

 Application Note	Industrial Atmospheric Hazards	Date	1-1-2000
		N ^o	AN2000-6
		By	Lars Boettern

Atmospheric hazards commonly encountered in industry

1. Wastewater

Primary application(s): Atmospheric hazards primarily encountered during confined space entry procedures into environments such as:

- sewers
- digesters
- lift stations
- tanks and other vessels
- pits

Frequently encountered hazards:

- Oxygen deficiency
- Combustible gas
- Hydrogen sulfide
- Carbon monoxide

2. Municipal Departments

Primary application(s): Atmospheric hazards primarily encountered during confined space entry procedures into environments such as:

- electrical vaults
- manholes
- storm drains
- tunnels
- pits
- excavations

Frequently encountered hazards:

- Oxygen deficiency
- Combustible gas
- Hydrogen sulfide
- Carbon monoxide

Secondary applications: Occasionally a specific process will involve the use of a particular contaminant such as chlorine (at a water treatment facility). Presence of specific contaminants may be associated with confined space entry procedures, or may exist in the general plant atmosphere. Occasionally encountered hazards:

- Sulfur dioxide
- Chlorine

3. Oil Production / refining

Primary application(s): Atmospheric hazards may be encountered during confined space entry procedures or may be encountered in the general atmosphere associated with the refinery or production area. This is especially the case with regards to hydrogen sulfide. Frequently, all workers assigned to a particular area will be equipped with single sensor detectors for the measurement of H₂S.

- vessels
- tanks
- pipelines
- leaking valves
- pits

 Application Note	Industrial Atmospheric Hazards	Date	1-1-2000
		Nº	AN2000-6
		By	Lars Boettern

- excavations
- containment berms

Frequently encountered hazards:

- Oxygen deficiency
- Combustible gas
- Hydrogen sulfide
- Carbon monoxide

4. Chemical Plants

Primary application(s): Atmospheric hazards may be encountered during confined space entry procedures or may be encountered in the general atmosphere associated with the plant. The hazards encountered are a direct consequence of the products being manufactured or handled. Frequently, all workers assigned to a particular area will be equipped with single sensor detectors for the measurement of a specific contaminant known to be potentially present.

- vessels
- tanks
- pipelines
- leaking valves
- pits
- excavations
- containment berms

Frequently encountered hazards:

- Oxygen deficiency
- Combustible gas
- Hydrogen sulfide
- Carbon monoxide
- Chlorine
- Sulfur dioxide
- Ammonia

5. Power stations

Primary application(s): Atmospheric hazards may be encountered during confined space entry procedures or may be encountered in the general atmosphere associated with the plant. The specific nature of the contaminants is affected by the type of power station. Coal fired plants are especially associated with sulfur dioxide, while nuclear generating stations are especially associated with oxygen deficiencies.

- vessels
- tanks
- pipelines
- pits
- tunnels
- bins

Frequently encountered hazards:

- Oxygen deficiency
- Combustible gas
- Hydrogen sulfide
- Carbon monoxide

 Application Note	Industrial Atmospheric Hazards	Date	1-1-2000
		N ^o	AN2000-6
		By	Lars Boettern

6. Pulp and Paper Mills

Primary application(s): Atmospheric hazards may be encountered during confined space entry procedures or may be encountered in the general atmosphere associated with the plant. The hazards encountered are a direct consequence of the of the type of process used to manufacture and/or bleach the paper. Frequently, all workers assigned to a particular area will be equipped with single sensor detectors for the measurement of a specific contaminant known to be potentially present.

- vessels
- tanks
- pipelines
- pits
- stock chests

Frequently encountered hazards:

- Oxygen deficiency
- Combustible gas
- Hydrogen sulfide
- Carbon monoxide
- Chlorine
- Chlorine dioxide
- Sulfur dioxide
- Ammonia

7. Construction

Primary application(s): Atmospheric hazards are primarily encountered during construction procedures which are undertaken in or associated with confined spaces or excavations.

- vessels
- tanks
- manholes
- vaults
- sewers
- storm drains
- pipelines
- pits
- excavations

Frequently encountered hazards:

- Oxygen deficiency
- Combustible gas
- Hydrogen sulfide
- Carbon monoxide

8. Contractors

Primary application(s): Atmospheric hazards are primarily encountered during confined space entry or in excavations. Many employers now subcontract their confined space entry work to contractors who specialize in these activities. The hazards encountered by contractors vary from job to job.

- vessels
- tanks
- boilers
- manholes
- vaults

 Application Note	Industrial Atmospheric Hazards	Date	1-1-2000
		N ^o	AN2000-6
		By	Lars Boettern

- sewers
- storm drains
- pipelines
- pits
- excavations

Frequently encountered hazards:

- Oxygen deficiency
- Combustible gas
- Hydrogen sulfide
- Carbon monoxide

9. Diesel exhaust

Primary application(s): Diesel exhaust contains a number of potentially dangerous contaminants. When diesel powered equipment is located inside buildings or other confining environments contaminants include:

- Oxygen deficiency
- Carbon monoxide
- Sulfur dioxide
- Nitric oxide
- Nitrogen dioxide

10. Propane powered equipment exhaust

Primary application(s): Propane powered equipment exhaust contains a number of potentially dangerous contaminants. When propane powered equipment is located inside buildings or other confining environments contaminants include:

- Oxygen deficiency
- Combustible gas
- Carbon monoxide
- Nitric oxide
- Nitrogen dioxide