SAFETY DATA SHEET

Substance: Cadmium

Company: Britannia Zinc Limited
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Composition:

Cadmium metal is produced in massive form by Britannia Zinc Limited as rods.

Approximate Composition by Weight:

Cadmium	99.95 and 99.99%	Zinc	<0.005%	Mercury	<0.004%
Lead	<0.005%	Nickel	<0.005%	Iron	<0.002%
Copper	<0.002%			Antimony,	
				Arsenic and	
				Thallium (total)	<0.01%

Hazards:

Cadmium metal in massive form is not classified as hazardous. However if the physical form of the cadmium metal is changed, eg, by melting then hazards to health may be created.

If cadmium metal is heated past its melting point then fumes of cadmium oxide will be evolved which are classified:

T -	Carcinogen category 2 May cause cancer by inhalation	Risk phrases: Safety phrases:	R49-22-48/23/25 S53-44
	Harmful if swallowed		
	Toxic:	Danger of serious damage to health by prolonged exposure through inhalation and if swallowed	

First Aid:

Inhalation:	Remove from exposure, rest and keep warm. Obtain medical attention
Ingestion:	Wash out mouth thoroughly with water. Obtain medical attention.
Skin:	Wash affected areas thoroughly with soap and water. Remove contaminated clothing. If rash or discomfort persists, seek medical attention.

Fire-Fighting:

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

Accidental Release:

- Not applicable to cadmium metal, however avoid releasing excessive fume due to overheating molten cadmium. Extracted air containing cadmium should be cleaned before discharge.
- Do not allow cadmium bearing materials to enter water courses. Cadmium is a strictly controlled substance with discharge limits.

Handling and Storage:

- Avoid generating dust or fumes
- Keep away from food, drink or 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.

Exposure Controls:

EH40 lists the following applicable exposure limits:

Cadmium and cadmium compounds (except cadmium oxide fume)	MEL	8 hour TWA	0.025 mg/m^3
Cadmium oxide fume	MEL	8 hour TWA	0.025 mg/m^3
	STEL	15 minute	0.05 mg/m^3

Specific control measures are mentioned in the “Control of Carcinogenic Substances” Approved Code of Practice - part of the Control of Substances Hazardous to Health series - which must be adhered to, but generally:

- Do not breathe dust or fumes. Approved respiratory protective equipment should be used.

- Where possible, local exhaust ventilation should be provided.
- Strict control of melt bath temperatures is recommended to avoid generating excessive fumes.

Physical/Chemical Properties:

The following properties are listed for pure cadmium - impurities may slightly affect these figures:

Melting point:	321°C	Solubility in water:	Nil
Boiling point:	769°C	Solubility (other)	Soluble in acids and
Specific gravity:	8.65		Ammonium Hydroxide
Volatility:	Vapour pressure	1mm Hg at 394°C	

Stability and Reactivity:

- Stable under normal conditions
- Cadmium dust is a severe fire hazard if exposed to fire or oxides
- Cadmium and ammonia react to create a fire hazard
- Cadmium reacts explosively in contact with ammonia nitrate (fused) or if immersed in hydrazoic acid.
- Cadmium reacts with acids generating nascent hydrogen which may form explosive mixtures in air

Toxicoligical and Ecological Information:

Cadmium is highly toxic to marine, freshwater and terrestrial organisms including humans and bioaccumulates in most organisms. Cadmium binds strongly in soil, sediment and organic matter.

Limited evidence of carcinogenicity in humans but sufficient evidence exists of its carcinogencity in animals.

LC_{50}	30 minutes	rat inhalation	25 mg/m^3
LD_{50}		rat oral	225 mg/kg
LD_{50}	96 hour	Japanese marine species	5.5-30.5 mg/litre
LC_{50}	96 hour	palalmonetes vulgaris	0.76 mg/litre

Disposal:

All cadmium bearing emissions and effluents should be suitably cleaned or treated before disposal in accordance with legislation. Cadmium has a water discharge limit and should not be allowed to enter a water course.

Transport Information:

Cadmium metal in massive form is not classified as hazardous for conveyance by road or rail.

Regulatory Information:

The Control of Substances Hazardous to Health Regulations apply to this substance.

REVISION: 1
Date: 10 September 1997