

RISK SIMPLIFIED

RESOURCES:

[Title 8, Section 5141.1.](#)

[Appendix A to Section 5141.1.](#)

[Appendix B to Section 5141.1.](#)

[Voluntary Use of Filtering
Facepiece Respirators](#)

QUESTIONS:

[E-mail PRISM Risk Control
Department](#)

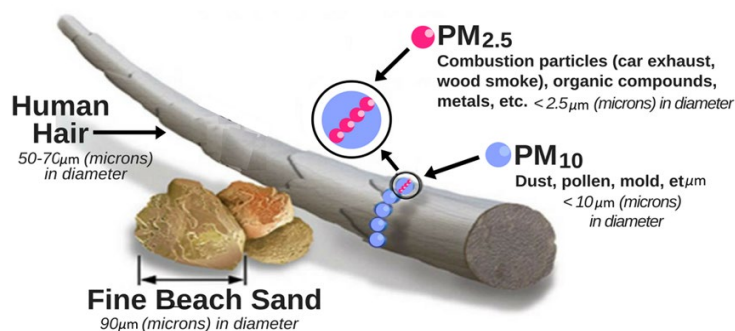
or call
916.850.7300

Wildfire Smoke: Protecting Employees and Understanding the Rules

by John Nichols

Cal/OSHA requires employers protect workers from wildfire smoke, which contains many hazardous chemicals. However, the primary harmful pollutant for those not close to the fire is particulate matter (PM), tiny liquids and particles suspended in the air. The smallest and most dangerous airborne particulate matter is called PM_{2.5}, because the particles are 2.5 micrometers (μm) in diameter or smaller. Small particles stay airborne longer and are usually most harmful, as they can penetrate deep into the lungs and be absorbed by the bloodstream.

Relative Size of Particulate Matter



Exposure to wildfire smoke may cause lung irritation and persistent coughing, as well as, phlegm, wheezing, and difficulty breathing. More serious health effects include, reduced lung function, Bronchitis, worsening of asthma, and heart failure. The Environmental Protection Agency (EPA) Air Quality Index (AQI) for PM_{2.5} identifies health concern levels, with 151 to 200 designated unhealthy and 301 or greater hazardous.

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Air Quality Index (AQI) Values	Levels of Health Concern	Colors
<i>When the AQI is in this range:</i>	<i>..air quality conditions are:</i>	<i>...as symbolized by this color:</i>
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

It is important that employers are familiar with [Title 8, Section 5141.1](#) as it establishes requirements for protecting employees from wildfire smoke hazards.

General Employer Requirements

Title 8 Section 5141.1 applies when:

- Employers should reasonably anticipate workers may be exposed to wildfire smoke, and
- The current air quality index (AQI) for PM2.5 is 151 or higher

When the current AQI for PM2.5 is 151 or greater, the employer must reduce employee exposure to less than 151. Employers must start with engineering controls to reduce exposure (to the extent feasible) before progressing to administrative controls, and ultimately Personal Protective Equipment (PPE) as a last resort. The following are examples of potential protective measures.

- Engineering Control - Moving work to a location where air is filtered, such as, inside a structure or vehicle.
- Administrative Control - Relocating work to an area where the current AQI is below 151
- Administrative Control - Changing work schedules
- Administrative Control - Reducing work intensity or provide more rest periods
- PPE - Providing respirators (see Respiratory Protection section below)

Determining AQI for PM2.5

Employers must check the current AQI at the start of each shift and periodically thereafter, and communicate this information to employees.

Government agencies measure PM2.5 throughout the United States. Current AQI for PM2.5 can be found at the following locations:

- [Airnow.gov](https://www.airnow.gov)
- [U.S. Forest Service](https://www.fs.fed.us/airquality/)
- [Interagency Wildland Fire Air Quality Response Program](https://www.epa.gov/interagency-wildland-fire-air-quality-response-program)
- [California Air Resources Board](https://www.arb.ca.gov/)
- Local air pollution control district
- Local air quality management district

Those interested may sign up for daily and forecasted AQI information from the EPA at enviroflash.info and receive notifications via text message or email.

Additionally, employers may also evaluate air quality for PM2.5 with direct read instruments, provided data is converted to an AQI equivalent using [Appendix A in Section 5141.1 Protection from Wildfire Smoke.](#)



Communicating with Employees

Employers must implement a two-way system for communicating wildfire smoke hazards in a language and manner readily understandable by employees. Employers must encourage employees to report worsening air quality conditions, and/or symptoms attributable to wildfire smoke (such as: asthma attacks, difficulty breathing or chest pain), and must allow workers to seek medical attention for wildfire smoke symptoms without retaliation. At a minimum, employers must provide employees with information contained in [Title 8 section 5141.1 Appendix B: Information to be Provided to Employees](#).



Respiratory Protection

When workplace exposure reduction measures have been implemented and the resulting employee exposure to PM_{2.5} remains 151 or greater, the employer must make available to employees and encourage the voluntary use of particulate filtering respirators certified by the National Institute of Occupational Safety and Health (NIOSH), such as N95 or P100 filtering facepiece respirators.

Can employees use respirators when the AQI is below 151?

Yes. Voluntary respirator use is an employee choice when no hazard exists that requires use of a respirator and respirator use does not produce an additional hazard. Cal/OSHA has three employer requirements pertaining to voluntary use of filtering facepiece respirators:

- Ensure filtering facepieces are not dirty or contaminated.
- Ensure respirator use does not interfere with employee's ability to work safely.
- Provide employees with the information contained in [Appendix D to Section 5144](#), Respiratory Protection standard.

When the current AQI for PM_{2.5} is greater than 500, employers must provide, and employees must use, particulate filtering respirators in accordance with Title 8 section 5144: Respiratory Protection. Respirators must have a protection factor sufficient to reduce employee PM_{2.5} exposure below an AQI of 151.

Exemptions

Exemptions to Cal-OSHA wildfire smoke regulation, include the following:

- When the employer demonstrates the concentration of PM_{2.5} in the air does not exceed a current AQI of 151 or greater
- Workers are in a structure or vehicle where air is filtered by mechanical ventilation, and windows and doors remain closed except for entry and exit.
- Employees exposed to a current AQI for PM_{2.5} of 151 or greater for a total of one hour or less during a shift
- Firefighters engaged in wildland firefighting

For additional questions or assistance with worker wildfire smoke exposure prevention, please contact [PRISM's Risk Control Department](#).