

We are



Hello,

February 2021

Process Safety Dispatch

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Hazardous Location Classification: Electrical Equipment in Flammable Atmospheres



- Electrical equipment can produce arcs or sparks and can get hot,
- Electrical equipment is used on process plant where there can be gases, vapors, dusts, or fibers which are combustible or flammable,

So why do we not have lots of industrial explosions and fires caused by electrical equipment?

The fact of the matter is that we do have some! But the reason we do not have lots and lots of electrically initiated fires and explosion on process plant is because we apply methods to systematically **IDENTIFY** where our flammable atmospheres can occur, we **CLASSIFY** the particular hazards that exist in each **HAZARDOUS LOCATION** and we ensure we select and install electrical equipment that is **designed for safe use** in each.

At Stonehouse, our Hazardous Location consultants spend a lot of time on plant reviewing and examining operations and processes, type, quantity, and frequency of flammable or combustible materials used, drawings and process descriptions, and talking with plant personnel. Our objective is to determine if potentially hazardous locations might exist during any normal or foreseeable abnormal conditions so that they can be properly classified to enable the correct selection of electrical equipment. In this article we introduce the **basics of Hazardous Area Classification** for those less familiar with this seemingly complex topic. In a second article in this issue of Process Safety Dispatch we delve into the challenging problem of small, **portable electronic equipment (mobile phones, calculators...)** in Hazardous Areas.

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- Dust Explosion Prevention & Mitigation
- Control of Static Electricity



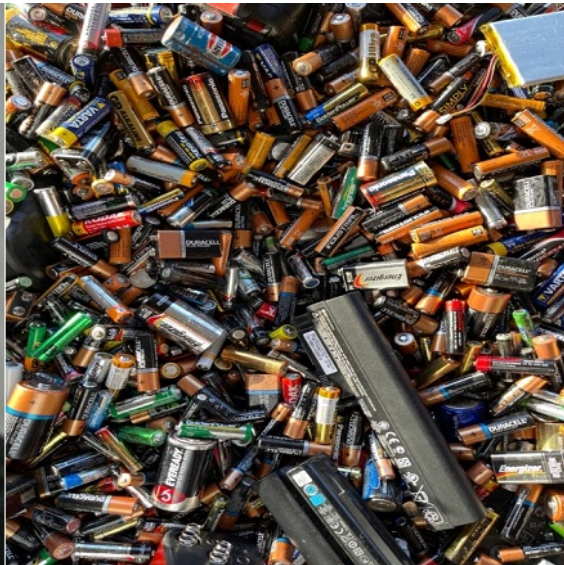
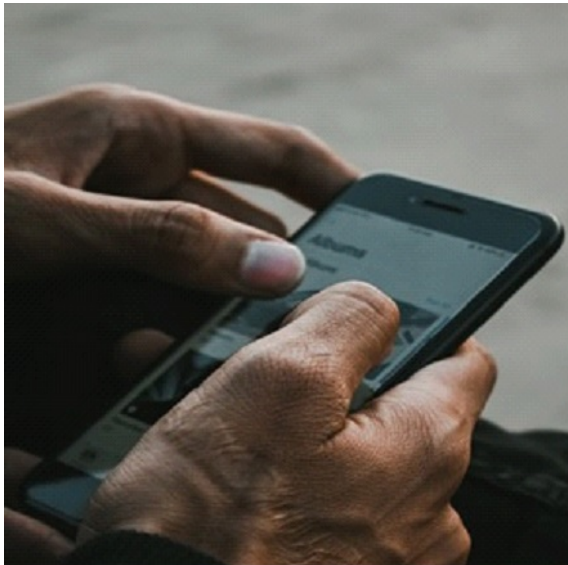
- Hazardous (Electrical) Area Classification
- Process Hazard Analysis
- Process Safety Management
- Fire and Explosion Hazard Assessment
- Incident Investigation
- Organizational Process Safety Competency Assessment

Specialist Laboratory Testing

- Combustible Dust Testing
- Electrostatic Testing
- Self-Heating / Thermal Instability Testing
- Flammability Testing of Gases & Vapors



Portable Electronic Devices in Hazardous Locations



Photos by Ayaneshu Bhardwaj and John Cameron on Unsplash

Yes, this old chestnut!

Manager 1: "It is impossible for the calculator we use in the weigh area to be capable of igniting the dust in there. And then there is the ban we have on use of mobile phones... These things only contain small batteries. They are not like big electric motors, switches or heaters! People carry their mobile phones on gas station forecourts, don't they?"

Manager 2: "All electrical equipment (which includes all handheld and personal electronic equipment), used in hazardous locations must be suitably rated for each hazardous location."

So how do we resolve this argument once and for all?

We'd like to invite you to watch a video that we have made and posted on YouTube. Some of you may find this surprising. We made this film in the Stonehouse laboratories just to see what could happen with a battery and a small heap of wood dust.

[Watch the video here](#)

If you've just watched the video, then you will now be determined to read on and look for a practical conclusion!

[Read More](#)

If you would like a quote for any of our testing and/or consulting services, please click on the button below. We will get back to you promptly with your proposal.

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Free On Demand Webinars

Combustible Dust Hazards: Assessment, Prevention and Protection Including the Requirements of NFPA 652 [\[watch\]](#)

Electrostatic Hazards in Processing Industry: The Nature of the Problem and Practical Measures for its Control [\[watch\]](#)

Fire and Explosion Hazards: How to Identify and Control Them in Your Process [\[watch\]](#)

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