Health & Safety Management

Everything you need to know:

1. DSEAR
2. HSE Key Facts
3. BS EN 14470-1
4. Pressurised Gas Cylinder Cabinets
5. BS EN 14470-2
6. Ventilation
7. Corporate Manslaughter Act 2007 & Health and Safety Offences Act
The Importance of Health and Safety Management

Ladies and Gentlemen,

because we tend to underestimate the dangers in handling hazardous substances at the workplace, incidents happen everyday. Companies are responsible for the safety of their employees and rescue teams and must take reasonable precautions. If they don’t abide by the rules, they are liable to prosecution.

This information brochure gives a summary on British Health and Safety legislation and how to increase the safety in your firm or organisation through risk assessment and safe storage of dangerous materials.

December 3, 2006 | Shortgate, UK

Two firefighters died when they attended a fire at the Festival Fireworks factory. Nine other firefighters, a police sergeant and two members of the public were injured. Nine fire engines, three specialist vehicles and several cars were wrecked by the blast at a cost of £3.8 million to the fire service. In February 2008 the fireworks factory owner and his son were arrested on suspicion of manslaughter of the firefighters.

May 13, 2000 | Enschede, Netherlands

A fire that broke out in the SE Fireworks depot led to an enormous explosion that left 22 people dead, 947 injured. 1,500 homes were damaged or destroyed. The damage was estimated to cost £500 million in insured losses alone. In April 2002, two managers of the company were sentenced to 15 months imprisonment for violation of environmental and safety regulations and dealing in illegal fireworks.

November 3, 2004 | Seest, Denmark

When the N. P. Johnsen’s Fyrværkerifabrik fireworks factory exploded in Seest, one firefighter died and 7 from the rescue team, as well as 17 locals, were injured. The surrounding area was badly hit by the explosion with 355 houses reported damaged, and 176 of them are now uninhabitable. In total 2,107 buildings were damaged, estimated damage cost £80 million. Investigations could not prove improper storage.

1. British legislation: DSEAR 2002

"The particular objective in the event of an incident, is to ensure that people can safely escape from the workroom/working area." (DSEAR ACoP L136 par. 68 refers)

What is DSEAR? DSEAR stands for the Dangerous Substances and Explosive Atmospheres Regulations 2002. Dangerous substances can put peoples’ safety at risk from fire and explosion. DSEAR puts duties on employers and the self-employed to protect people from risks from fires, explosions and similar events in the workplace, this includes members of the public who may be put at risk by work activity.

What are dangerous substances?
Dangerous substances are any substances used or present at work that could, if not properly controlled, cause harm to people as a result of a fire or explosion. They can be found in nearly all workplaces and include such things as solvents, paints, varnishes, flammable gases, such as liquid petroleum gas (LPG), dusts from machining and sanding operations and dusts from foodstuffs.

What does DSEAR require? Employers must:
• find out what dangerous substances are in their workplace and what the fire and explosion risks are;
• put control measures in place to either remove those risks or, if not possible, control them;
• put controls in place to reduce the effects of any incidents involving dangerous substances;
**New HSE Position**

2. **British legislation: New HSE Position Key Facts**

It is recommended that the maximum quantities that may be stored in cabinets and bins are no more than 50 litres for extremely high flammable liquids; and no more than 250 litres for other flammable liquids with a higher flashpoint of up to 55 °C (DSEAR, ACoP L135, par.40 refers). These quantities are intended to be viewed as recommended maxima representing good industry safe practice, rather than be taken as absolute limits.

However, where the employer/dutyholder does identify a need to store quantities in excess of the recommended maxima, a robust demonstration of this requirement would need to be made.

**Performance requirements for fire resistant safety storage cabinets and bins**

It is important to understand that these do not specify an absolute test or standard for the safety storage cabinet or bin itself, rather they relate to nominal construction principles. These are:

- materials used to build the sides, top, bottom, door(s) and lid are capable of providing the required fire resistance (i.e. 30 minutes integrity) and reaction to fire (i.e. minimal risk);
- joints between the sides, top, bottom of safety storage cabinets and bins should be free from opening or gaps;
- lid / doors should be close fitting against the frame of the cabinet / bin supports and fastenings should be of a material with a melting point greater than 750 °C.

These criteria represent the minimum performance requirements for compliance with the current legislation!

However, it is to be noted that there are a number of more demanding standards and design specifications, which refer to the fire performance of the complete cabinet structure, including

**BS EN 14470-1:2004 “Fire safety storage cabinets - Part 1: Safe storage cabinets for flammable liquids”**: "... it is to be emphasized that their implementation in the UK is not a legal requirement. However, for quantities in excess of the recommended maxima employers/dutyholders may find cabinets with enhanced fire performance help in making their risk assessment demonstration."

It is, of course the responsibility of the employer/dutyholder to ensure that cabinets to any particular standard or design specification do meet the minimum legal requirements.

**Our conclusion**: Take a closer look at your existing safety storage cabinets or the ones you intend to buy. Do they meet the minimum requirements stated by the HSE? Experience has shown that most storage cabinets used in the UK today do not comply with regulations. They either have gaps without insulation, or aluminium (which melts at 660 °C) is used for the fittings and very seldom independent certificates proving the minimum fire resistance can be provided.

Make no compromise when it comes to your safety! If you have any doubts just call us on +44 1785 2270-90. We will be pleased to assist you!
3. European legislation: BS EN 14470-1

Cabinets designed and built to comply with BS EN 14470-1 offer vastly superior protection over single or double wall steel cabinets to BS476.

This European Standard describes the design and testing criteria for safety storage cabinets to be used in laboratories to store flammable liquids in locked containers at normal room temperatures.

Primarily, this European Standard covers the three major safety requirements for storage of flammable liquids, which are:

a) minimising the fire risks associated with the storage of flammable substances and protection of the cabinet’s contents in the event of fire for a known (tested) minimum length of time (fire rating);

b) minimising the amount of vapour released into working environment;

c) retention of accidental spillage within the cabinet.

Testing the cabinet under fire conditions is normative. The fire test is utilized for four categories of fire protection/ratings. In practice the degree of fire protection/rating allows the user to select, depending on individual circumstances, a safety storage cabinet which will allow sufficient time for personnel to leave, and fire fighters to enter the laboratory before the flammables stored may turn from a possible minor/extinguishable fire into an uncontrollable one.

The methods of achieving b) and c) are sufficiently flexible to allow for local/national needs.

4. Pressurised gas cylinders

The BCGA (and by inference the HSE also) strongly recommend external storage and dedicated, fire rated internal rooms as the first and second preferences for storage of compressed gas cylinders. Obviously they have to be brought inside for daily use but have to be returned outside at the end of the working day. Because cylinders can turn into destructive missiles in the event of a fire and can cause great damage and injury if such an incident occurs indoors.

However, if these situations are considered impractical, a third preference is to consider the merits of using special cabinets manufactured according to BS EN 14470-2 for internal storage. A strict fire safety risk assessment must be carried out and the local fire service normally consulted. asecos would be pleased to advise on your personal situation.

Getting the standard requires that certain strict criteria are met, which include:

- The internal temperature of the cabinet must not rise by more than 50 degrees centigrade after a specified period (15, 30, 60 or 90 minutes depending on the Type) in a furnace test.
- Cabinets must have extraction fitted to prevent the build up of explosive atmospheres.
- If pipework or electric cables are fed through the ceiling of cabinets, maximum diameter holes are stipulated.
- All standard requirements must be independently tested.
Cabinets designed and built to comply with BS EN 14470-2, and correctly extracted, offer a great increase of safety when storing gas cylinders inside.

This European Standard describes the design and testing criteria for safety storage cabinets to be used in laboratories to store gas cylinders in locked containers at normal room temperatures.

Primarily, this European Standard covers the three major safety requirements for storage of gas cylinders, which are:

a) minimising the fire risks associated with the storage of gas cylinders and protection of the cabinet's contents in the event of fire for a known (tested) minimum length of time (fire rating);

b) minimising the risk if explosive gas/air mixtures are released into working environment;

c) ease of handling cylinders.

Testing the cabinet under fire conditions is normative. The fire test is utilized for four categories of fire protection/ratings. In practice the degree of fire protection/rating allows the user to select, depending on individual circumstances, a cabinet which will allow sufficient time for personnel to leave, and fire fighters to enter the laboratory before the gases stored may turn from a possible minor/extinguishable fire into an uncontrollable one.

The methods of achieving b) and c) above are sufficiently flexible to allow for local/national needs.
6. Ventilation

**Definition explosive atmosphere**
An explosive atmosphere is a mixture of air and one or more dangerous substances in the form of gases, vapours, mists or dusts, under atmospheric conditions, in which, after ignition has occurred, combustion spreads to the entire unburned mixture.

**Definition dangerous explosive atmosphere**
This is an atmosphere which could become explosive due to local and operational conditions. These would include maintenance activities and fault conditions such as leakages.

The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) place duties on employers to eliminate or control the risks from explosive atmospheres in the workplace.

When it comes to storing flammables, the risk of having an explosive atmosphere can never be eliminated!

**But the risk can be controlled!**

**POSSIBILITIES TO PREVENT EXPLOSIVE ATMOSPHERES:**

1. Connecting the cabinet to an existing exhaust system.
2. Using an extraction addon and install extensive ducting.
3. Using a recirculating air filter addon.
7. Consequences of management failure:
Corporate Manslaughter Act 2007 & Health and Safety Offences Act

Two new acts
Two new parliamentary acts will have an important influence on how highly flammable solvents, compressed gas cylinders and other hazardous materials are stored internally. They are as follows;

1- The Corporate Manslaughter and Homicide Act - which came into force in April 2008 (CM). Here a proven act of gross negligence causing a person’s death, and if senior management organisation is a substantial element of the breach, corporations are far more likely to be prosecuted than before the act came into force. Senior Management stands for a public or private company, educational institutions, public bodies, councils, etc. Average fines would be 5% of the annual turnover from the last 3 years but can increase to 10% in aggravated cases. A publicity order may also be made - imagine the negative impact this might have.

2- The Health and Safety Offences Act - which came into force in January 2009. A magistrates court can fine up to £20,000 and impose a prison sentence of up to two years on any individual found guilty, not just senior management.

Both of these acts carry increased fines or possible prison sentences. When being tried health and safety legislation, guidelines and approved codes of practice will be taken into account by the jury. Ignorance of such information in the public domain will not be tolerated as an excuse. This applies to the storage of hazardous materials as described above. It is not sufficient to post an assessment showing risks. This must be regularly reviewed to take into account amongst other things, correct storage of hazardous materials according to the latest publications, and communicated to all levels of organisation.

KEY FACTS

- The Corporate Manslaughter Act removes the key obstacle to convicting large companies - the need to convict a directing mind.
- The government predict the Act will make it easier to prosecute large companies whose failures in management of Health and Safety lead to death.
- An organisation can be tried under both acts for the same incident.
- The profile and potential penalties have never been higher.

asecos Limited offers products which conform to all recent relevant requirements asked for by the Health and Safety Executive when storing flammable and highly flammable solvents as well as compressed gas cylinders. In our opinion these cabinets will offer customers great assurance that they will not fall foul of the two new acts.
Do you require more information on how to protect your property and your employees? Do you need further information on British legislation?

If this brochure has awoken your interest in up to date Health and Safety Management please do not hesitate to contact us.

Protect your property and employees!

**asecos** - the leading European expert for the storage of hazardous substances.

The name asecos stands for security and ecology – for safety and environmental protection in handling hazardous materials. Multifunctional practical solutions ensure safety for users through storage of combustible and water-polluting materials in accordance with legal requirements.

Since its establishment in 1994 asecos has had significant influence on the way hazardous materials are stored. Our special field is the development, construction and manufacture of safety cabinets. The introduction of Type 90 technology by asecos has given rise to a considerable innovative boost. Thanks to this the company is now regarded as the leading manufacturer of safety cabinets in Europe.

All asecos products are "Made in Germany". Production is carried out in the parent company in Gründau and the products are delivered from here all over the world. In England our own company is responsible for product sales and is directly involved in looking after customers on the spot.

asecos Ltd.
Safety and Environmental Protection
St Albans Enterprise Centre
St Albans Road
GB ST16 3DP Stafford, Staffordshire

T +44 (0) 1785 2270-90
F +44 (0) 1785 2270-83
info@asecos.co.uk
www.asecos.co.uk

www.asecos.co.uk