

## Aluminium

**General Data**

Although it is generally agreed that aluminium is an inert substance, hazardous situations can arise when it is subjected to various processes such as: anodising, polishing, thermal breaking, welding and information on these operations is given in the attached appendices.

**Product Name and Description**

Aluminium extrusions supplied in various forms. ie. mill, anodised, painted, thermally broken.

**Composition**

Magnesium/silicon aluminium alloys.

**Physical Data**

Melting point	660°
Boiling point	Not applicable
Vapour pressure	Not applicable
Vapour density	Not applicable
Specific gravity	2.6 approximately
Solubility in water	Insoluble
Appearance and odour	Solid - grey/silver colour, no odour

**Hazards**

The hazards associated with aluminium are as follows:

**Handling**

**Solid** Aluminium experiences no colour change when heated - use gloves to protect against burns.

**Liquid** when melting, casting and processing, appropriate protective equipment must be worn- glasses, goggles or visor, metal shedding overalls, foundry footwear, gloves. All tools used with molten metal must be dry.

**Fire**

Not a fire hazard.

**Explosion**

Molten aluminium may explode upon contact with water, and many other substances including oxidising agents. All aluminium solids must be free from moisture before adding to molten metal.

**Health and Toxicity**

Aluminium is poorly absorbed by the body. Little of the element that gets into the body through normal action remains.

**Aluminium (con't)****Precautions****Storage**

Keep dry, away from incompatible materials, including nitrates, acids and alkalis, which may result in fire and explosion.

**Spillage**

Solid aluminium presents no problem.

**Disposal**

Recycle, finely divided aluminium may be reactive and its hazard characteristics should be determined prior to disposal.

**Transport**

Solid and liquid aluminium are not classified as dangerous for conveyance by road in the UK.

**Appendix 1****Anodising and Organic Coating**

Both anodisers and etchs produce hydrogen gas. At normal extraction rates, the hydrogen/air ratio does not present a risk unless deliberately ignited, but a low or nil extraction rate can result in the formation of an explosive mixture. Operation should, therefore, stop if the extraction system fails.

**Appendix 2****Polishing**

The regulation for the grinding and polishing of metals must be observed. Extraction is essential.

**Appendix 3****Thermal Break**

This product involves the exothermic interaction of two chemicals to form a polyurethane polymer: the manufacturers recommendations for handling the components must be followed. In addition, the presence of water, which modifies the reaction, must be avoided. Extraction of air from the process area is essential.

**Appendix 4****Welding**

MIG welding or plasma arc cutting of aluminium alloys can generate ozone, nitric oxides and ultraviolet radiation. Ozone over exposure may result in mucous membrane irritation, as well as other pulmonary discomforts.

## Glass

**Specification**

Glass for use in construction, for decoration and in transport is generally of a soda lime silicate composition. Body coloured glasses for solar control and decoration are produced by small additions of suitable constituents which do not materially affect the basic properties other than those of heat and light transmissions.

Glass can also be coated to alter heat and light transmissions, again not materially affecting the basic properties.

**Physical Properties**

Glass is a hard, amorphous brittle substance manufactured by melting together the constituent substances at temperatures up to 1600°C.

**Hazards**

Soda-lime-silicate glasses are non-toxic and any additives or surface coatings are chemically bound into the glass or are present in such small quantities as to present no hazard.

Silica in the glass is present as silicates and does not present a hazard to health.

Processes such as grinding, polishing and edgeworking can generate glass dust, personal exposure to which should be kept below 10mg per cubic metre per 8 hour time weighted average (TWA) total inhalable dust or 5mg per cubic metre per 8 hour TWA respirable dust.

Grinding, polishing and edgeworking are generally carried out using water as a flux which largely eliminates the glass dust risks.

Glass may be supplied with an interleaving powder to prevent surface damage, which may contain a small amount of stain inhibitor. This may cause temporary irritation during periods of high ambient temperature.

If irritation from interleaving powder is experienced steps should be taken to reduce the airborne dust levels and/or provide respiratory protection.

Airborne interleaving powder should be controlled to less than 10mg per cubic meter per 8 hour TWA total inhalable dust or 5mg per cubic metre per 8 hour TWA respirable dust.

If the interleaving powder is left to accumulate on workspace floors, the floors may become slippery. Good housekeeping is necessary to minimise this risk.

## Glass (con't)

**Handling of Glass or Packages**

There is a risk of breakage in transit and care should be taken when unloading.

Eye protection must be worn in accordance with the Protection of Eyes Regulations 1974. Other protective clothing such as gloves, safety shoes and headwear may be appropriate.

The greatest risk in the handling of glass is through laceration - appropriate first aid and further medical assistance should be available or easily obtainable at short notice.

Glass is brittle and especially in pack form, heavy, and hence the storage and movement of glass in warehouses also raises the need for safe working practices to be laid down.

## Plastic

**Scope**

Some of our more commonly used materials are: EPDM, TPR, Nitrile, ABS and PVC.

Information on the constituent material used in the formulation of these compounds is not included except where it is relevant to the use, handling or storage.

**Product Information**

Compounds with a notifiable hazard, will have additional guidance provided.

Some products are supplied with a silicone coating.

**Hazards**

**Fire** In common with organic materials they can be consumed by fire.

In the case of a minor fire, all commonly available fire extinguishers are effective. Although due regard should be taken when live electrical equipment is nearby.

**Fumes** Our compounds burn to give dense fumes with contain carbon monoxide, carbon dioxide and hydrogen chloride.

If personnel are overcome by fumes take outside to fresh air and consult medical advice.

**Skin Irritation** Our products are not considered to be skin sensitisers.

**Eye Irritation** The basic products are not likely to cause eye irritation. However, if a silicone coating is present it can be transferred manually to the eye, where it may cause irritation which is not itself harmful. Good hygiene and care in handling should be observed in using such products.

The appropriate treatment is flush eye out thoroughly with clean warm water.

**Dust** Non hazardous.

**Storage** Store in dry, cool place making sure that the compounds are not subjected to extreme temperatures.

**Ingestion** Seek medical advice.