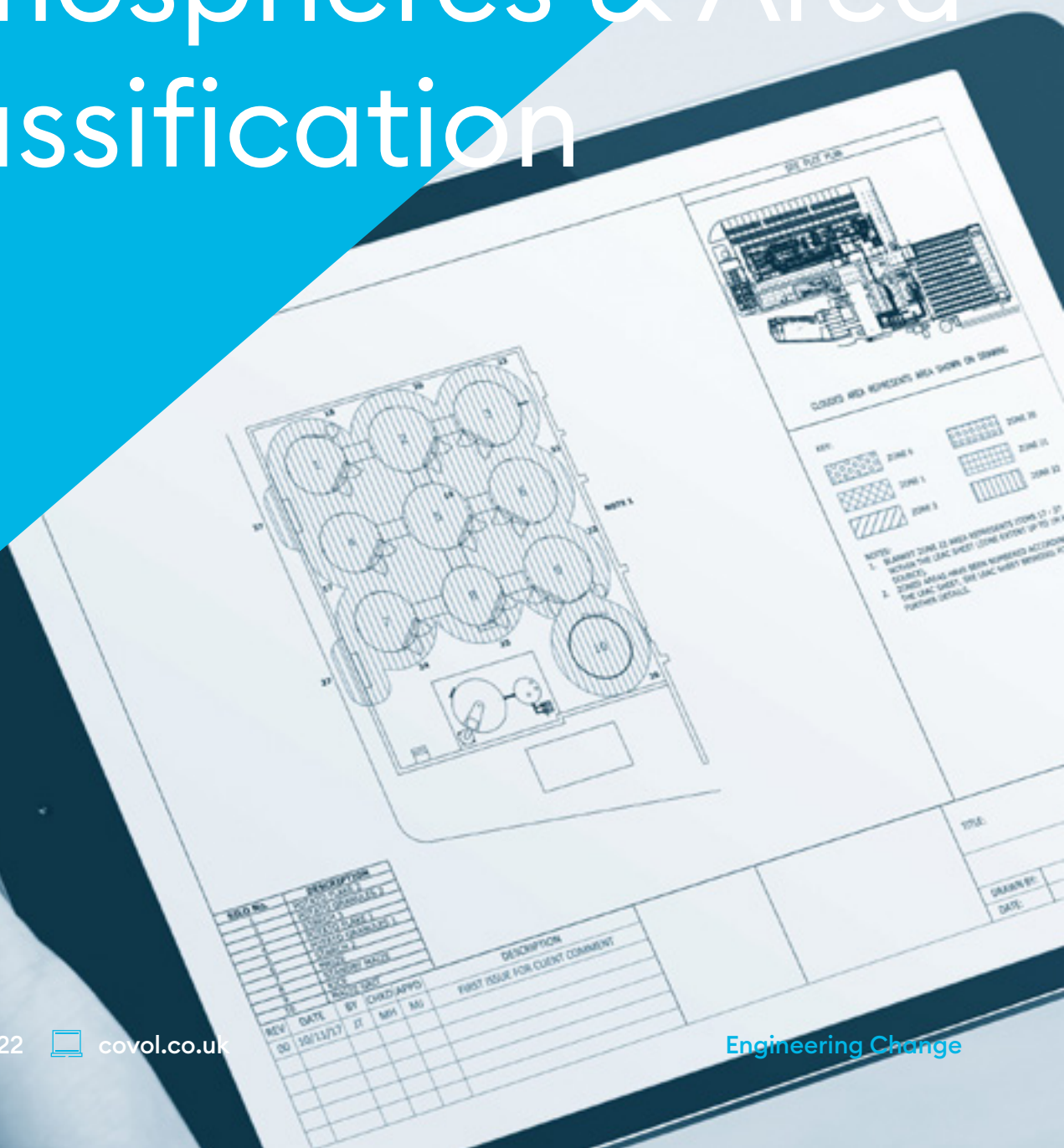


Insight & Expertise

A Guide to Explosive Atmospheres & Area Classification



Contents

- 03 What are Explosive Atmospheres?
- 04 What is Hazardous Area Classification?
- 05 How does it apply to me?
- 06 What is a Hazardous Area?
- 07 What should I be doing?
- 08 Is there anything else I should be aware of?
- 09 Where Covol can help

What are Explosive Atmospheres?

Well, under the Dangerous Substances and Explosive Atmosphere Regulations (DSEAR), 'Explosive Atmospheres' are defined as;

Explosive Atmospheres

A mixture, under atmospheric conditions, of air and one or more dangerous substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture.



What is Hazardous Area Classification?

Hazardous Area Classification includes the documentation and rationale that explains the areas where flammable and/or explosive atmospheres have the potential to exist.

It will denote the extent and types of zones and will also include the potential sources of release. As flammable and explosive atmospheres can rise or fall, your documentation should include side elevations as well as plan views. These areas are usually defined by determining the typical radius of a flammable or explosive atmosphere from a particular release point.

Release points are those parts of plant and equipment where the flammable and/or explosive atmosphere could be emitted from. These could be flanged joints, vessel lids, hoppers, pump seals and so on. Also included are the internals of equipment where a flammable and/or explosive atmosphere could exist.

In some cases it may be appropriate to use a blanket classification for an entire area of plant instead, but if a company adopts this approach it must have a valid argument for doing so. Note that blanket classification could result in additional costs for installing and maintaining ATEX rated equipment and may suggest a thorough analysis of potential release points has not been conducted.



How does it apply to me?

As part of the DSEAR Risk Assessment, Regulation 7 requires employers to assess whether a flammable and/or explosive atmosphere is likely to form and if so, how long it is likely to remain.

In determining Hazardous Areas, it provides the means to identify areas where control of ignition sources is required.

What is a Hazardous Area?

Once Hazardous Area Classification has been carried out, it's conventional to plot the results on a map of the site/facility.

The Hazardous Area Classification will have defined 'Zones' based on the frequency and duration of a flammable and/or explosive atmosphere being present. The zones are drawn on the map and each of these and their respective definitions are as follows;

- > **Zone 0:** A place where an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is present continuously or, for long periods or, frequently.
- > **Zone 1:** A place where an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is likely to occur occasionally.
- > **Zone 2:** A place where an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only.
- > **Zone 20:** A place where an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently.
- > **Zone 21:** A place where an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.
- > **Zone 22:** A place where an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normally but, if it does occur, will persist for a short period.

These are the types of Hazardous Area that could be present at your site and if so, you will need to take additional precautions when installing, using or maintaining certain types of equipment.

What should I be doing?

Your DSEAR Risk Assessment will have identified the need to undertake Hazardous Area Classification. You should be in a position where you can identify the zones of your hazardous areas through the use of the site drawings supported with a table of the potential release points.

Once you have these, it's a good idea to have the drawings displayed in areas where work is directed from such as Permit offices. Staff can quickly reference the drawing to see whether additional precautions are necessary before work commences.

Your zones will determine where specific pieces of equipment can be used. This equipment is commonly referred to as ATEX rated but you need to ensure that the ATEX rating of the equipment is appropriate for the zone and remember that ATEX equipment includes mechanical items too. All of your ATEX rated equipment needs to be inspected regularly and this includes any new equipment installed (e.g. via a project or as maintenance requirement etc) where a pre use inspection as part of commissioning is required.

You will need to train your staff in how to interpret the drawings but the training should also incorporate the needs of those who undertake maintenance activities and for those people who carry out project work.

Is there anything
else I should be
aware of?

Potential ignition sources are not just limited to equipment.

Other potential sources of ignition that you should be aware of are;

- > Lightning strikes
- > Static Electricity
- > Radio Frequencies
- > Mechanical equipment



Where Covol can help

The creation of new or the updating of existing Hazardous Area classification documentation is a service provided by Covol.

We like to have a copy of your site plan so that we can mark this up when we undertake an onsite survey. If a plan doesn't exist then we can create this from sketches that we take during the survey. While we're on site, we also need to know about maintenance routines and inspection records too. The results of this process contribute to a written report that includes;

- > Flammable materials and their properties
- > A list of equipment used for Area Classification purpose (potential release points)
- > Plot plans of the zoning extents
- > The classifications of each zone (gas and dust)
- > A list of actions, where applicable, which you need to complete in order to comply with regulations

If our help in supporting you with Hazardous Area Classification is something that you would like to know a bit more about then please contact us.

For more information on Area Classification, see the following links to HSE website;

Hazardous Area Classification and Control of Ignition Sources

[Visit Site →](#)



Ready to engineer change and progress in your business?

Get in touch to speak to our experts

 01642 613 622  info@covol.co.uk

 covol.co.uk