

# Diesel Exhaust Gases – Carbon Monoxide (CO)

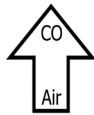


## Health Hazard Information Card HH-27

Miners working with or around diesel equipment in a coal mine are likely to be exposed to diesel exhaust gases. Some components of diesel exhaust can be toxic. One of the gases that creates the biggest health concern in coal mines is carbon monoxide (CO). The concentration of CO in the mine atmosphere varies, depending on many factors including ventilation, engine maintenance, fuel quality, and the number of diesel units operating within an area.

### Where is CO found?

CO is slightly lighter than air. Therefore, it seeks the higher areas near the roof.



**Specific Gravity**  
Air = 1.000  
CO = 0.986

### How can you tell that you are being exposed to CO?

You can't tell. CO is a colorless, odorless and tasteless gas. That is why it is so important to ensure that the tests and controls are provided at all times.

### What are the harmful effects of overexposure?

CO binds with the blood which makes it difficult for blood to pick up oxygen, acting as an asphyxiant. As a result, the body becomes starved for oxygen, potentially resulting in death.

### What are the symptoms of overexposure?

- » Headache
- » Drowsiness
- » Weakness
- » Vomiting
- » Abnormal touch/grip control
- » Nausea
- » Dizziness
- » Impaired judgment
- » Convulsions
- » Fainting
- » Coma

## **What must operators do?**

- Regularly inspect and maintain all diesel powered equipment.
- Monitor CO during each shift while diesel equipment is operating.
- Maintain air quantities over each piece of diesel equipment.

## **Where is CO monitoring required?**

- In the return from a section using diesel equipment.
- Section loading point, if using diesel face haulage.
- Any other location designated by the District Manager and specified in the ventilation plan.

## **What are the MSHA standards for CO?**

- Full-shift average      50 ppm\*
- Short-term average    75 ppm\*
- Action level\*            25 ppm\*

\*ppm - parts of CO per million parts of air

\*Action level - the concentration at which the mine operator must take steps to reduce the CO concentration in the mine atmosphere.

If you have any questions about any occupational health matter, feel free to ask us. Our job is to protect your health. For more information, contact the Health Division of Metal and Nonmetal Mine Safety and Health at (202) 693-9630, the Health Division of Coal Mine Safety and Health at (202) 693-9510, or MSHA's national office at (202) 693-9414.

*U.S. Department of Labor  
Mine Safety and Health Administration  
Visit our Web site at [www.msha.gov](http://www.msha.gov)*

*March 2005*