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# Fire Safety and Explosive Atmospheres - Overview

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## Did you know that...

In October 2006, over 70 pieces of legislation relating to Fire Safety were repealed or revoked, including what, until then, had been the centrepieces of Fire Safety legislation, the Fire Precautions Act 1971 (as amended), together with the Fire Precautions (Workplace) Regulations 1997 (as amended), which required a Fire Certificate for certain categories of premises and Fire Risk Assessments for those and most others respectively.

The prescriptive requirement for a Fire Certificate has now been removed but Fire Risk Assessments has been extended to cover all workplaces and work activities.

In accordance with the requirements from two European Directives: the Chemical Agents Directive (98/24/EC) and the Explosive Atmospheres Directive (99/92/EC) a number of regulations, dealing with flammable substances safety, were replaced in July 2003 and these substances now require, amongst other things, 'area classification', appropriate signage and a risk assessment to identify all other sources of ignition, including existing equipment.

In accordance with the requirements from two European Directives:

- the Explosive Atmospheres Directive, also known as the 'ATEX Workplace Directive' (99/92/EC), and
- the 'ATEX Equipment Directive' (94/9/EC),

supporting guidance, on area classification and methods of protection for equipment, is contained in a number of British, European and International standards.

## The legal issues

The Regulatory Reform (Fire Safety) Order 2005 applies to Fire Safety in all non-domestic premises in England and Wales, including the common parts of blocks of flats or houses in multiple occupation (HMOs). It applies to you if you are:

- responsible for business premises;
- an employer or self-employed with business premises;
- responsible for a part of a dwelling where that part is 'solely' used for business purposes;
- a charity or voluntary organisation; or
- a contractor with a degree of control over any premises.

The Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002 applies to employers and the self-employed and requires them to protect people from risks to their safety from fires, explosions and similar events in the workplace. This includes members of the public who may be put at risk by work activity.

ATEX is the name commonly given to the legal requirements for controlling explosive atmospheres and the suitability of equipment and protective systems used in them.

## Employer's duties

Under the Order, a 'Responsible Person' must be appointed, who must arrange for a 'suitable and sufficient' 'Fire-safety Risk Assessment' to be undertaken, by a 'Competent Person'; implement and maintain a 'Fire Management Plan'.

Under the regulations, the responsible person must:

- find out what dangerous substances (e.g. solvents, paints, varnishes, flammable gases, dusts etc.) are in their workplace and what the fire and explosion risks are;
- put control measures in place to either remove 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;
- make sure employees are properly informed about and trained to control or deal with the risks from the dangerous substances; and
- identify and classify areas of the workplace where explosive atmospheres may occur and avoid ignition sources (from unprotected equipment, for example) in those areas.

More detailed advice and guidance on the implementation of a fire risk management plan can be found in the series of guidance documents available on the Fire Gateway website (see link below); more technical guidance documents have been produced with specific types of business premises in mind, which can also be referenced from that site.

## What needs to be done?

The following is an overview of the 5 steps you will need to go through to carry out a fire risk assessment:

### **Step 1 - Identify fire hazards:**

- Sources of ignition
- Sources of fuel (i.e. combustible and / or flammable materials)

### **Step 2 - Identify people especially at risk:**

- Members of staff
- People not familiar with the premises
- People working alone

### **Step 3 - Evaluate, remove, reduce and protect from risks:**

- Measures to prevent fires (i.e. keeping sources of ignition away from fuels)
- Measures to protect people from fire (including those required under DSEAR and ATEX, see below)

### **Step 4 - Record, plan, instruct, inform and train:**

- Record significant findings and actions taken
- Prepare an emergency plan
- Inform relevant people, provide instruction, co-operate and co-ordinate with others
- Provide training

### **Step 5 - Review:**

- Keep assessment under review
- Revise where necessary

Importantly, before any work activity is carried out, the fire and explosion risks that may be caused by dangerous substances should be identified and carefully examined, to help decide what needs to be done to eliminate or reduce the risks from dangerous substances. If there is no risk to safety from fires and explosions, or the risk is trivial, no further action is needed.

However, if there are risks, consideration must be given to what else is needed to comply fully with the requirements of DSEAR and/or ATEX.

## Preventing or controlling risks

Control measures must be put in place to eliminate risks from dangerous substances, for example by replacing the dangerous substance with another safe substance, or use a different work process. Where this is not possible, measures need to be taken to control risks and reduce the severity (i.e. mitigate the effects) of any fire or explosion, as far as is reasonably practicable.

## Control measures

Where the risk cannot be eliminated, DSEAR requires control measures to be applied in the following priority order:

1. reduce the quantity of dangerous substances to a minimum;
2. avoid or minimise releases of dangerous substances;
3. control releases of dangerous substances at source;
4. prevent the formation of a dangerous atmosphere;
5. collect, contain and remove any releases to a safe place (for example, through ventilation);
6. avoid ignition sources;
7. avoid adverse conditions (for example, exceeding the limits of temperature or control settings) that could lead to danger; and
8. keep incompatible substances apart.

These control measures should be consistent with the risk assessment and appropriate to the nature of the activity or operation.

## Mitigation

In addition to control measures DSEAR requires employers to put mitigation measures in place. These measures should be consistent with the risk assessment and appropriate to the nature of the activity or operation and include:

- reducing the number of employees exposed to the risk;
- providing plant that is explosion resistant;
- providing explosion suppression or explosion relief equipment;

- taking measures to control or minimise the spread of fires or explosions; and
- providing suitable personal protective equipment.

### Preparing emergency plans and procedures

Arrangements must be made to deal with emergencies and these plans and procedures should cover safety drills and suitable communication and warning systems proportionate to the risks. If an emergency situation has already occurred, workers tasked with carrying out repairs or other necessary work must be provided with the appropriate equipment to allow them to carry out this work safely.

The information in the emergency plans and procedures must be made available to the emergency services to allow them to develop their own plans if necessary.

### Providing information, instruction and training for employees

Employees must be provided with relevant information, instructions and training, which includes:

- the dangerous substances present in the workplace and the risks they present including access to any relevant safety data sheets and information on any other legislation that applies to the dangerous substance;
- the findings of the risk assessment and the control measures put in place as a result (including their purpose and how to follow and use them); and
- emergency procedures.

Information, instruction and training need only be provided to other people (non-employees) where it is required to ensure their safety and should be in proportion to the level and type of risk.

The contents of pipes, containers, etc must be identifiable to alert employees and others to the presence of dangerous substances. Places where explosive atmospheres may occur (the 'ATEX' requirements)

Where potentially explosive atmospheres may occur in the workplace, additional duties arise under DSEAR, which include:

- identifying and classifying (zoning) areas where potentially explosive atmospheres may occur;
- avoiding ignition sources in zoned areas, in particular those from electrical and mechanical equipment;
- where necessary, identifying the entrances to zoned areas;
- providing appropriate anti-static clothing for employees; and
- before they come into operation, verifying the overall explosion protection safety of areas where explosive atmospheres may occur.

### Further information:

Contact points for guidance documents (some of which can be downloaded free of charge):

- The Department for Communities and Local Government (Fire and Resilience) at [www.communities.gov.uk/fire/firesafety/firesafetylaw/aboutguides/](http://www.communities.gov.uk/fire/firesafety/firesafetylaw/aboutguides/) on this site guides exist for generic situations/businesses e.g. offices and shops; factories and warehouses etc.
- The Fire Gateway at [www.fire.gov.uk/Workplace+safety](http://www.fire.gov.uk/Workplace+safety)
- The Health and Safety Executive at [www.hse.gov.uk/fireandexplosion/dsear.htm#quick](http://www.hse.gov.uk/fireandexplosion/dsear.htm#quick)

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### The IET is unable to provide further information on this topic. Please contact the HSE.

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