

GENERAL INDUSTRY

Gases Exposure & Detection Guidelines

The presence of airborne toxic substances can have a wide breadth of physiological effects on human health. OSHA, the main federal agency that enforces safety and health regulation for on-the-job exposure to toxic substances, has established levels of exposure for toxic substances.

COMMON TOXIC CONTAMINANTS

The below table provides the Time Weight Average (TWA)¹ and Ceiling Level (c)² for common toxic substances encountered.

¹ Time Weighted Average (TWA) measures the average sum of exposure in an 8-hour workday.

² Ceiling Level, indicated by (C) in the below table, indicates the maximum exposure limit for that substance.

Substance	Parts of gas per million parts of contaminated air at 25°C and 760 torr.	Milligrams of substance per cubic meter of air.
Sulfur Dioxide (SO ₂)	5 ppm	13 mg/m
Chlorine (CL ₂)	(C) 1 ppm	(C) 3 mg/m
Ammonia (NH ₃)	50 ppm	35 mg/m
Carbon Monoxide (CO)	50 ppm	55 mg/m
Hydrogen Sulfide (H ₂ S)	(C) 20 ppm, Maximum 50 ppm at 10 min.	
Chlorine Dioxide (ClO ₂)	.1 ppm	.3 mg/m
Nitrogen Dioxide (NO ₂)	(C) 5 ppm	(C) 9 mg/m
Methane (CH ₄)	1,000 ppm	

COMMON SYMPTOMS OF EXPOSURE

Exposure to unsafe levels of contaminants in air can cause a wide breadth of physiological symptoms. Depending on the severity of exposure and contaminant, workers can suffer mild to severe symptoms, such as:

- Headache
- Dizziness
- Confusion
- Nausea
- Vomiting
- Asphyxiation
- Loss of Consciousness
- Death

HOW TO DETECT TOXIC VAPORS

OSHA recommends direct-reading instruments which allow for real-time or near real-time measurements of air containments.



Experts you can trust

Premier Safety rents and sells equipment designed for the detection of certain toxic gases.

SOURCES: www.osha.gov/dts/chemicalsampling/data/CH_257400.html, nj.gov/health/eoh/rtkweb/documents/fs/1202.pdf

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