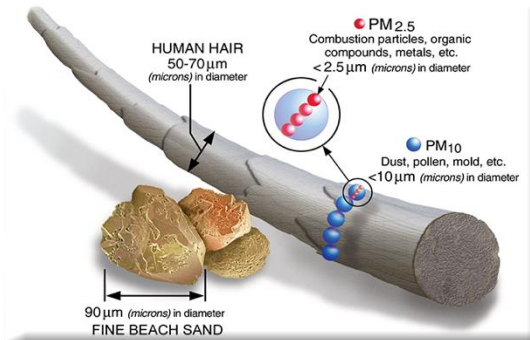




Wildfire Smoke

What you need to know

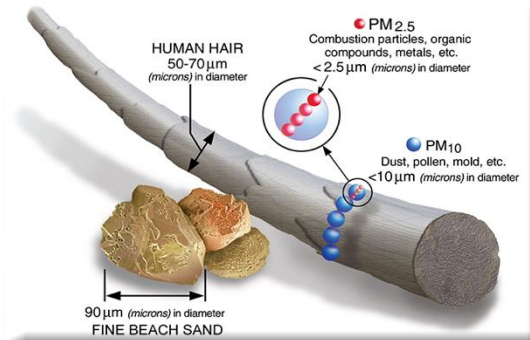


What is wildfire smoke?

Wildfire smoke is a complex mixture of gases and particles from burning vegetation and other materials. As a wildfire burns, different compounds are released in the smoke, such as carbon monoxide, carbon dioxide, hydrocarbons, particulate matter (PM), benzene, acrolein, and aldehydes.

Because of this, workers may be exposed to varying types and amounts of compounds in wildfire smoke throughout their work shift or during different fire events.

Oregon OSHA rules specifically address the fine particulate matter contained in wildfire smoke, that has an aerodynamic diameter of 2.5 micrometers or smaller and measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), known as PM2.5



What is wildfire smoke?

To put this in perspective, a micron is one millionth of a meter and these particles have a diameter of 2.5 micrometers or less, which is about 3% the thickness of a strand of human hair. The small size of these particles allows them to reach deep into the lungs and even enter the bloodstream.

Air quality index (AQI)

Many governments use a system called the Air Quality Index (AQI) to measure the concentration of wildfire smoke.

In the United States, the AQI has number values ranging from 0 to 301+ and has six different risk categories.

The AQI number can reflect any of five different contaminants. Each contaminant is measured separately and the highest of these is what's reported on the Air Quality Index. This means that the AQI is reflecting what's most harmful at the time; and with wildfire smoke it's PM2.5.



When the Air Quality Index (AQI) reaches 101, Oregon's wildfire smoke requirements take effect.

Screen shot from airnow.gov

A site where we can monitor air quality is airnow.gov

Just enter your location to find out the current AQI.

Handheld PM2.5 monitors can be used if there is no signal available.

Potential health effects

When smoke is heavy, such as what can occur from large scale wildfire events, it's hazardous for everyone.

The health effects of particle exposure can range from relatively minor (e.g., eye and respiratory tract irritation) to more serious health effects (e.g., exacerbation of asthma and heart failure, and premature death).

The respiratory system is the network of organs and tissues that help you breathe. It includes your airways, lungs and blood vessels. Fine particles found in wildfire smoke are respiratory irritants, and exposures to high concentrations can cause persistent coughing, phlegm, wheezing, and difficulty breathing.

Respiratory effects may include:

- Bronchitis
- Reduced lung function
- Increased risk of asthma exacerbation and aggravation of other lung diseases
- Increased risk of emergency room visits and hospital admissions



Potential health effects

- Lung disease such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke;
- Respiratory infections, such as pneumonia or acute bronchitis, bronchiolitis, cold, flu, or those recovering from severe respiratory illness;
- Existing heart or circulatory problems, such as irregular heartbeat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke;
- Diabetes; and
- Medical or health conditions that could be aggravated by exposure to wildfire smoke as determined by a physician or licensed healthcare provider.



Filtering facepiece respirators



Respirators must be stored and maintained so that they do not present a health hazard to the user.

N95 respirators filter at least 95% of airborne particles.

If smoke is causing irritation even with a mask, it's time to consider using a better fitting respirator.

Half face respirators are available but require a fit test.

Users of Half face respirators may have to shave facial hair to get cleared to wear a fitted respirator.



Filtering facepiece respirators



Respirators must be stored and maintained so that they do not present a health hazard to the user.

Whenever exposure to PM_{2.5} is at or above AQI 101, employers are required to ensure that appropriate NIOSH-approved filtering facepiece respirators are provided to employees at no cost, strictly for protection against wildfire smoke.



Employee rights



Employees have the right to report health issues, including those related to wildfire smoke exposure, and receive medical treatment if necessary.

Employees may also report safety and health violations to Oregon OSHA, whether or not they have reported them to their employer.