

About North American, ATEX and IECEx Hazardous Locations

In the context of hazardous area classification, “**Class I**” refers to locations where flammable gases or vapors are present or may be present in sufficient quantities to produce explosive or ignitable mixtures, while **ATEX (Atmosphères Explosibles)** is a European directive. **IECEx** is a global set of standards concerning equipment used in potentially explosive atmospheres.

Class I: Hazardous Locations with Flammable Gases or Vapors

Class I locations are characterized by the presence or potential presence of flammable gases or vapors in the air, which can create explosive or ignitable mixtures.

Examples of these locations include petroleum refineries, gasoline storage areas, dry cleaning plants, and spray finishing areas.

Class I is also further divided into **Class I, Division 1** and **Class I, Division 2** based on the likelihood of flammable gases or vapors being present under normal operating conditions.

Division 1

Areas where flammable gases or vapors are continuously present, or are likely to be present, under normal operating conditions.

Division 2

Areas where flammable gases or vapors are not likely to be present under normal operating conditions. If they are, they are likely to be present only for short periods.

Zone 0

Explosive atmosphere is present continuously or for long periods.

Zone 1

Explosive atmosphere is likely to occur in normal operation.

Zone 2

Explosive atmosphere is not likely to occur in normal operation, and if it does, it will only exist for a short time.

Category 1

For use in Zone 0, requiring the **HIGHEST** level of protection.

Category 2

For use in Zone 1, requiring a **MODERATE** level of protection.

Category 3

For use in Zone 2, requiring the **LOWEST** level of protection.

ATEX: European Directive for Explosive Atmospheres and IECEx global standards for Explosive Atmospheres

The ATEX directive ensures the safety of workers in areas where explosive atmospheres may occur by setting requirements for equipment and protective systems used in such environments.

This directive and IECEx standards apply to equipment and protective systems intended for use in potentially explosive atmospheres, as well as to equipment and protective systems intended for use in areas where explosive atmospheres may occur.

ATEX and IECEx defines **zones** based on the likelihood of an explosive atmosphere being present.

ATEX and IECEx equipment is also categorized into different **categories** based on the level of protection required for the specific zone.

Equipment is categorized into two groups based on the type of explosive atmosphere and the intended use:

- **Group I:** Equipment for use in underground mines where there is a risk of firedamp and/or combustible dusts.
- **Group II:** Equipment for use in ALL other areas where there may be explosive atmospheres due to gases, vapors, or mists, or air/dust.

In summary: **Class I and Class II hazardous locations**, as defined by North American standards (NEC and CEC), are areas where flammable gases or vapors can create explosive mixtures. **ATEX and IECEx** are European and global directives that set safety requirements for equipment used in potentially explosive atmospheres using a system of zones and equipment categories.