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# Determining Hazardous Location Classification

| Class | Division | Group | |
|---|---|---|---|
| **CLASS I**<br>Locations in which flammable gases or vapors are (or may be) present in the air in quantities sufficient to produce explosive or ignitable mixtures. | **DIVISION 1:** Locations in which ignitable concentrations of flammable gases or vapors can exist under normal operating conditions. -OR Locations in which ignitible concentrations of such gases or vapors may exist frequently because of repair or maintenance operations or because of leakage. -OR Locations in which breakdown or faulty operation of equipment or processes might release ignitible concentrations of flammable gases or vapors and 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.<br>**DIVISION 2:** Locations in which volatile flammable liquids or flammable gases are handled, processed, or used, but in which 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 or breakdown of such containers or systems or in case of abnormal operation of equipment. -OR Locations 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 of the ventilating equipment. -OR Locations that are adjacent to a Class I, Division 1 location, and to which ignitable concentrations of gas 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. | **GROUP A:**<br>Atmospheres containing: acetylene<br>**GROUP B:**<br>Atmospheres containing: acrolein (inhibited) allyl glycidyl ether 1,3 butadiene n-butyl glycidyl ether ethylene oxide formaldehyde (gas) hydrogen propyl nitrate propylene oxide and process gases containing more than 30% hydrogen by volume<br>**GROUP C:**<br>Atmospheres containing: allyl alcohol, carbon monoxide, diethyl ether, ethylene, hydrogen sulfide methyl ether, n-propyl ether and other gases or vapors of equivalent hazard | **Group D:**<br>Atmospheres containing:<br>acetone<br>ammonia<br>benzene<br>n-butane<br>butyl alcohol<br>cyclopropane<br>ethane<br>ethyl alcohol<br>gasoline<br>n-heptane<br>n-hexane<br>methane (natural gas)<br>methyl alcohol<br>methyl ethyl ketone<br>naphtha<br>n-octane<br>n-pentane<br>propane<br>styrene<br>toluene<br>xylene<br>and other gases or vapors of equivalent hazard |
| **CLASS II**<br>Locations that are hazardous because of the presence of combustible dust. | **DIVISION 1:** Locations in which combustible dust is in the air under normal operation conditions in quantities sufficient to produce explosive or ignitable mixtures. -OR Locations 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 of protection devices, or from other causes. -OR Locations in which combustible dust of an electrically conductive nature may be present in hazardous quantities.<br>**DIVISION 2:** Locations 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 interfere with the normal operation of electrical equipment or other apparatus, but combustible dust may be in suspension in the air as a result of infrequent malfunctioning of handling or processing equipment. -AND Locations 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 electric equipment. | **GROUP E:**<br>Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, or other combustible dusts whose particles size, abrasiveness, and conductivity present similar hazards in the use of electrical equipment.<br>**GROUP F:**<br>Atmospheres containing combustible carbonaceous dusts that have more than 8% total entrapped volatiles or that have been sensitized by other materials so that they present an explosion hazard. Examples of carbonaceous dusts are: coal, carbon black, charcoal, and coke dusts.<br>**GROUP G:**<br>Atmosphere containing combustible dusts not included in Group E or F, including flour, grain, wood, plastic, and chemicals. | |
| **CLASS III**<br>Locations that are hazardous because the presence of easily ignited fibers or flyings, but in which such fibers or flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitable mixtures. | **DIVISION 1:** Locations in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.<br>**DIVISION 2:** Locations in which easily ignitable fibers are stored or handled other than in the process of manufacture. | NOT GROUPED<br><br>Locations include: cotton gins and cotton-seed mills; combustible fiber manufacturing and processing plants; flax processing plants; clothing manufacturing plants; woodworking plants; and parts of rayon, cotton and other textile mills. Easily ignitable fibers include: rayon, cotton, sisal or henequen, istle, jute, hemp, tow, cocoa fiber, oakum, baled waste kopak, Spanish moss, excelsior, and other materials of similar nature. | |