



# Hazardous Location Class & Division Definitions

Defined by the National Electric Code, Articles 500-516

This explains what is meant by the class, division, and group ratings given to products that are certified for use in hazardous locations. Each class and division is defined. When purchasing or using electrical products that have been certified for use in specified hazardous locations it is important to know what those locations are.

## CLASS I, II, AND III

As defined by the National Electrical Code (NEC), Hazardous Locations are those in which fire or explosions may occur due to the presence of:

- Class I. Flammable gases, vapors, or liquids
- Class II. Combustible dusts
- Class III. Ignitable fibers or flyings

## DIVISION 1 AND 2

Division ratings are defined by Article 500 of the NEC:

- Division 1. Locations where a flammable or combustible atmosphere is present under normal operating conditions
- Division 2. Locations where a flammable or combustible atmosphere is present only under abnormal conditions

EXAMPLE: This would mean that a “Class 1 Division 1, Class 2 Division 2” rated piece of equipment could be used in a location where combustible gases are present regularly, but not in areas of a coal mine or grain processing silo, for example, where combustible dusts would be present under normal conditions.

NOTE: By definition, if a certification lists “Division 1” [or has no division listing] for a specific class then that product is suitable for use in Division 1, Division 2, and non-hazardous locations of that class.

## CLASS I GROUPS A, B, C, AND D

The flammable and combustible gases, vapors, and liquids Class is further divided into Groups as follows:

- Group A. Atmospheres containing acetylene
- Group B. Atmospheres containing acrolein, butadiene, ethylene oxide, propylene oxide, hydrogen, or fuel and combustible process gases containing more than 30% hydrogen by volume
- Group C. Atmospheres containing ethyl ether, ethylene, or gases or vapors of equivalent hazard
- Group D. Atmospheres containing acetone, ammonia, benzene, butane, cyclopropane, ethanol, gasoline, hexane, methane, methanol, naphtha, propane, or gases or vapors of equivalent hazard.

EXAMPLE: a flashlight rated for “Class I, Division 1, Groups C and D; Class I, Division 2, Groups A, B, C and D” can be used in a location where there is an atmosphere that normally contains gasoline [Cl I, Div 1 Grp D] but only in a place where explosive mixtures of acetylene would occur outside of normal operations [Cls 1, Div 2, Grp A].

NOTE: If there is no Group rating on information provided by a manufacturer, investigate further and ensure that the product meets your needs. You can not assume that the lack of a Group rating means a product is appropriate for use in all group locations.

## CLASS II GROUPS E, F, AND G

Dust-ignition-proof equipment is also further divided into groups based on the different types of combustible dust that may be present.

- Group E. Atmospheres containing combustible metal dusts
- Group F. Atmospheres containing carbon black, charcoal, coal or coke dusts with more than 8% total volatile material, or atmospheres containing these dusts sensitized by other materials so that they present an explosion hazard.
- Group G. Atmospheres containing combustible dusts not included in Group E or F, including flour, grain, wood, plastic and chemicals.



KH Industries offers several models of Explosion Proof Lights that are certified for Class I Division 1 Locations.

Contact a KH Industries Hazardous Location Specialist for more information:

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