

# Hazardous Locations Use

(2 pages)

Generally, there are 2 different terms used by industry to describe and designate the same hazardous location; Divisions and Zones. Both are in use at the present time.

There are further designations for the type and source of the explosive material. Class I generally applies to the HydroSense applications. This designates the source as a gas or vapor, as opposed to dust or fibers.

The correlation of Divisions to Zones is as follows

**Zone 0 = Division 1 = explosive vapor is present continuously**

Example: Vapor space in a fuel storage tank

**Zone 1 = Division 1 = explosive vapor is present intermittently**

Example: Air space outside of tank where spurious gas concentrations may occur regularly when filling or maintaining a tank or process

**Zone 2 = Division 2 = Explosive vapor is not normally present**

Example: air space outside of the general area of a process or where vapors are not released under normal process operations

The standard HydroSense is approved to CSA specifications for Zone 2 (Division 2) applications. This indicates that the unit does not have exposed arcing components or temperatures that can initiate an explosion. A Type 4X enclosure is acceptable in these areas in conjunction with the CSA Approval.

If your area is Hazardous Location classified, you must first determine if a CSA approval is acceptable to your site.

If the CSA approval is acceptable, the unit may be used in Zone 2 or Division 2 areas without any additional protection. If your area is a Zone 1 (Division 1) classification, or if the CSA hazardous locations rating is not acceptable, a purging system may be applied to the HydroSense.

Purging, or pressurizing, is the act of de-classifying the inside of an enclosure by maintaining a positive pressure within that enclosure. In essence, the vapors outside of the enclosure cannot get into the enclosure to cause it to be hazardous.

This method, when used on the HydroSense, is based on the understanding that the water sample has a maximum hydrocarbon content of 2000 ppm.

Applications that may introduce higher concentrations of hazardous materials into the sample stream may render the pressurization system ineffective.

You must now determine if your installation requires a European (Cenelec) approval or not.

**If a European system is required, a Eex p purge system will apply. This will allow the use of the HydroSense in either Zone 1 or Zone 2 (Division 1 or 2) areas.**

**If a non-European system can apply, a purge will de-classify the space as follows:**

***If the existing CSA Zone 2 (Div 2) Approval is acceptable:***

**-HydroSense can be used in Zone 1 (Div 1) or Zone 2 (Div 2) with a YZ purge**

***If the existing CSA Approval Zone 2 (Div 2) is not acceptable:***

**-HydroSense can be used in a Zone 2 (Div 2) with a YZ purge**

**-HydroSense can be used in a Zone 1 (Div 1) with a X purge**

Purging (pressurization) systems are available as a factory supplied accessory or can be purchased and installed by the customer from an independent source. Some modifications would be required by the customer if it was sourced independently. These include sealing the existing chamber vent ports, connecting an airway between the controller and chamber, and drilling the housing to accept the bulkhead fittings.

For any purging system, a continuous source of clean dry air (or inert gas such as nitrogen) is required.

Added benefits of a purge include a clean dry source of air surrounding the electronics, eliminating the affects of harsh or humid environmental conditions. As well, the continuous air flow will purge the sensing chamber of humidity caused by the open flow of the sample stream.

Local regulations and authorities will apply.