

Gas Detection for Vehicle Repair Facilities

Why Install a gas detection system?

Safety

- **The solution to pollution is dilution.** The solution to vehicle exhaust in vehicle repair facilities is dilution with “fresh” air drawn in by fans, louvers and doors until reaching an acceptable gas concentration. Macurco gas detectors provide automatic exhaust fan control to help maintain acceptable levels of Carbon Monoxide (CO), Combustible Gases (EX) or Nitrogen Dioxide (NO₂) in parking garages. Consult local codes for the specific requirements.
- **Carbon monoxide (CO)** is an odorless, colorless gas that is found in combustion fumes, such as those produced by cars and trucks and small gasoline engines. CO from these sources can build up in enclosed or semi-enclosed spaces and people in these spaces can be poisoned by breathing it. The most common symptoms of CO poisoning are headache, dizziness, weakness, nausea, vomiting, chest pain, and confusion. High levels of CO inhalation can cause loss of consciousness and death.
- **Nitrogen dioxide (NO₂)** is a reddish-brown gas with a pungent, acrid odor and is one of a group of highly reactive gasses known as "oxides of nitrogen," or "nitrogen oxides (NOx)." NO₂ forms quickly from car, truck and bus emissions. Health effects associated with nitrogen dioxide exposure (NO₂) include eye, nose and throat irritation. It may cause impaired lung function and increased respiratory infections in young children. Extremely high-dose exposure to NO₂ may result in pulmonary edema and diffuse lung injury. www.epa.gov
- **Gasoline** is used as a fuel for engines in cars. It is colorless to pale brown or pink in color with a distinctive odor. Generally, the odor of gasoline provides adequate warning of hazardous concentrations. Gasoline is a volatile, flammable liquid. Its vapors may travel to a source of ignition and flash back. Gasoline vapors are heavier than air and may collect in low-lying areas. Typically, gasoline contains more than 150 chemicals, including small amounts of benzene, toluene, xylene and sometimes lead. www.atsdr.cdc.gov



Savings

When people think about sustainability and saving energy, the temptation is to think first of inhabited spaces like offices and residences. However, one of the most important areas is reducing energy consumption in a vehicle repair facility. Installing ventilation controllers based on gas concentrations can substantially reduce consumption of both electricity and natural gas and pay for itself in less than one year. Natural gas consumption is required to heat repair garages in colder climates. If ventilating fans are running continuously, it is no surprise when heating costs are high. One effective solution is to control the operation of the ventilating fans based on the quality of the air inside the repair garage. A system which operated the fans only when carbon monoxide, nitrogen dioxide, or combustible gas levels are elevated could reduce the fan operating time substantially. This will not only reduce electricity and natural gas consumption but could extend the life of the fans as well.



Standards

Agency	Carbon Monoxide CO	Nitrogen Dioxide NO ₂
OSHA	TWA: 50PPM continuous exposure for 8 hours, Ceiling 200PPM	PEL Ceiling: 5PPM
NIOSH	PEL/TWA: 35PPM continuous exposure for 8 hours, Ceiling 200PPM	STEL: 1 PPM; IDLH 20PPM
ACGIH	TLV-TWA: 25PPM continuous exposure for 8 hours	TWA: 3PPM; 5PPM STEL

Macurco Gas Products

- [CM-6 \(CO Detector\)](#)
- [TX-6-ND \(NO₂ Detector\)](#)
- [GD-6 \(LEL Detector\)](#)
- [DVP-120 \(Control Panel\)](#)

Macurco Literature

- [Quick Reference Sheet](#)
- [Product Brochure](#)
- [Parking Garage Guide](#)
- [Gas & Product Training](#)

Learn More

- [CO in the Workplace](#)
- [Auto Shop - CO](#)
- [OSHA Carbon Monoxide](#)
- [NIOSH Nitrogen Dioxide](#)