

SAFETY DATA SHEET

SUBSTANCE: Technigalva Master Alloy

COMPANY: Britannia Zinc Limited
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Composition:

Nominally produced as 25 kg ingots in bundles of 1000 kg with a chemical composition:

Zinc	96.2 - 98%	Lead	1.35% max	Arsenic	0.017% max
Nickel	1.9 - 2.2%	Tin	0.1% max	Antimony	0.017% max
Aluminium	up to 0.1%	Cadmium	0.01% max		

Hazards:

Zinc metal in massive form is not classified as hazardous. However, hazards may be created by change in the physical condition of the metal eg during melting.

On heating zinc metal above 750°C freshly formed fumes of zinc oxide will be evolved. Zinc oxide fume is associated with the onset of Metal Fume Fever, a reversible illness with flu-like symptoms.

If the lead content of the metal is over 1% and the physical state of the metal is altered and dust or fume generated the hazard classification is then:

Xn	Harmful by inhalation and if swallowed Danger of cumulative effects Keep away from food, drink and animal feed. When using do not eat, drink or smoke.	Risk phrases: R20/22-33 Safety phrases: S13-20/21
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If the lead content of the metal is over 1% the Control of Lead at Work Regulations require an assessment of exposure, and therefore risk, to be made. Extensive operational experience plus the benefit of measuring exposure under these circumstances leads this company to assess the risk as being insignificant due to the amount of lead present, its form and the working temperatures involved. Therefore the Control of Lead at Work Regulations are deemed by assessment not to apply and no further action is necessary.

In the galvanising bath Technigalva is "diluted" during use and typical galvanising bath composition percentages are:

Zinc	98.5%	Nickel	0.06%	Aluminium	0.002%
Lead	1%	Copper	0.03%	Cadmium	0.003%
Tin	0.1%	Iron	0.02%		

in accordance with BS729.

The hazard classification for this material in use in the galvanising bath is the same as page 1 as the lead content of the bath is typically 1%.

Galvanising bath dross, while containing more than 1% nickel, is metal in massive form and is therefore not classified as hazardous.

Galvanising bath ashes, while being a particulate form, contain nickel at levels below the classification limits for nickel, hence the hazard classification is on page 1.

Note: Nickel is a sensitising agent and on contact with the skin in massive form or as dust, may cause an irritant rash - so called "nickel itch".

First Aid

Zinc metal poses no documented risk to health, however during use if the physical state of the metal is altered, health risks may be created.

Inhalation: Inhalation of metallic and metallic oxide fumes may lead to the onset of metal fume fever - remove from exposure, rest and keep warm and seek medical advice (mentioning the nickel content).

Ingestion: Wash out mouth thoroughly with water, give water to drink. Seek medical advice.

Eyes: Wash out thoroughly with water. If discomfort persists seek medical attention.

Skin: Wash affected areas with soap and water and remove contaminated clothing. If symptoms of a red, itchy rash are apparent seek immediate medical attention.

Fire Fighting:

- Zinc metal does not burn under normal conditions. However, if exposed to extreme heat or fire, toxic metallic oxide fumes may be liberated.
- Wear appropriate breathing apparatus.
- Extinguish fire with a suitable extinguishing media.

Accidental Release:

Not applicable to metallic zinc, however, do not over heat molten zinc. Extracted air containing metallics or metallic oxides should be cleaned before discharge.

Handling and Storage:

- Avoid generating dust or fumes
- Keep away from food, drink and animal feed
- When using do not eat, drink or smoke
- Store dry, away from extreme heat or fire
- Use only in well ventilated conditions
- Do not add damp metal to molten metal baths
- Store away from acids or alkalis
- Wear suitable protective gloves when handling

Exposure Controls:

EH40 lists the following applicable exposure limits:

Zinc oxide, fume	OES	8 hour TWA	5.0 mg/m ³
		15 minutes	10.0 mg/m ³
Lead and compounds	OES	8 hour TWA	0.15 mg/m ³
Nickel	MEL	8 hour TWA	0.4 mg/m ³

- Do not breath dust or fume. Approved respiratory protective equipment should be used.
- Where possible, local exhaust ventilation should be provided.
- Strict control on melt bath temperatures is recommended to avoid generating excessive fumes.
- Wear gloves.

Physical/Chemical Properties

The following properties are listed for pure zinc - impurities may slightly affect these figures.

Melting point	:	419.35°C	Solubility in water	:	Nil
Boiling point	:	908°C	Solubility (other)	:	Soluble in acids and alkalis
Density	:	7.14			
Vapour pressure	:	1.33 hPa at 487°C			

Stability and Reactivity:

- Stable under normal conditions
- Reacts with acid and alkalis generating nascent hydrogen which may form explosive mixtures in air and/or will liberate stibine from the metal alloy

Toxicological and Ecological Information:

- No toxicity data for metallic zinc is available
- The potential of metallic zinc to harm the environment is very low due to the low bio-availability of metallic zinc
- No data is available on aquatic toxicity

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