HAZARDOUS AREA CLASSIFICATIONS

EXPLAINED

WHEN RELIABILITY MATTERS
CONNECT TO CONFIDENCE

HAZARDOUS AREA CLASSIFICATIONS :
WHAT ARE THEY, AND WHY ARE THEY IMPORTANT?

Due to increased concerns for worker safety, hazardous rated areas are becoming more prominent on the radar of many professional vibration analysts.

In North America, CSA standards are one of the most common sets of standards applied to comply with CEC and NEC (NFPA 70) regulations. In the North American division scheme, areas where hazardous materials may be present are sorted by **Class**, **Division**, and **Group**.

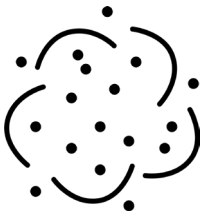
Hazardous ratings exist to help prevent catastrophic incidents like this one

CLASSES

Classes separate the types of material present the surrounding atmosphere.

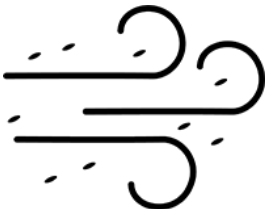
CLASS I

Flammable gases or vapors are present in the air in quantities sufficient to produce explosive or ignitable mixtures.



CLASS II

Combustible or conductive dusts are present in sufficient quantities to be explosive or ignitable.



CLASS III

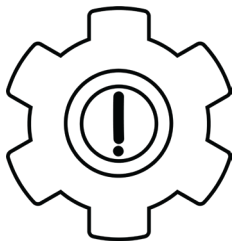
Ignitable fibers or flyings are present, but not likely to be in suspension in sufficient quantities to produce ignitable mixtures. Typical wood chips, cotton, flax, and nylon. Group classifications are not applied to this class.

DIVISIONS

Divisions define the probability that the hazardous material is present in dangerous concentrations.

DIVISION 1

The hazardous substance is present during normal operational conditions.

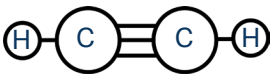


DIVISION 2

The hazardous substance is present only in abnormal conditions, such as a container failure or system breakdown.

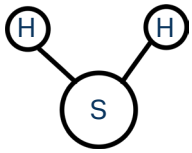
GROUPS

Groups define the type of hazardous material that can be present in the surrounding atmosphere.

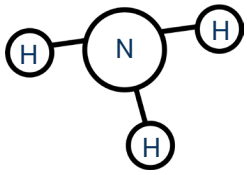


GROUP A
Acetylene

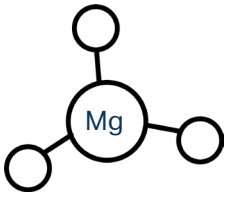
GROUP B
Hydrogen, fuel, and combustible process gases containing more than 30% hydrogen by volume or gases of equivalent hazard, such as butadiene, ethylene, oxide, and acrolein.



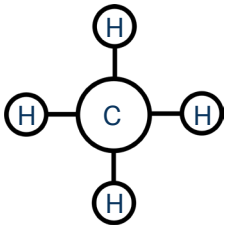
GROUP C
Hydrogen sulfide, carbon monoxide, cyclopropane, morpohline, ether, ethyl, ethylene, or gases of equivalent hazard.



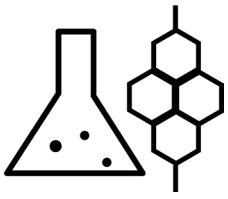
GROUP D
Gasoline, acetone, ammonia, benzene, butane, cyclopropane, ethanol, hexane, methanol, methane, vinyl chloride, natural gas, naphtha, propane, or gases of equivalent hazard.



GROUP E
Combustible metal dusts, including aluminum, magnesium, and their commercial alloys or other combustible dusts whose particle size, abrasiveness, and conductivity present similar hazards in connection with electrical equipment.



GROUP F
Carbonaceous dusts, carbon black, coal black, charcoal, coal, or coke dusts that have more than 8% total entrapped volatiles, or dusts that have been sensitized by other material so they present an explosion hazard.

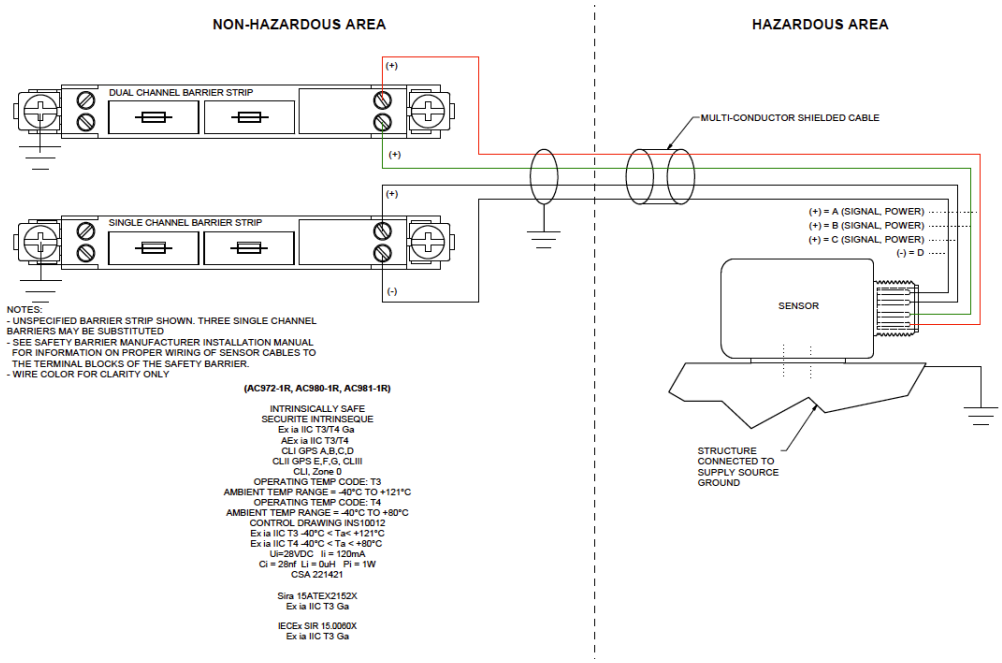


GROUP G
Flour dust, grain dust, flour, starch, sugar, wood, plastic, and chemicals.

All of CTC's sensors rated for hazardous areas have their own rating information engraved on the sensor body itself.

AC980-1D is rated for use in Division 1 in Class I, Class II and Class III. Note the engraved logos for all of the intrinsic safety approvals.

In order to incorporate as much information as possible on the face of the sensor, the ratings are shown along with sufficient information to identify the control drawing that details proper installation information.



Sample of the control drawing for AC980-1D Intrinsically Safe triaxial sensor

CTC is the world leader in the design and manufacture of industrial accelerometers, piezo velocity transducers, 4-20 mA vibration sensors, and proximity probes as well as all related mounting hardware, cabling, and junction boxes. Our products enable efficient vibration monitoring for predictive maintenance in a wide variety of industries. Industries served include cement, mining, petrochemical, food & beverage, auto, steel, wind, paper & pulp, power generation, water & wastewater treatment, pharmaceutical, hospitals, bottling, and more. Our mission is to offer the widest variety of accelerometers and vibration hardware products, which are compatible with data collectors and online monitoring systems, as well as the tools for installation.

CTC
VIBRATION ANALYSIS HARDWARE

The CTC product line features vibration analysis hardware for heavy industry.

All CTC products are backed by our unconditional, lifetime warranty. If any CTC product should ever fail, we will repair or replace it at no charge.

PRO
PROXIMITY PROBE SYSTEMS

The PRO line offers the industry's most reliable proximity probe sets.

All PRO products are backed by a lifetime warranty on materials and workmanship. PRO will repair or replace any of our products as long as the product was not subjected to misuse, neglect, natural disasters, improper installation, or modification.

All stock products may be returned for a 25% restocking fee if returned in new and unused condition within 90 days of shipment. Built-to-order and private-label products qualify for a 50% refund if returned in new and unused condition within 90 days of shipment. Custom products are quoted and built specifically to the requirements of the customer, which may include completely custom product design or private-labeled versions of standard products for OEM customers. Custom products are non-cancelable, non-returnable, and non-refundable.