NEC Hazardous Location Definitions

Class I

Class I Division 1:

A Class I Division 1 location is a location

1) In which ignitable concentrations of flammable gases or vapor can exist under normal operating conditions.

2) In which ignitable concentrations of such gases or vapors may exist frequently because of repair or maintenance operations or because of leakage.

3) In which breakdown or faulty operation of equipment or processes might release ignitable concentrations of flammable gases or vapors might also cause simultaneous failure of electrical equipment in such a way as to directly cause the electrical equipment to become a source of ignition.

Class I Division 2:

A Class I Division 2 location is a location

1) In which volatile flammable liquids or flammable gases are handled, processed, or used, but in which the liquids, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture of beak-down of such containers or systems or in case of abnormal operation of equipment.

2) In which ignitable concentrations of gases or vapors are normally prevented by positive mechanical ventilation, and which might become hazardous through failure or abnormal operation or the ventilating equipment.

3) That is adjacent to a Class I Division 1 location, and to which ignitable concentrations of gases or vapors might occasionally be communicated unless such communication is prevented by adequate positive-pressure ventilation from a source of clean air and effective safeguards against ventilation failure are provided.

Class II

Class II Division 1:

1) In which combustible dust is in the air under normal operating conditions in quantities sufficient to produce explosive or ignitable mixtures.

2) Where mechanical failure or abnormal operation of machinery or equipment might cause such explosive or ignitable mixtures to be produced, and might also provide a source of ignition through simultaneous failure of electrical equipment, through operation or protection devices, or from other causes.

3) In which combustible dusts of an electrically conductive nature may be present in hazardous quantities.

Class II Division 2:

1) Where combustible dust is not normally in the air in quantities sufficient to produce explosive or ignitable mixtures, and dust accumulations are normally insufficient to produce explosive or ignitable mixtures, and dust accumulations are normally insufficient to interfere with the normal operation of electrical or other apparatus, but combustible dust may be in suspension in the air as a result of infrequent malfunctioning of handling or processing equipment.

2) Where combustible dust accumulations on, in, or in the vicinity of the electrical equipment may be sufficient to interfere with the safe dissipation of heat from electrical equipment or may be ignitable by abnormal operation or failure of electrical equipment.

Class III

Class III Division 1:

1) A location in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.

Class III Division 2:

1) A location in which easily ignitable fibers are stored handled other than in the process of manufacture.

NOTE: *Luminaires manufactured by Paramount Industries, Inc.. for Class lll locations carry a Class ll, Division 2, Group G label issued by Underwriters Laboratories.*

Group Classifications

For a complete list of materials in these group classifications, please see the following two pages.

Group A *(Class I)*
Acetylene

Group B *(Class I)*
Flammable gas, flammable liquid-produced vapor, or combustible liquid-produced vapor mixed with air that may burn or explode, having either a maximum experimental safe gap (MESG) value less than or equal to 0.45 mm or a minimum igniting current ratio (MIC ratio) less than or equal to 0.40.
(Typical group B material is hydrogen.)

Group C *(Class I)*
Flammable Gas, flammable liquid-produced vapor, or combustible liquid-produced vapor mixed with air that may burn or explode, having either a maximum experimental safe gap (MESG) value greater than 0.75 mm or a minimum igniting current ratio (MIC ratio) greater 0.40 and less than or equal to 0.80.
(Typical group C material is ethylene.)

Group D *(Class I)*
Flammable gas, flammable liquid-produced vapor, or combustible liquid-produced vapor mixed with air that may burn or explode, having either a maximum experimental safe gap (MESG) value greater than 0.75 mm or a minimum igniting current ratio (MIC ratio) greater tan 0.80. (Typical group D material is ethanol.)

Group E *(Class II)*
Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, or other combustible dusts whose particle size abrasiveness, and conductivity present similar hazards in the use of electrical equipment.

Group F *(Class II)*
Atmospheres containing combustible carbonaceous dusts that have more than 8 percent total entrapped volatiles or that have been sensitized by other materials so that they present an explosion hazard. (Typical group F material is coal, carbon black, charcoal, and coke dusts.)

Group G *(Class II)*
Atmospheres containing combustible dusts not included in Group E or F. (Typical group G. material includes flour, grain, wood, plastic, and chemicals).

NOTE: *There are no group designations for Class III locations.*