



Waste plant risk review

Adair Lewis provides an analysis of the latest figures relating to large-loss fires in waste warehouses and offers some advice to reduce the risks

OVERALL ABOUT 75% of waste materials in the UK are now recycled. This figure varies, depending on the types of materials involved, ranging from 27% of plastic, through 68% of paper to 80% of glass. It is therefore not surprising that there are large accumulations of combustible waste materials both within and outside warehouses throughout the country. These materials are vulnerable to fire and because of their nature, they are difficult to manage as incompatible items such as discarded batteries may often be present.

Statistics from large fire losses indicate that 25% of fires in premises classified as being waste warehouses are of accidental origin and 12.5% are deliberately started. The causes of the remaining 62.5% are still unknown; this is perhaps not surprising because in many cases the scale of the damage

makes them very difficult to investigate. Several major fires, however, are thought to have started as a result of fireworks or Chinese lanterns landing on waste paper stored in the open air.

Two thirds of the fires start between 18:00 and 06:00, at times when it is more likely to be dark and when staff are less likely to be in attendance to detect a fire and take prompt action while it is in its incipient stages.

Difficulties in access to the premises and the presence of acetylene cylinders are recorded as being specific problems that have been experienced by firefighters.

In common with virtually all businesses, a fire risk assessment should be undertaken for waste storage premises in compliance with the Regulatory Reform (Fire Safety) Order 2005. In some premises an assessment may also be required in accordance with the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002.

Fire hazards

In addition to the potential ignition sources present in most businesses, there are additional hazards associated with warehouses storing waste materials. These include:

- sparks produced as a result of welding and other hot work processes
- acetylene cylinders on the premises
- use of various forms of lift truck
- burning brands, fireworks, Chinese lanterns and similar sources of ignition originating outside the facility
- deliberate fire raising
- electrical fire hazards from poorly maintained electrical equipment
- large quantities of combustible materials stored in single fire compartments
- obstructed or inadequate access routes for firefighting vehicles

Addressing the problems

At the time of the fire risk assessment careful consideration should be given to the likelihood of deliberate fire setting from both within and outside

Sector Main Category: Warehouses**Sub Category: Waste**

Warehouse fires account for 11.4% of all large-loss fires.

Waste fires account for 0.3% of all large-loss fires and: 5.1% of all Warehouse fires.

Causation	Accidental	Deliberate	Unknown
Warehouse	46.2%	24.9%	28.9%
Waste	25.0%	12.5%	62.5%

Time of fire	Midnight - 6am	6am - Midday	Midday - 6pm	6pm - Midnight
Warehouse	25.6%	15.0%	25.0%	34.4%
Waste	33.3%	16.7%	16.7%	33.3%

Impedances	Access	Acetylene	Inadequate Water Supply	Resources
Warehouse	28.2%	25.6%	46.2%	0.0%
Waste	50.0%	50.0%	0.0%	0.0%

15 Warehouse fires of 175 had impedences, 2 of these had more than one impidence.

0 Waste fires of 9 had impedences, 0 of these had more than one impidence.

the premises. Suitable security measures should be formulated and implemented to reduce the likelihood of such an event.

The fire risk assessment should be reviewed whenever there are significant changes to the quantities or nature of materials being stored or the mode of storage.

Hot work should be eliminated wherever possible. When there is no practical alternative to hot work, avoid the use of acetylene by using other forms of welding and cutting. Control the work by using a hot work permit system.

Minimise the spread of fire by effective compartmentation between storage areas and those used for recycling processes being undertaken. Following any work that requires breaching the fire compartmentation, ensure that suitable fire stopping is undertaken in accordance with the FPA Design Guide to maintain the intended fire rating of the structural elements concerned.

Minimise the storage of combustible materials outside the warehouse; materials stored outside should not be stacked more than 4m high or within 10m of a building. Also the burning of rubbish on site should be prohibited.

Ensure that electrical installations are designed, installed and periodically tested by a competent electrician in accordance with the current edition of BS 7671 (the IET Wiring Regulations). Inspections

should be carried out on a risk assessed basis as recommended in the Periodic Inspection Report.

Portable electrical equipment should be inspected and tested at least in accordance with HSG 107 and/or the IET Code of Practice for in-service inspection and testing of electrical equipment. The period between successive inspections and tests should be determined by risk assessment.

Lighting should be installed so that luminaires are suspended over walkways rather than directly above combustible stock. All luminaires, especially those employing high intensity discharge lamps, should be fully enclosed to prevent hot glass falling onto materials below in the event of a lamp breaking. Goods should not be stored within 0.5m of luminaires.

The warehouse should be protected by an automatic fire detection and alarm (AFD) system designed to take into account the need for property protection. The system should be certificated by an independent UKAS accredited third party certification body. The installation should be to a recognised category of installation in accordance with BS 5839-1 as determined by a risk assessment and in consultation with the insurer. The system should be

monitored either on-site or by an off-site alarm receiving centre and operating in accordance with a Category II facility as defined in BS 5979.

Serious consideration should be given to the benefits of a water sprinkler installation when the facility is at the design stage. Sprinkler systems should be designed, installed, commissioned and maintained in accordance with the LPC Sprinkler Rules incorporating BS EN 12845. Even where sprinklers are installed, a suitable number of appropriate portable fire extinguishers should be available and immediately accessible in the case of a fire. Designated staff should be trained in the use of the fire protection equipment provided.

Establish effective liaison with the local fire and rescue service to ensure that water supplies in the area are adequate for the sprinkler installation and for firefighting purposes and that suitable access to the site is available for pumping appliances.

Have an effective emergency plan in place to ensure the resilience of the business. One way of approaching this is to complete the ROBUST business continuity and incident management planning software available free from <https://robust.riscauthority.co.uk/> ■

These statistics are based on information supplied by loss adjusters to the FPA on a voluntary basis and not all insurers conducting business in the UK contribute to this dataset. They represent only sums paid out where the total loss is in excess of £100k and are deficient of losses under £100k, deductibles, underinsurance, uninsured, self-insured and captively insured components, which may be significant. In a year, total losses captured typically account for 50% of the ABI declared annual fire loss figure – which is similarly deficient of the same components (except the £100k threshold).