



Coffee Break Training - Fire Protection Series

Inspection Techniques: Electrical “Classified Locations”: Gas and Vapor “Material Group Characteristics” (Part 8)

No. FP-2011-26 June 28, 2011

Learning Objective: The student shall be able to describe the principles employed to address material-specific properties in hazardous locations.

Last week, we discussed the critical factors that are used to evaluate hazardous electrical classifications for specific materials. We learned that the combination of maximum experimental safe gap (MESG) and minimum igniting current (MIC) ratio are used to assign hazards in Class I areas to specific materials such as acetylene, kerosene, methyl ethyl ketone, and methane. These material groups are labeled A, B, C, and D.

The following table explains how MSEG and MIC are employed in Class I locations.



The area inside these spray and drying booths must be classified as Class I, Group B, C, or D locations.

Group	Characteristics
A	Acetylene
B	Flammable gas, flammable liquid-produced vapor, or combustible liquid-produced vapor mixed with air that may burn or explode, having either an MESG value less than or equal to 0.45 mm or a MIC ratio less than or equal to 0.40.
C	Flammable gas, flammable liquid-produced vapor, or combustible liquid-produced vapor mixed with air that may burn or explode, having either an MESG value greater than 0.45 mm and less than or equal to 0.75 mm or a MIC ratio greater than 0.40 and less than or equal to 0.80.
D	Flammable gas, flammable liquid-produced vapor, or combustible liquid-produced vapor mixed with air that may burn or explode, having either an MESG value greater than 0.75 mm or a MIC ratio greater than 0.80.

Next week, we will provide a representative list of gases and vapors that falls into these categories.

Electrical equipment used in these areas must be listed and labeled for both the class and the specific group of the gas or vapor that will be present. For additional information, refer to the National Fire Protection Association (NFPA) 70, *National Electrical Code*[®], Chapter 5 *Special Occupancies*.



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