

Hazardous Location Information

NEC Groups - Gas & Dust Nature of Hazardous Substances

OVERVIEW

Gas and vapors in a Class I locations are broken into four groups by the NEC Code: A, B, C, and D. These materials are grouped according to the ignition temperature of the substance, its explosion pressure, and other flammable characteristics.


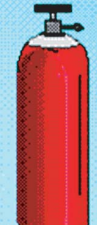

The only substance in Group A is acetylene. Acetylene makes up only a very small percentage of hazardous locations. Consequently, little equipment is available for this type of location. Acetylene is a gas with extremely high explosion pressures.

Group B is another relatively small segment of classified areas. This group includes hydrogen and other substances with similar characteristics. Following certain specific restrictions in the Code, some of these Group B locations, other than hydrogen, can actually be satisfied with Group C and Group D equipment.

Group C and Group D are by far the most usual Class I groups. They comprise the greatest percentage of all Class I hazardous locations.

Found in Group D are many of the most common flammable substances such as butane, gasoline, natural gas and propane.

In Class II - dust locations - the hazardous materials Groups E, F, and G are found. These groups are classified according to the ignition temperature and the conductivity of the hazardous substance. Conductivity is an important consideration in Class II locations, especially with metal dusts.

NEC GROUPS		IEC GROUPS	
Acetylene A	A, B, C, D 	Ammonia IIA	
Hydrogen B		Propane IIA	
Ethylene C		Ethylene IIB	
Propane D		Hydrogen IIC	
E, F, G 		Acetylene IIC	
Metal Dust E			
Coal Dust F			
Grain Dust G			

Metal dusts are categorized in the Code as Group E. Included here are aluminum and magnesium dusts and other metal dusts of similar nature.

Group F atmospheres contain materials such as carbon black, charcoal dust, coal and coke dust.

Group G includes grain dusts, flour, starch, cocoa, and similar types of materials.

Summary of Class I, II, III Hazardous Locations

CLASS	GROUPS	DIVISIONS	
		1	2
I Gases, vapors, and liquids (Art. 501)	A: Acetylene B: Hydrogen, etc. C: Ether, etc. D: Hydrocarbons, fuels, solvents, etc.	Normally explosive and hazardous	Not normally present in an explosive concentration (but may if a fault exist)
II Dusts (Art. 502)	E: Metal dusts (conductive and explosive) F: Carbon dusts (some are conductive, and all are explosive) G: Flour, starch, grain, combustible plastic or chemical dust (explosive)	Ignitable quantities of dust normally are or may be in suspension, or conductive dust may be present	Dust not normally suspended in an ignitable concentration (but may if a fault exists). Dust layers are present
III Fibers and flyings (Art. 503)	Textiles, wood-working, etc. (easily ignitable, but not likely to be explosive)	Handled or used in manufacturing	Stored or handled in storage (exclusive of manufacturing)