 levels to the corresponding AQI in accordance with [Appendix A](#) of section 5141.1.

Some exceptions where the employer does not need to determine PM2.5 exposures:

1. The employer assumes the current AQI for PM2.5 is greater than 500 and implements the engineering, administrative and respiratory protection control requirements outlined above.
2. In emergencies (rescue, evacuation and utilities, communications, and medical operations that directly aid emergency or firefighting operations) and the employer:
 - Assumes the current AQI for PM2.5 is 151 or greater.
 - Provides a sufficient number of NIOSH-approved respirators to all employees for voluntary use.
 - Encourages employees to use them.
 - Ensures respirators are cleaned or replaced as appropriate, stored and maintained so that they do not present a health hazard to users.
 - Ensures Appendix B of section 5141.1 is used for employee training.

How to Identify Harmful Exposures

The current AQI is divided into six categories:

AQI Category for PM2.5	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

The employer must use any of the following methods to determine the current AQI:

- Check AQI forecasts and the current AQI for PM2.5

Other Resources

Cal/OSHA

- [Worker Safety and Health in Wildfire Regions](#)
- [Respiratory Protection in the Workplace - A Guide for Employers](#)
- [Sample Respirator Program](#)

Cal/OSHA Regulations

- [Protection from Wildfire Smoke](#)
- [Respiratory Protection](#)

