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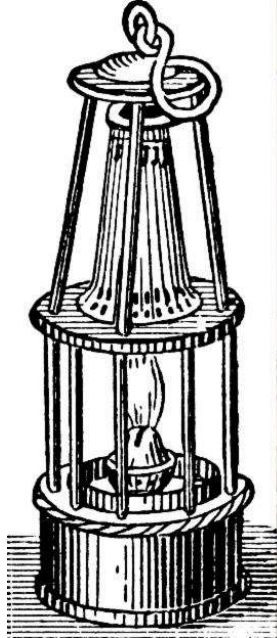
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Process Safety Dispatch

In this Issue

- **Hazardous Locations: From Davy Lamp to Flameproof Equipment**
- **EXPLAINERS: Understanding Classification of Hazardous Locations?**
- **Free On Demand Webinars**

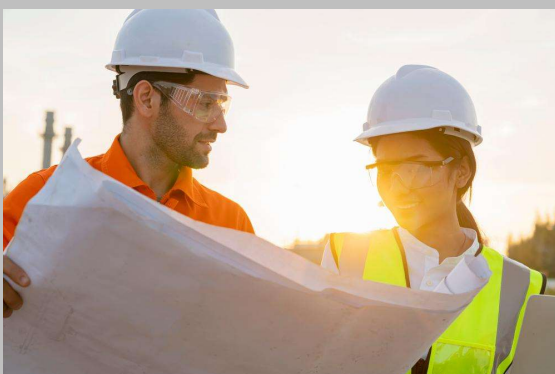
Hazardous Locations: From Davy Lamp to Flameproof Equipment



Working near flammable gases, vapors, or combustible dusts has always had its dangers. Picture the early 19th century miner deep underground with his candle on a stick in front, peering into the depths of the tunnel ahead.

In May 1812 at the Felling Mine near Gateshead in the United Kingdom, 92 men and boys burned to death or suffocated in an awful disaster when a flame ignited 'firedamp' gases in the mine. Something good came out of that tragedy that begins a line of development which branches to the Classification of Hazardous Locations as well as to design of protection methods for equipment used in flammable/ combustible atmospheres. That good thing? There was an approach by 'The Society for Preventing Accidents in Coal Mines' to a renowned scientist of the day, one Sir Humphrey Davy. Yes, that's the very same Sir Humphry Davy that gave his name to the 'Davy lamp'. We're going to take a look at the Davy lamp in this article, but first let's give a little context from today's world of Process Safety.

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EXPLAINERS: Understanding Classifying Hazardous Locations



In EXPLAINERS, we take our customary look at technical topics and try to simplify to get to the bottom of what's really going on. This month it's Hazardous Locations that get the treatment.

Hazardous Locations are key to avoiding fires and explosions caused by electrical equipment, so in this issue of Process Safety Dispatch, we are covering some **important terms** used in the Classification of Hazardous Locations, beginning with what we mean by a **Hazardous Location!**

In North American electrical installations, **Hazardous Locations** are defined by **Classes**, **Divisions**, and **Groups** to determine the level of safety required for equipment installed in such locations. We look at each of these terms in turn. [Note that the European classification system is a little different.]

What is a Hazardous Location? (Sometimes called a Hazardous Area)

A Hazardous Location is simply a designated area of plant where there is the **possibility that an explosion or fire can exist** as a result of the presence of flammable vapors or gases, combustible dust, or ignitable fibers or flyings. Hazardous locations are fully defined in the US National Electrical Code (NEC) **Read more**

What are Classes?

This is the easy part. In the Classification of Hazardous Locations, **Classes** define the nature of the **hazardous material that may be present**. Hazardous material can be in the form of a gas or vapor, a combustible or conductive dust or an ignitable fiber or flying, and this nature of the material links directly to **Class**. This can be more precisely defined in a table. [Read more](#)

What are Groups?

Group designations are used to selectively divide a **Class** into categories of material that have **similar combustion characteristics**. Groups are designed by the letters A through G. Groups A through D, are Groups for Class I, and E through G are Groups for Class II materials (see Table). Hazardous Materials groups can be presented in a table. [Read more](#)

What are Divisions?

The decision to classify an area as hazardous should be based on the probability (or likelihood) that a flammable/combustible mixture could be present. Two **Divisions** are used to specify the likelihood of a flammable atmosphere being present. [Read more](#)

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