Hazardous Locations

Considerations when dealing with Hazardous Environments.

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Onshore, Offshore, Facilities, Pipelines

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What are Hazardous Locations?

HAZLOC: a hazardous location is an area in which the atmosphere contains, or main contain in sufficient quantities, flammable or explosive gases, dusts or vapors.

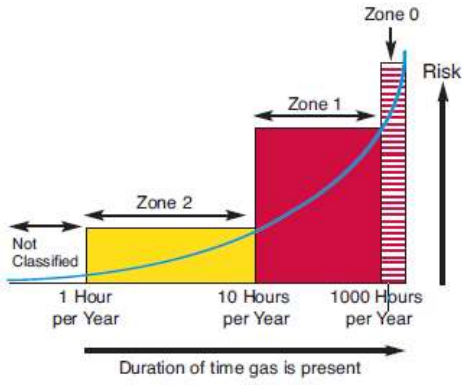
Examples:

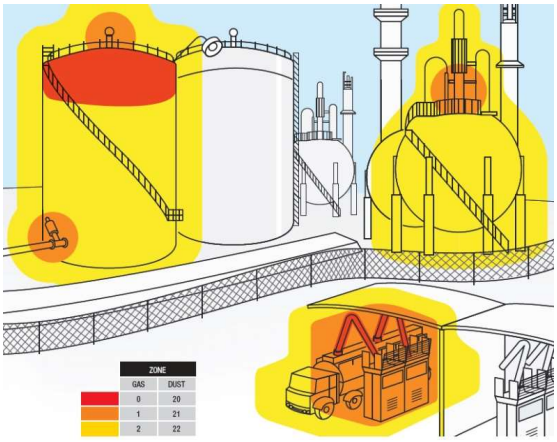
- OIL&GAS PLATFORMS
- OIL&GAS DRILLING RIGS
- OIL TANKERS
- REFINERIES AND PETROLEUM TERMINALS
- PIPELINES
- INDUSTRIAL MARINE ENVIRONMENTS
- MILITARY SYSTEMS
- CHEMICAL / PHARMACEUTICAL INDUSTRIES
- OTHER INDUSTRIAL INSTALLATIONS
- FOOD PROCESSING

Thinking Inside & Outside the Tank.

Electrical apparatus for use in hazardous areas needs to be designed and constructed in such a way that it will not provide a source of ignition

Zones - ATEX 2014/34/UE, IECEX, UL60079





FREQUENCY OF OCCURRENCE	ZONE SYSTEM Gases or Vapors	ZONE SYSTEM Combustible Dusts
An explosive atmosphere is present continuously or for long periods	Zone 0	Zone 20
An explosive atmosphere is likely to occur in normal operation occasionally	Zone 1	Zone 21
An explosive atmosphere is not likely to occur in normal operation but, if it does occur, will persist for a short period only	Zone 2	Zone 22

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USA & Canada

NEC (NFPA 70) – NATIONAL ELECTRICAL CODE (USA)
CEC (C22.1) – CANADIAN ELECTRICAL CODE (CANADA)

To obtain the Hazardous Location it is necessary to have the Ordinary location certification

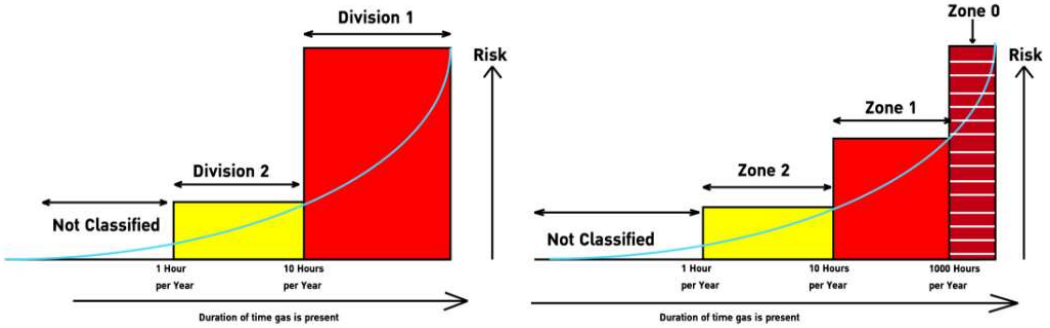
NEC500/CEC Annex J
Definition of Class and Division

NEC505/CEC 18
Definition of Class and Zone

UL 1203/CSA30
A strictly American standard that defines design requirements other than ATEX / IECEx

Serie UL60079/CSA 60079
Standards are equal to IEC 60079 series + local deviations

Division vs Zone



UL 1203/CSA30	Serie UL60079/CSA 60079
Division 1: An area where ignitable concentrations of flammable gases, vapors or liquids can exist all of the time or some of the time under normal operating	**Zone 0:** An area where ignitable concentrations of flammable gases, vapors or liquids are present continuously or for long periods of time under normal operating
	Zone 1: An area where ignitable concentrations of flammable gases, vapors or liquids are likely to exist under normal operating conditions
Division 2: An area where ignitable concentrations of flammable gases, vapors or liquids are not likely to exist under normal operating conditions	**Zone 2:** An area where ignitable concentrations of flammable gases, vapors or liquids are not likely to exist under normal operating conditions

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Division vs Zone: Gas & Dust Groups

Class I - Gas	Group II - Gas
Group A (Acetylene)	**IIC** (Acetylene & Hydrogen)
Group B (Hydrogen)	
Group C (Ethylene)	**IIB** (Ethylene)
Group D (Propane)	**IIA** (Propane)

Class II – Dust	Group III – Dust
Group E - Metal dusts, such as magnesium	**IIIC -** Conductive dusts, such as magnesium)
Group F - Carbonaceous dusts, such as carbon & charcoal **Group G** - Non-conductive dusts, such as flour, grain, wood & plastic	**IIIB -** Non-conductive dusts, such as flour, grain, wood & plastic)

Class III – Ignitible fibers/flyings, such as cotton lint, flax & rayon	**IIIA** – Ignitible fibers/flyings, such as cotton lint, flax & rayon

* Specifications contained within come from Videotec CCTV Products published documents.