

# Hazardous Locations

## A brief intro

Potentially explosive atmospheres (or) Hazloc, as it is widely known by in North America and Canada, are areas where there is a risk of explosion or fire, due to the presence of gases that could auto ignite or to the presence of combustible dusts that could potentially start a fire. Places that are frequently accessed by general population, in everyday life, can also be classified as Hazardous Locations – the prime example being Gas Stations. Oil rigs, mines, chemical plants, flour mills, grain silos, pipeline transfer areas, and oil storage tankers are some of the more industrial Hazardous locations.

Based on where one is located geographically, there are different sets of prevailing Hazardous Location classifications. The most prevalent schemes are the Division system & the Zone system. IECEx & ATEX, and the newly minted UKCA, all use standards that provide guidance and protection concepts for the Zone system. North America and Canada still use the Division system in addition to providing an option to use Zone markings. Although on the outset appearance, it may seem like the two large economic zones of the world use different Hazardous location classifications, they are roughly equivalent. The NFPA and the Canadian Electrical Code (CEC) have specific sections (NEC 500 & CEC section 18/ Appendix J18) that detail how the Zone and Division systems are equivalent.



## IECEx & Harmonization

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## ATEX & Europe

Legislated by the EU, the ATEX directive is the letter of the law when it comes to Hazardous Locations classification and product certification in Europe. Hazardous Locations equipment manufacturers are required to comply with the ATEX directive 2014/34/EU. For higher risk zones like Zone 0 and Zone 1, manufacturers must get their products evaluated and certified to harmonized standards by an Ex CB/NB (Certified body/ Notified body) in addition to having their quality systems also evaluated (Quality Assurance Notification (QAN)).



Manufacturers do have an option to have their non-electrical and lower risk electrical zone products (Equipment in zone 2) Self-Declared with the technical file lodged with one of the Notified Bodies. A Declaration of Conformity becomes critical for ATEX products. Although EN 60079 series of standards, closely aligned to IEC 60079 series of standards, are the main go-to for ATEX certification, the directive does not exclusively recommend using these standards to meet the directive. The intent is to meet the directive. The use of standards is at the discretion of, and decided upon by, both manufacturer and the Notified Body they will be working with.

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## Divisions & North America

Utilized in USA & Canada, the Division scheme is among the last alternative classification to the zone system. The area can be high risk (Division 1) or Low risk (Division 2) depending on how many hours in a year the area is expected to be hazardous. The key difference in philosophy between the ATEX/IECEx & North American certification is the inclusion of "ordinary locations" safety.



The Ordinary Location safety is not a consideration in the ATEX/IECEx world. But in North America (US & Canada), a product is required to meet one of the electrical safety standards for ordinary locations, in addition to Hazardous Location standards. There is an exhaustive list of ordinary location standards for different products (e.g., Motors need to meet C22.2 no 100 in CA & UL1004-1 in US) which are additionally included in Hazloc certification.

## United Kingdom & UKEX

With Brexit coming into effect, UKEX now gets a honorable mention here. Evolving with time, the requirements are still up and coming but the timelines seem to have been established now. By the beginning of 2023, Hazloc equipment, components, and subassemblies coming into the U.K. shall have the UKEX mark in addition to getting a UKAS QAN (Quality Assurance Notification). Once again, requirements align closely with the IEC 60079 series of standards, with the additional requirement to meet the UKAS Directive for equipment and protective systems intended for potentially explosive atmospheres (Regulation 2019).



In addition to all the regulations mentioned above, each country or group of countries have their own set of Ex regulations (e.g. India- PESO/DGMS; Russia/Belarus- TR CU- Customs union; China- CCC Ex; Korea – KCS). The list is pretty exhaustive, and it is in the interest of global manufacturers to include a well accomplished certification agency, like LabTest Certification, to determine options in seamlessly crossing borders and bring products to market, in the Hazloc world, in a timely and cost efficiently manner. With our expertise and our partnerships across the globe we can be a valuable partner in getting your Hazloc products to market, while meeting all the applicable regulations.