



# Coffee Break Training - Fire Protection Series

## Inspection Techniques: Electrical "Classified Locations": Gas and Vapor "Material Groups" Examples (Part 9)

No. FP-2011-27 July 5, 2011

**Learning Objective:** The student shall be able to list examples of materials that could receive a Class I, Group A, B, C, or D hazardous area designation.

Classifying hazardous electrical locations to prevent unwanted explosions and fires is a sophisticated and complex enterprise. The work should be left to qualified personnel who understand not only the electrical wiring and components, but the potential hazards resulting from individual chemicals.

Today, we list just a few of the gases and liquids that emit flammable vapors that should be considered by the person conducting the evaluation. A more comprehensive list, with detailed physical characteristics, is available in National Fire Protection Association (NFPA) 70, *National Electrical Code*<sup>®</sup>.

The professional performing the assessment should provide the code official a comprehensive report. NFPA 70 requires that all areas that have been assigned a hazardous (classified) designation be documented, and the documents must be available to persons authorized to design, install, inspect, maintain, or operate electrical equipment in the area. For some products, the installation of specific explosion-proof equipment may permit the classified (hazardous) location category to change.

The following table provides examples of the products that might require the designation of a hazardous (classified) electrical location for gases and vapors.

Group	Sample Products
A	Acetylene
B	Ethylene oxide, formaldehyde gas, hydrogen, propyl nitrate, 1,3-butadiene, n-butyl glycidyl ether
C	Carbon monoxide, diethylaminoethanol, ethylene, isocetyl aldehyde, methyl ether gas, nitromethane
D	Acetone, benzene, ethanol, gasoline, isoprene, methyl ethyl ketone, propane, turpentine, xylene

Note: This table is illustrative and does not represent the complete list of products that may constitute hazardous materials.

For additional information, refer to NFPA 70, Chapter 5 *Special Occupancies*.



The electrical equipment in this flammable liquid dispensing room should be evaluated to ensure it is in compliance with the material group requirements of the National Fire Protection Association (NFPA) 70, *National Electrical Code*<sup>®</sup>.

