



TEAMSTERS

Safety & Health FACTS

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DIESEL EXHAUST

What is diesel exhaust?

Diesel exhaust is a very complex mixture of gases and particulates (soot) produced when diesel fuel is burned in an engine. Diesel exhaust contains approximately 9,000 chemical compounds. The following compounds are typically found in diesel exhaust:

- ♦ **Aldehydes** are a group of chemicals that are very irritating to the eyes, skin, and upper respiratory system. Formaldehyde is the most familiar example.
- ♦ **Nitrogen oxides** are a group of chemicals that are highly irritating to the lungs, eyes, and mucus membranes. Other symptoms associated with exposure include tightness in the chest and throat, headache, dizziness, and fluid in the lungs.
- ♦ **Carbon monoxide** is a gas that interferes with the use of oxygen by the body. Headache, dizziness, loss of consciousness, and death may occur as a result of exposure to carbon monoxide.
- ♦ **Sulfur dioxide** is very irritating to the eyes, skin, and upper respiratory system. This chemical can also cause tightness in the chest and throat.
- ♦ **Particulates** are small soot particles formed by the incomplete combustion of diesel fuel. Cancer-causing chemicals in the diesel exhaust readily stick to the surface of the particles and, because they are very small, they easily penetrate and deposit deep in the lungs. As a result, lung cancer may develop 15 or more years later.

Who is exposed?

The National Institute for Occupational Safety and Health (NIOSH) estimates that over 1.3 million workers are exposed to diesel exhaust in over 80,000 workplaces in the United States. These workers include mine workers, bridge and tunnel workers, railroad

workers, loading dock workers, truck drivers, forklift drivers, farm workers, and auto, truck, and bus maintenance garage workers.

Does diesel exhaust cause cancer?

In 1988, NIOSH recommended that diesel exhaust be regarded as “a potential occupational carcinogen”. NIOSH went on to recommend that “all available preventive efforts (including available engineering controls and work practices) be vigorously implemented to minimize exposure of workers to diesel exhaust”.

In two scientific studies reported in 1990 and 1992, NIOSH researchers found evidence that Teamster truck drivers and mechanics exposed to diesel exhaust face an increased risk of lung cancer. Another recent study found an excess of lung cancer among railroad workers.

Are there safe exposure limits for diesel exhaust?

There are currently no established exposure limits for whole diesel exhaust. Furthermore, because diesel exhaust is a cancer-causing agent, it is assumed that there is NO SAFE EXPOSURE LEVEL. It is good practice to eliminate exposure or to reduce exposure to the lowest possible level.

What can be done to reduce exposure?

Occupational exposure to diesel exhaust can be significantly reduced by implementing effective control measures.

- ♦ Use of diesel engines indoors should be avoided where there are safer alternatives.
- ♦ Adequate ventilation should be provided in areas in which diesel engines must be operated indoors.
- ♦ Diesel-powered vehicles parked indoors or at loading docks should not be allowed to idle unnecessarily.
- ♦ Tailpipe or stack exhaust hoses should be provided for any vehicles being run in a maintenance shop.
- ♦ Bulkheads and auxiliary fans should be installed to help direct airflow in large or irregular areas such as mine caverns and maintenance shops.
- ♦ Diesel 1 fuel and low sulfur fuels should be used, if possible. These fuels burn somewhat cleaner than Diesel 2 fuel.
- ♦ Truck cabs should be maintained to prevent diesel fumes from entering the cabs.
- ♦ Frequent tune-ups and regular maintenance should be provided for all diesel engines. This practice reduces exhaust particulates.

- ♦ Work practices should be modified to minimize operating diesel-powered equipment where workers may be exposed.
- ♦ Equipment should be designed to minimize workers' exposure to diesel exhaust.