



Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002

What are dangerous substances?

Dangerous substances can put people's safety at risk from fire and explosion. DSEAR puts duties on employers and the self-employed to protect people (including members of the public) from risks to their safety from fires, explosions and similar events in the workplace.

They can be found in nearly all workplaces and include obvious sources such as heating fuel, petrol, solvents, aerosols, paints and thinners, varnishes, welding and other flammable gases such as LPG. However less obvious sources can include packaging materials, dusts from wood (machining or sanding), flour, sugar or dried milk.

What does DSEAR require?

DSEAR requires employers to protect people by assessing the risks of fires and explosions that may be caused by dangerous substances in the workplace. These risks must be eliminated or reduced **as far as is reasonably practicable**. The regulations complement the requirement to manage risks under the Management of Health and Safety at Work Regulations 1999

Employers must:

- Carry out a safety risk assessment. Find out what dangerous substances are in the workplace, the work processes involved and what the fire and explosion risks are; (look at safety data sheets, industry guidance, labelling on containers)
- Eliminate those risks or, where this is not possible, control them
- Put controls in place to reduce the effects of any incidents involving dangerous substances
- Prepare plans and procedures to deal with accidents, incidents and emergencies involving dangerous substances
- Properly inform and train employees to control or deal with the risks from dangerous substances
- Identify and classify areas of the workplace where explosive atmospheres may occur and avoid ignition sources (e.g. unprotected electrical equipment) in those areas
- Review the risk assessment where significant changes occur

The above involves:

- Preventing sources of ignition
- Clearly identifying contents of pipes and containers containing dangerous substances
- Making arrangements to protect employees from accident, incident or emergency involving these substances
- Providing information, instruction and training (including emergency and evacuation procedure)
- Safety risk assessment must cover obvious and not so obvious ignition sources, for example:
- Naked flames or Hot surfaces

- Sparks caused by friction in mechanical equipment
- Operation of electrical equipment
- Electrostatic discharge from fabrics

Safety measures to eliminate risk include the design, installation and maintenance of the workplace and work processes. This may include permit-to-work systems, written instructions and safety method statements especially where work is high risk or unfamiliar (i.e. occasional maintenance)

In workplaces where explosive atmospheres may occur you should ensure that you classify areas where hazardous explosive atmospheres may occur into zones based on their likelihood and persistence:

Zone 0	Explosive atmospheres are present continuously or for long periods or frequently >1000 hours/year
Zone 1	Explosive atmospheres are likely to occur in normal operation occasionally 10 –1000 hours/year
Zone 2	Explosive atmospheres are not likely to occur but if it does will only exist for a short time 0-10 hours/year

Areas classified into zones are protected from sources of ignition by selecting equipment and protective systems meeting the requirements of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 1996 although, **equipment already in use before July 2003 can continue to be used indefinitely provided the risk assessment shows it is safe to do so;**

When must I comply by?

Workplace	When requirements must be met
Workplace already in use before July 2003	Workplace must meet requirements by July 2006
Workplace already in use before July 2003 but modified before July 2006	Workplace must meet requirements from the time the modification takes place
Workplace coming into use for the first time after 30 June 2003	Workplace must meet requirements from the time it comes into use

If you have **five or more employees** you must record the significant findings of the assessment as soon as is practicable after that assessment is made, including:

- measures taken to eliminate or reduce risk
- sufficient information to show that the workplace and work equipment will be safe from risk of fire and explosion during operation and maintenance
- Where employers share a workplace, any special measures to ensure co-ordination of safety requirements to protect workers from explosive atmospheres.

Summary of provisions on explosive atmospheres

- Zoning and classification of hazardous areas and equipment selection
- Provision of appropriate work clothing and PPE in explosive atmospheres (EA)
- Signed marking of entry points to places where EA may occur
- Verification of overall explosion safety in new workplaces

The Health and Safety Executive website contains free leaflets and further information including the employers guide to fire safety on <http://www.hse.gov.uk/fireandexplosion>

For information on any health and safety matter contact the HSE infoline 0845 345 0055

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