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**MATERIAL SAFETY DATA SHEET**

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**Hazardous according to criteria of Worksafe Australia**

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**Date of Issue : Mar 1999**

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**1. IDENTIFICATION**

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**General**

Product Name : BARIUM COMPOUNDS N.O.S. (BARIUM CHLORIDE)

Other Names : BARIUM CHLORIDE

UN No. : 1564

Dangerous Goods Class : 6.1

Subsidiary Risk : None Allocated

Hazchem Code : 2Z

Pack Group : III

EPG : 37

Poisons Schedule : 6

Uses :

Chemicals (artificial barium sulphate, other barium salts), reagents, lubrication oil additives, boiler compounds, textile dyeing, pigments, manufacture of white leather.

**1.1 Physical Description / Properties**

Appearance : Colourless odourless, monoclinic crystals with a bitter, salty taste.

Formula :  $BaCl_2 \cdot 2H_2O$ 

Boiling Point : 1560 deg C

Melting Point : 963 deg C

Vapour Pressure : N/A

Specific Gravity : 3.86 (water = 1)

Flash Point : N/A

pH : N/A ()

Solubility in water : Misc g/l (25 deg C)

Flammability Limits (as percentage volume in air)

Lower Explosion Limit : N/A

Upper Explosion Limit : N/A

## 1.2 Other Properties

Soluble in water, methanol. Almost soluble in ethanol, acetone, ethyl acetate. Loses water of hydration at 113 deg C to become anhydrous form, which melts at 963 deg C.

## 1.3 Ingredients

Chemical Entity	CAS No.	Proportions (%)
BARIUM CHLORIDE, DIHYDRATE	[10326-27-9]	> 98

## 2. HEALTH HAZARD INFORMATION

### 2.1 Health Effects - Acute

#### Swallowed

Considered an unlikely route of entry in commercial/industrial environments. The material is highly toxic and may be fatal if swallowed. Acute effects of ingestion include abdominal pain, vomiting, diarrhoea, convulsions, muscular spasms and haemorrhage of the stomach, intestines and kidneys. Lethal dose may be as little as 1 gram.

#### Eye

The material is moderately discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/or other transient eye damage/ulceration.

#### Skin

The material is moderately discomforting to the skin. Open cuts, abraded or irritated skin should not be exposed to this material. Toxic effects may result from skin absorption.

#### Inhaled

The dust may be discomforting to the upper respiratory tract and may be harmful. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

### 2.2 Health Effects - Chronic

Principle routes of exposure are usually by skin/eye contact and inhalation. Ingestion of soluble barium compounds may result in ulceration of the mucous membranes of the gastrointestinal tract, tightness in the muscles of the face and neck, gastroenteritis, vomiting, diarrhoea, muscular tremors and paralysis, anxiety, weakness, laboured breathing, cardiac irregularity due to contractions of smooth striated and cardiac muscles (often violent and painful), slow irregular pulse, hypertension, convulsions and respiratory failure. Barium fumes are respiratory irritants. Over-exposure to barium dusts and fume may result in rhinitis, frontal headache, wheezing, laryngeal spasm, salivation and anorexia. Long term effects include nervous disorders and adverse effects on the heart, circulatory system and musculature. Heavy exposures may result in a benign

pneumoconiosis. In test animals, acute doses have impaired the function of male and female reproductive organs.

## 2.3 First Aid

### Swallowed

If poisoning occurs, contact a doctor or Poisons Information Centre. If swallowed, and if more than 15 minutes from a hospital, induce vomiting, preferably using Ipecac Syrup APF. Note : DO NOT INDUCE VOMITING in an unconscious person.

### Eye

Immediately hold the eyes open and wash continuously for at least 15 minutes with fresh running water. Ensure irrigation under eyelids by occasionally lifting the upper and lower lids. Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

### Skin

Immediately flush body and clothes with large amounts of water, using a safety shower if available. Quickly remove all contaminated clothing, including footwear. Wash affected areas with water (and soap if available) for at least 15 minutes. Transport to hospital, or doctor.

### Inhaled

If dust is inhaled, remove to fresh air. Encourage patient to blow nose to ensure clear breathing passages. Rinse mouth with water. Consider drinking water to remove dust from throat. If irritation or discomfort persists seek medical attention. If fumes of combustion products are inhaled, remove to fresh air. Lay patient down. Keep warm and rested.

### First Aid Facilities

Ensure an eye bath and safety shower are available and ready for use.

## 2.5 Advice to Doctor

Acute barium poisoning gives a rapid decrease in blood potassium level. Administration of appropriate potassium salts has been recommended. Use sodium sulphate as a cathartic. Add 5-10gm of sodium sulphate to lavage solution or as a fluid supplement to Ipecac Syrup (the sulphate salt is not absorbed). Monitor cardiac rhythm and serum potassium closely to establish the trend over the first 24 hours. Large doses of potassium may be needed to correct the hypokalemia. Administer generous amounts of fluid replacement but monitor urine and serum for evidence of renal failure. Respiratory failure, renal failure and occasional cardiac dysrhythmias may result from an acute ingestion.

## 2.6 Toxicity Data

Lethal oral dose may be as little as 1 gram Oral LD50 = 118 mg/kg (Rat) Oral LDLo = 11.4 mg/kg (Human) ; 70 mg/kg (Mouse) ; 90 mg/kg (Dog) Dermal LD50 = 178 mg/kg (Rat) Inhalation LC50 = not available

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## 3. PRECAUTIONS FOR USE

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### 3.1 Exposure Standards

The following exposure standard has been established by Worksafe Australia : Barium, soluble compounds (as Ba) : TWA 0.5 mg/m<sup>3</sup>

### 3.2 Engineering Controls

Local exhaust ventilation required. If inhalation risk of overexposure exists, wear an approved dust respirator to maintain exposure levels below the recommended standards.

### 3.3 Personal Protection

Wear safety glasses with side shields and/or chemical goggles. Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. Wear impervious gloves (plastic or rubber), safety footwear and other impervious clothing to minimise exposure. Wash hands and face thoroughly after handling and before work breaks, eating, drinking, smoking and using toilet facilities.

### 3.4 Flammability

Material is non-combustible.

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## SAFE HANDLING INFORMATION

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### 4.1 Storage / Transport

Store in original containers. Keep containers tightly sealed. Store in a cool, dry, well-ventilated place away from incompatible materials. Protect containers against physical damage. Check regularly for spills and leaks. Segregate from acids and oxidising agents.

### 4.2 Packaging / Labelling

UN No. 1564

Class 6.1

Sub Risk None Allocated

Hazchem Code 2Z

Pack Group III

EPG No. 37

Shipping Name BARIUM COMPOUNDS N.O.S. (BARIUM CHLORIDE)

Hazard HARMFUL

#### Risk Phrases

R25 Toxic if swallowed.

R37 Irritating to respiratory system.

R20/21 Harmful by inhalation and in contact with skin.

#### Safety Phrases

S28:BACHLO After contact with skin, wash immediately with plenty of water.

S40:BACHLO To clean the floor and all objects contaminated by this material, use water.

S51 Use only in well ventilated areas.

### 4.3 Spills and Disposal

## Spills

Clean up all spills immediately. Avoid contact with the skin and eyes. Wear impervious gloves and safety glasses. Use dry clean-up procedures and avoid generating dust.

Minor spills - place spilled material in clean, sealable labelled containers and hold for waste disposal. Major spills - wear breathing apparatus plus protective gloves. Prevent by any means possible, spillage from entering drains or water courses. Increase ventilation. Stop leak if safe to do so. Collect recoverable product into labelled containers for recycling. Collect residues and seal in labelled drums for disposal. Wash spill area with large quantities of water. After clean-up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. If contamination of drains or waterways occurs, advise emergency services.

## Disposal

Recycle wherever possible. Dispose of in accordance with all Local, State and Federal regulations by burying residue at an approved waste disposal facility. Recycle containers wherever possible, otherwise dispose of in an authorised landfill.

## 4.4 FIRE AND EXPLOSION HAZARD

### Fire / Explosion

Non-combustible. Not considered to be a significant fire risk, however containers may burn. Decomposes on heating and produces acrid and toxic fumes of hydrogen chloride.

### Extinguishing Media

Fire-fighters should wear full protective clothing including self-contained breathing apparatus. Non combustible. In case of fire use dry chemical, carbon dioxide, water spray or foam type extinguishers. Use equipment/media appropriate to surrounding fire conditions.

## 5 OTHER INFORMATION

### Other Information

No data available

### 5.1 Contact Points

Organisation	Location	Telephone	Ask For
Redox Chemicals Pty Ltd	Wetherill Park NSW	02-97255155	Technical Officer
Poisons Information Centre	Westmead	131129	
		1800-251525	