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## Fires and explosions at metal recycling facilities

This bulletin provides guidance about how to reduce the risks of fires and explosions at metal recycling facilities.

### Background

Metal recycling facilities handle large quantities of scrap metal that contain combustible, flammable, or explosive materials.

Over the last few years, there have been a number of fires involving metal recycling facilities. These fires are often intense and difficult for emergency services to get under control. The smoke and flames are dangerous for surrounding residents and businesses.

### What's the issue?

When dropping off recycling, the general public may not be aware some items are potentially hazardous. They may drop off restricted items such as lithium batteries, which can self-ignite if damaged.

Piles of scrap metal may contain hidden items such as aerosol bottles or propane tanks. Discarded metal fridges and freezers may contain residual LPG and refrigerant gases. These items can cause explosions.

End of Life vehicles (ELVs) arrive in these facilities containing items that are combustible. These could explode if not removed prior to processing. Items that need to be removed include:

- fuel tanks
- batteries

- oil or coolants
- air bags
- seat-belt pre-tensioners.

Most incidents involve cutting, shearing, or compacting metal. Fires or explosions can occur when high-temperature tools, such as torches, are used to cut containers or drums holding flammable substances:

- sparks may cause the containers' contents to ignite
- the paint on the containers may catch alight
- sparks may land on and ignite flammable materials nearby.

### Recommendations

You can reduce the risk of fires and explosions by putting in place the following safe work practices.

Safe processing of incoming items:

- restrict or safely manage incoming hazardous items, pressurised containers, or flammable substances
- identify and isolate flammable or explosive items as soon as possible
- allow enough time to sort through items
- make sure sorting processes include the opening of drums, boxes, bags, and boots of baled cars
- check ELVs have had unsuitable items removed before being processed.

#### Safe storage:

- restrict height of waste material stacks
- maintain separation distances or firebreaks
- ensure containers used to sort and store incoming items are suitable for flammable liquids
- ensure metal containers containing flammable liquids are bonded and earthed to avoid build-up of static electricity.

#### Safe work practices for workers:

- make sure workers are trained to recognise and respond to potential hazards
- make sure workers are trained in using high-temperature tools and their maintenance
- make sure workers know how to safely use, handle and store LPG and acetylene
- have written procedures for workers to safely deal with unknown substances
- make sure workers are provided with and are using necessary personal protective equipment (PPE)
- make sure workers wear conductive footwear and flame-resistant apparel, if dealing with flammable products.

#### Fire control measures:

- develop a fire prevention and mitigation plan
- eliminate ignition sources
- remove combustible dust build-up from structures and machinery
- isolate hazardous work such as shredding
- protect against possible collisions and spillage
- install fire detection systems such as smoke or heat detectors or CCTV visual flame detection systems
- make sure a fire suppression system is installed and working and firefighting equipment is available.

## Further information

[Managing your hazardous substances](#)

[How to manage work risks](#)

[Hazardous Substances \(Disposal\) Notice 2017](#)

[Health and safety in welding](#)

[Storing flammable liquids](#)

[General requirements for workplaces](#)

The New Zealand Association of Metal Recyclers (NZAMR) is a national professional association. They provide members with industry guidance and advice:  
[New Zealand Association of Metal Recyclers](#)

