



Coffee Break Training - Fire Protection Series

Inspection Techniques: Electrical “Classified Locations”: Combustible Dust “Material Groups” Examples (Part 10)

No. FP-2011-28 July 12, 2011

Learning Objective: The student shall be able to list examples of materials that could receive a Class II, Group E, F, or G hazardous area designation.

In our final Coffee Break Training in this hazardous (classified) electrical location series, we will look at combustible dusts that may require special attention due to their potential for creating explosive conditions. This table explains the three categories of Class II locations where classification may be required and provides some common examples.

Combustible dust is any finely divided solid material that is 420 microns (0.017 in) or smaller in diameter (material passing a U.S. No. 40 Standard Sieve) and presents a fire or explosion hazard when dispersed and ignited in air.



Electrical equipment around this wood dust collection cyclone should be evaluated for compliance with Class II, Group G hazardous (classified) locations.

Group	Characteristics
E	Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, or other combustible dusts whose particle size, abrasiveness, and conductivity present similar hazards in the use of electrical equipment.
F	Atmospheres containing combustible carbonaceous dusts that have more than 8 percent total entrapped volatiles (see American Society for Testing and Materials (ASTM) D 3175-02, <i>Standard Test Method for Volatile Matter in the Analysis Sample for Coal and Coke</i> , for coal and coke dusts) or that have been sensitized by other materials so that they present an explosion hazard. Coal, carbon black, charcoal, and coke dusts are examples of carbonaceous dusts.
G	Atmospheres containing combustible dusts not included in Group E or F, including flour, grain, wood, plastic, and chemicals such as benzoic acid, chlorinated phenol, methyl cellulose, polyvinyl acetate, and shellac.

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

For additional information, refer to the National Fire Protection Association (NFPA) 70, *National Electrical Code*[®], Chapter 5 *Special Occupancies*.



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