

Hazardous Area Guide

| NFPA 70 NEC Hazardous Locations Classes, Divisions and Groups | | |
|---|--|--|
| Class | Division | Group |
| I – Flammable gases or vapors may be present | <p>1 – Ignitable concentrations of hazards exist under normal operation conditions and/or where the hazard is caused by frequent maintenance or repair work or frequent equipment failure</p> <p>2 – Ignitable concentrations of hazards exist under abnormal operation conditions</p> | <p>Group A – Acetylene</p> <p>Group B – hydrogen, butadiene, ethylene oxide, propylene oxide and acrolein</p> <p>Group C – Ethylene, cyclopropane and ethyl ether</p> <p>Group D – Acetone, ammonia, benzene, butane, ethanol, gasoline, hexane, methane, methanol, methane, naphtha, natural gas, propane and toluene</p> |
| II – Combustible dust may be present | <p>1 – Ignitable concentrations of hazards exist under normal operation conditions and/or where the hazard is caused by frequent maintenance or repair work or frequent equipment failure</p> <p>2 – Ignitable concentrations of hazards exist under abnormal operation conditions</p> | <p>E – Combustible metal dusts: aluminum, commercial alloys and magnesium</p> <p>F – Combustible carbonaceous dusts: carbon black, charcoal, coal and coke dusts</p> <p>G – Other combustible dusts: Chemicals, flour, grain, plastic and wood</p> |

Equipment Spacing

An important consideration to safety is the pressure build up within a vessel containing a flammable liquid or gas. Our glass reactors cannot withstand pressure build up and as such are operated under vacuum to atmospheric pressure. This means that should an accidental release of flammable gas occur the gas will not travel beyond the recommended distance below.

3.4 Class 1 Aboveground Tanks (containing flammable liquids): The area immediately surrounding a closed tank containing flammable liquids such as gasoline shall be considered a Class 1 Div 2 area as defined by dimension 'A' in the figure below. The area surrounding vents or openings are considered as Class 1 Div 1 within radius 'B'. Interiors of tanks, piping, and equipment processing flammable vapours is considered Class 1 Div 1.

**This applied to non-pressurized vessels and operations only.*

| | A | B | Relevant Code |
|--------|-------|------|-------------------|
| U.S | 10ft. | 5ft. | NEC 515-3 (table) |
| Canada | 3m | 1.5m | CEC J20-302 (4) |

