

Respiratory Protection: Diesel Exhaust

5-Minute Talk

Overview

Diesel engines are used in a number of different capacities in the workplace. When diesel fuel burns in an engine, the resulting exhaust is made up of soot and gases which may contain thousands of different chemical substances.

Diesel exhaust contains up to 100 times more particles than gasoline exhaust, which can be inhaled and deposited in the lungs. These particles carry cancer-causing hydrocarbons.

Diesel exhaust can also contain gases such as nitrous oxide, formaldehyde, benzene, sulfur dioxide, hydrogen sulfide, carbon monoxide, and other gases that can cause health problems.

Short-term (acute) effects

Workers exposed to high concentrations of diesel exhaust have reported:

- irritation of the eyes, nose, and throat
- lightheadedness
- heartburn
- headache
- weakness, numbness, and tingling in extremities
- tightness in the chest
- wheezing
- vomiting

Long-term (chronic) effects

Some studies have suggested that long-term exposure may cause persistent cough, bronchitis, and reduced lung capacity.

Although there have been few studies on the long-term effects of diesel exhaust, both EPA and NIOSH have stated that diesel exhaust should be treated as a human carcinogen.



Control of diesel exhaust

Control diesel exhaust by replacing, where possible, diesel engines with propane engines.

Control diesel exhaust by using ventilation.

Use the most clean-burning grade of diesel.

All diesel equipment should have regular maintenance and regular tune-ups. Exhaust systems should be checked for proper function.

Use engineering controls to protect employees.

Personal protective equipment (PPE)

PPE should be the last method of controlling exposures. A NIOSH-approved respirator that protects against acid gases, organic vapors, and particulates should be used.

Gloves, long-sleeved shirts, long pants, and face and eye protection should be used to prevent skin contact with diesel exhaust.

Employee Training

The training requirements for the Hazard Communication standard, 29 CFR 1910.1200(h), cover the training requirements for carcinogens.

Provide employees who will be using respirators with training on how to use, clean, and store the respirators.

Training Tips

Have an SDS for diesel fuel. Point out the hazards of the diesel fuel that are noted on the SDS and how the employer protects the employees from the hazards. Explain how and to whom employees should report any suspected exposures to diesel fuel exhaust.

Where To Go For More Information

29 CFR 1910.1200—Hazard Communications standard

29 CFR 1910.134—Respiratory Protection standard

