

## The National Electric Code (ANSI/NFPA 70)

The purpose of the (NEC) code is to safeguard persons and property from hazards arising from the use of electricity. Articles 500-517 of the code deal with the installation of electrical equipment in location where explosion or fire hazards may exist due to flammable gases or vapors, flammable liquids, combustible dust, or ignitable fibers.

## Hazardous Area Classifications

The classification of hazardous areas is dependant upon the properties of various hazardous materials and the likelihood of their presence. The NEC designation for Explosion Proof equipment must include a “Class”, “Group” and “Division”. The following tables will help you obtain a better understand of the classifications

Classifications for Hazardous Locations	
<b>Class I</b>	A Location where there is a danger of explosion due to the presence of a flammable gas or vapor
<b>Class II</b>	A location where there is a danger of explosion due to the presence of a flammable dust
<b>Class III</b>	A location where there is a danger of explosion or flash fire due to a presence of flammable fibers or flying

Divisions for each Class	
<b>Division 1</b>	A location where an explosive mixture of gas or vapor may exist under normal operating conditions
<b>Division 2</b>	A location where an explosive mixture of gas or vapor may exist under abnormal conditions such as an accidental rupture of a vessel or container or failure of a ventilating system

Groups for Classification	
<b>Class I</b>	Groups A,B,C and D note: Group A is the most ignitable– Group D is the least ignitable
<b>Class II</b>	Groups E,F and G
<b>Class III</b>	No Groups

See the attached table for a partial listing of gases by group



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<b>Groups for Gases, Vapors and Dusts</b>			
<b>Group A</b>	<b>Group C</b>	<b>Group D</b>	<b>Group D</b>
acetylene	monomethyl hydrazine	ethyl acetate	1-pentene
<b>Group B</b>	morpholine	ethyle benzene	propane
formaldehyde (Gas)	nitroethane	ethyl chloride	1-propanol (propyl alcohol)
hydrogen	nitromethane	gasoline	2-propanol (isopropyl alcohol)
<b>Group C</b>	2-nitropropane	heptane	propylene
acetaldehyde	propionaldehyde	heptene	styrene
allyl alcohol	n-propyl ether	hexane	toluene
butyl mercaptan	tetrahydrofuran	hexenes	turpentine
n-butyraldehyde	triethylamine	isoamyl acetate	vinyl chloride
Carbon monoxide	valeraldehyde	isoprene	xylene
crotonaldehyde	<b>Group D</b>	isopropyl ether	<b>Group E</b>
dicyclopentadiene	acetic acid (glacial)	LPG (liquefied pet gas)	Metal Dust includes Aluminum, Commercial Alloys and magnesium
diethyl ether	acetone	methane (natural gas)	<b>Group F</b>
diethylamine	acetonitrile	methanol (methyl alcohol)	Carbon Black, Coal, Charcoal, Coke Dust
1, 1-dimethyl hydrazine	acrylonitrile	methyl acrylate	<b>Group G</b>
di-isopropylamine	Ammonia (2)	methyl amine	Flour, Starch, Grain Dust
dimethylamine	n-amyl acetate	methyl cyclohexane	
1, 4-dioxane	sec-amyl acetate	methyl ethyl ketone	
di-n-propylamine	butylamine	methyl isobutyl ketone	
epichlorohydrin	chlorobenzene	methyl isocyanate	
ethylene	cyclohexane	2-methyl-1 propanol (isobutyl alcohol)	
ethyl mercaptan	cyclohexene	naphtha (petroleum)	
hydrogen cyanide	cyclopropane	nonane	
hydrogen selenide	1, 1-dichloroethane	nonene	
hydrogen sulfide	1, 2-dichloroethylene	octane	
isobutyraldehyde	1, 3-dichloropropene	octene	
methylacetylene	di-isobutylene	pentane	
methyl ether	ethane	1-pentanol (amyl alcohol)	
methyl mercaptan	ethanol (ethyl alcohol)	2-pentanone	