



# Article 500 Hazardous (Classified) Locations

A hazardous location is an area where the possibility of fire or explosion may be created by the presence of flammable liquids or gases, as well as combustible dusts, ignitable fibers or flyings. The three components that are necessary to create a fire or explosion are fuel, oxygen and a source of ignition. A Fire Triangle (fuel, oxygen and ignition) illustrates this concept. Figure 500-1

**Fuel** – Flammable liquids or gases, combustible dusts, and ignitable fibers or flyings.

**Oxygen** – Air and oxidizing atmospheres.

**Ignition** – Electric arcs or sparks, heat-producing equipment such as luminaires and motors, conductor insulation, failure of transformers, coils or solenoids, as well as sparks caused by metal tools dropping on a metal surface.

Note: Some authorities include a fourth component, the chain reaction of combustion, and show a fire tetrahedron rather than a triangle. This concept is outside the scope of this document and will not be covered.

## 500.1 Scope — Articles 500 through 504

To prevent injury, death or extensive damage to building structures from fires or explosions, the *National Electrical Code (NEC)* contains stringent requirements for equipment and its installation in a hazardous location. The specific requirements for

electrical installations in hazardous (classified) locations are contained in:

Article 501 – Class I – Flammable (Combustible) Liquids or Gases

**AUTHOR’S COMMENT:** A flammable liquid is one that has a flash point below 100°F. A flammable liquid or combustible liquid has to be at its flash point for an explosion to occur. Diesel fuel is not a flammable liquid since it has a flash point higher than 100°F and a vapor pressure not exceeding 40 psi at 100°F.

Diesel fuel meeting these properties is referred to as a “combustible” liquid rather than a “flammable” liquid. Therefore, the area is nonclassified and electrical equipment and wiring is not required to comply with the stringent requirements of Chapter 5. Caution: It is common to wire diesel fuel dispensers adjacent to gasoline dispensers. If conduit for the diesel dispenser passes through the Class I, Division 1 or 2 areas around the gasoline dispenser, the wiring methods and sealing requirements in Article 501 shall be complied with. Figure 500-2

Note: It may be very cost effective to locate electrical wiring and equipment outside the classified location. For example, locating the diesel fuel dispenser outside the

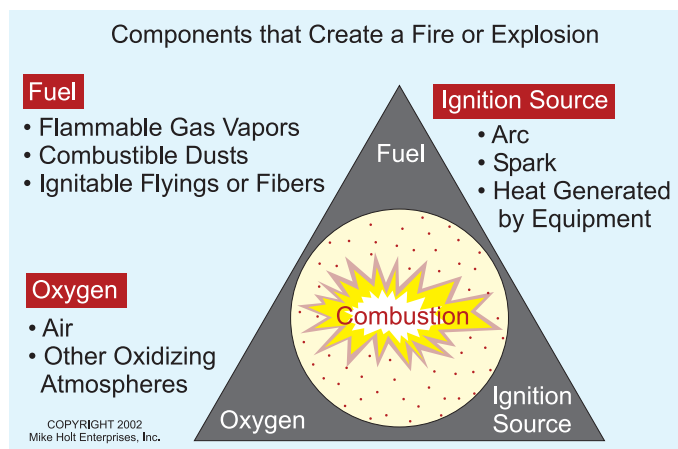


Figure 500-1

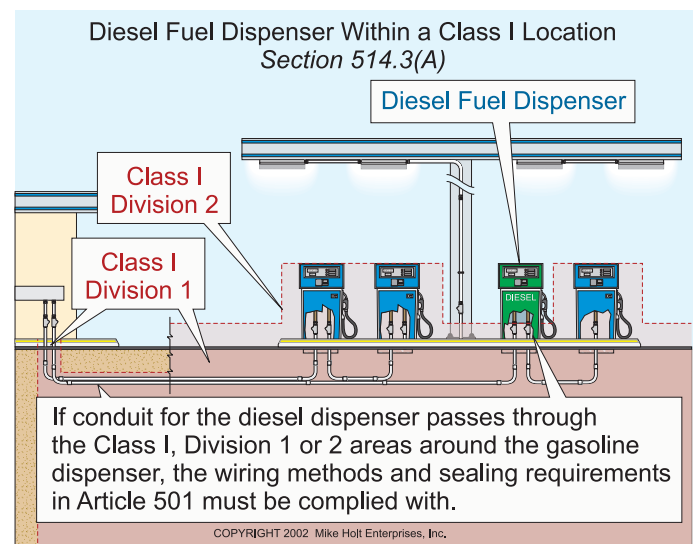


Figure 500-2