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**Performance Requirements  
for Open Path Toxic Gas Detectors**

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Performance Requirements for Open Path Toxic Gas Detectors

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## 1 Scope

**1.1** This standard provides minimum requirements for fixed and transportable open path toxic gas detection equipment.

**1.2** This standard specifies the construction, performance and testing of open path (line-of-sight) gas detectors that sense the presence of toxic gas concentrations in air.

**1.3** For equipment used for sensing the presence of multiple gases, this document applies only to the portion sensing the toxic gas. Sensing of combustible gases is outside the scope of this document.

**1.4** This standard addresses toxic gas detectors intended to provide a broad indication or alarm, the purpose of which is to give warning of possible presence of potentially toxic concentrations of gas.

**1.5** Conformance to this standard does not imply suitability for gas monitoring. This standard does not apply to equipment of the laboratory or scientific type used for analysis or measurement, equipment used for process control and process monitoring purposes, or equipment used for residential purposes.

**1.6** This standard specifies the requirements for gas detection equipment that are intended to detect gases in ambient air by measuring the spectral absorption by the gases over an extended optical path. The units of measurement and range of the gas detection equipment are a mathematical integral of the gas concentration along the optical path. The units of measurement are expressed as full concentration of the toxic gas concentration multiplied by the distance (ppm.m).

**1.7** This standard only specifies the requirements for instrument applications where calibration is performed using either the gas to be detected or another gas for which response conversion data appears in the instruction manual.

**1.8** This standard does not address the electrical shock or fire requirements, and this standard does not address performance of open path detectors intended to detect chemical warfare agents (CWA's).

## 2 References

ANSI/ISA-92.00.01, Performance Requirements for Toxic Gas Detectors

ISA-RP92.0.02, Installation, Operation, and Maintenance of Toxic Gas-Detection Instruments: Hydrogen Sulfide

ANSI/ISA-92.04.01, Performance Requirements for Instruments Used to Detect Oxygen-Deficient/Oxygen-Enriched Atmospheres

ANSI/ISA-12.13.04, Performance Requirements for Open Path Combustible Gas Detectors

National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards, Title 29, Part 1910.1000, Occupational Safety and Health Standards

Threshold Limit Values for Chemical Substances in the Work Environment Adopted by the American Conference of Governmental Industrial Hygienists (ACGIH)

Documentation for Immediately Dangerous to Life or Health Concentrations (IDLHs) (NIOSH Taft Laboratories)