Infosafe No™	1CH1B	Issue Date : May 2020	RE-ISSUED by CHEMSUPP

Product Name : **BARIUM NITRATE**

Classified as hazardous

1. Identification

GHS Product Identifier BARIUM NITRATE

Company Name CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)

Address 38 - 50 Bedford Street GILLMAN
SA 5013 Australia

Telephone/Fax Number Tel: (08) 8440-2000

Emergency phone number CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

Recommended use of the chemical and restrictions on use Pyrotechnics (gives green light), incendiaries, tracer bullets, primers, and detonators, green signal lights, chemicals (barium peroxide), ceramic glazes, glass industry, in vacuum tube industry (neon sign lightings), electronics and laboratory reagent.

Other Names

Name	Product Code
BARIUM NITRATE AR	BA034

Other Information

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture
Oxidizing Solids: Category 2
Eye Damage/Irritation: Category 2A
Acute Toxicity - Inhalation: Category 4
Acute Toxicity - Oral: Category 4

Signal Word (s) DANGER

Hazard Statement (s)
H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

Pictogram (s) Flame over circle, Exclamation mark

Precautionary statement – Prevention
P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P220 Keep/Store away from clothing/combustible materials.
P221 Take any precaution to avoid mixing with combustibles.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement – Response
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330 Rinse mouth.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.

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Precautionary statement – Disposal	P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. P501 Dispose of contents/container in accordance with local, state and federal government regulations.

3. Composition/information on ingredients

Chemical Characterization Solid

Ingredients

Name	CAS	Proportion	Hazard Symbol	Risk Phrase
Barium nitrate	10022-31-8	100 %		

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Ingestion	DO NOT INDUCE VOMITING. Wash out mouth with water. Seek immediate medical attention.
Skin	Wash affected area thoroughly with copious amounts of running water. Remove contaminated clothing and wash before reuse. In severe cases or if irritation persists, seek medical attention.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.
First Aid Facilities	Eye wash station, safety shower and normal washroom facilities.
Advice to Doctor	Treat symptomatically.
Protection for First Aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Suitable extinguishing media	Alcohol-resistant foam. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Hazards from Combustion Products	Very toxic fumes of nitrogen oxides, ammonia, and oxides of barium.
Specific hazards arising from the chemical	Will accelerate burning when involved in a fire. May ignite combustibles (wood, paper, clothing, etc). Fire wll produce irritating, poisonous, and/or corrosive gases.
Hazchem Code	1Y
Decomposition Temp.	595 °C.
Precautions in connection with Fire	Wear SCBA and chemical splash suit. Structural firefighter's uniform will provide limited protection.

6. Accidental release measures

Spills & Disposal	Do not contaminate. Keep combustibles (wood, paper, clothing, oil, etc.) away from spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Prevent entry into waterways, drains or confined areas. Prevent exposure to heat. Dry Spill Use clean non-sparking tools to transfer material to a clean, dry plastic container and cover loosely. Move container from spill area. Small Liquid Spill Use a non-combustible material like vermiculite, sand or earth to soak up the product and place in a loosely-covered container for later disposal. Large Liquid Spill SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.
Personal Precautions	Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms. Evacuate the area of all non-essential personnel.
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)

7. Handling and storage

Handling and Storage	Store in orginal container. Store away from incompatiables.
Precautions for Safe Handling	Handle and open containers with care. When using do not eat, drink or smoke. Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. Contaminated clothing should be removed and washed before reuse.
Conditions for safe storage, including any incompatabilities	The material is a strong oxidiser. Store in tightly closed containers, in a cool, dry, well-ventilated area, away from incompatible substances. Store away from extremes of temperature, heat, sparks, open flame, ignition sources, acids, alkalis, powdered metals, food and feedstuffs, reducing agents and combustible, organic or other readily oxidizable materials. Avoid storage on wood floors. Protect against physical damage, direct sunlight and moisture. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product. Inspect regularly for deficiencies such as damage or leaks.
Storage Regulations	Refer Australian Standard AS 4326-1995 'The storage and handling of oxidizing agents'. Refer Australian Standard AS/NZS 4452:1997 'The storage and handling of toxic substances'.
Storage Temperatures	Store at room temperature (15 to 25 °C recommended).

8. Exposure controls/personal protection

Occupational exposure limit values

Name	STEL		TWA		
	mg/m3	ppm	mg/m3	ppm	Footnote
Barium nitrate			0.5		Barium soluble compounds (as Ba)

Other Exposure Information	These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity. A time weighted average (TWA) has been established for Barium, soluble compounds (as Ba) (Worksafe Aust) of 0.5 mg/m³. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.
Appropriate engineering controls	Maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.
Eye Protection	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.
Hand Protection	Wear gloves of impervious material conforming to AS/NZS 2161: Occupational protective gloves - Selection, use and maintenance. Final choice of appropriate glove type will vary according to individual circumstances. This can include methods of handling, and engineering controls as determined by appropriate risk assessments. Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste.
Footwear	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.
Body Protection	Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. Physical and chemical properties

Form	Solid
Appearance	Colourless or white cubic, lustrous crystals, or crystalline powder, or white solid.

Odour	Odourless.
Decomposition Temperature	595 °C.
Melting Point	592 °C.
Solubility in Water	Soluble, 87 in g/l at 20 °C.
Solubility in Organic Solvents	Slightly soluble in ethanol and acetone.
Specific Gravity	3.24 at 23 °C.
pH	5.0 -8.0 (25 °C, 5% Aq. soln.)
Vapour Pressure	Negligible (mm Hg).
Vapour Density (Air=1)	9.0
Volatile Component	0 %vol @ 21 °C
Partition Coefficient: n-octanol/water	log Pow: Not applicable (inorganic; dissociation).
Density	Bulk density: 1600 kg/m³.
Flammability	Not combustible but assists combustion of other substances.
Explosion Properties	Nitrates may explode when shocked, exposed to heat or flame or by spontaneous chemical reaction. All inorganic nitrates act as oxygen carriers; under proper conditions these can give up their oxygen to other materials, which may in turn detonate. Risk of fire and explosion on contact with oxidizable substances, combustible substances, reducing agents and powdered metals. In sufficient quantity and reduced particle size it is capable of creating a dust explosion.
Molecular Weight	261.34
Oxidising Properties	Strong oxidizer; heat of reaction with reducing agents or combustibles may cause ignition.
Other Information	Index of Refraction: 1.572. Heat of solution: 36 BTU/lb= 20 cal/g= 0.84 x 10+5 J/kg. Heat of formation: -988 kJ/mol.

10. Stability and reactivity

Chemical Stability	Stable at room temperature in closed containers under normal temperatures, pressures and conditions of storage and handling.
Conditions to Avoid	Dust generation, heat, moisture, contact with combustible and incompatible materials.
Incompatible Materials	Reducing agents, acids, bases, hydroxylamine, phosphorus, esters (e.g. butyl acetate, ethyl acetate, propyl formate), combustible, organic and flammable materials (e.g. alkyl resins, asphalt, gasoline, grease, paper, oil, wood, charcoal, methyl acetone, polystyrene, polyurethane), acid anhydrides, tin chloride, sulfur, calcium silicide, sodium peroxide, metals such as lead, silver, copper, magnesium, zinc, cadmium, nickel, iron, and cobalt, metals in powder form (aluminium, magnesium), finely divided aluminium-magnesium alloys, magnesium plus barium oxide plus zinc, and oxidizers.
Hazardous Decomposition Products	Very toxic fumes of nitrogen oxides, ammonia, and oxides of barium.
Possibility of hazardous reactions	Reacts with powdered metals, eg. aluminium and magnesium, causing fire and explosion hazard. Mixtures with finely divided aluminium-magnesium alloys are easily ignitable and extremely sensitive to friction or impact. Will turn shock-sensitive if contaminated with sulfur powder or light metal powder. Catalytic decomposition may occur in the presence of metals such as lead, silver, copper, zinc, cadmium, nickel, iron, and cobalt. Reacts violently with strong acids. Can be explosive when mixed with oxidizers, e.g. sodium peroxide. Reacts with combustible and reducing materials with risk of fire and explosion.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Ingestion	Harmful by ingestion. Ingesting a small amount is unlikely to cause significant toxicity. Large amounts may initially cause gastrointestinal symptoms, including mucosal irritation, salivation, nausea, vomiting, haemorrhaging of the digestive tract, colic, and diarrhoea, followed by myocardial and general muscular stimulation with tingling in the extremities. The barium ion is a muscle poison causing stimulation and

	then paralysis. May cause various motor disturbances including stiffness, cramps, weakness or paralysis of the musculature, tightness of the muscles of the face and neck, muscular tremors, The diaphragmatic muscles may be involved, leading to hypoventilation. Central nervous system stimulation may be seen, followed by depression. May cause dizziness and anxiety. The barium ion stimulates cardiac, smooth and striated muscle. May cause cardiac irregularity, low blood potassium (hypokalaemia), bradycardia, ventricular dysrhythmias, hypertension, ventricular tachydysrhythmias including ventricular fibrillation, shock, convulsions, and death from cardiac or respiratory failure, usually occurring a few hours to a few days following exposure to the compound. May cause kidney damage late in the course. Ingestion of nitrate containing compounds can lead to methemoglobinemia. Estimated lethal dose lies between 1 to 15 grams.
Inhalation	Harmful by inhalation. Evaporation at 20 °C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed, especially if powdered. Inhalation of released NOx may cause respiratory tract irritation. Symptoms may include coughing, sore throat and shortness of breath. Inhalation at high concentrations may cause CNS depression and asphyxiation. May cause methemoglobinemia, cyanosis and convulsions. Systemic poisoning may occur with symptoms similar to those of ingestion.
Skin	Symptoms include itching, redness, and pain. May be harmful if absorbed through the skin.
Eye	Symptoms may include itching, redness, stinging, blurring, tearing and severe pain.
Respiratory sensitisation	Not classified based on available information.
Skin Sensitisation	Not classified based on available information.
Germ cell mutagenicity	Not classified based on available information.
Carcinogenicity	Nitrate or nitrite (ingested) under conditions that result in endogenous nitrosation are evaluated in the IARC Monographs (Vol. 94; in preparation) as Group 2A: Probably carcinogenic to humans.
Reproductive Toxicity	Not classified based on available information.
STOT-single exposure	Not classified based on available information.
STOT-repeated exposure	Not classified based on available information.
Chronic Effects	Repeated or prolonged exposure to the substance can produce damage to kidneys, lungs, the nervous system, heart, blood, G.I. system, bone marrow, spleen, and the liver. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. Prolonged or repeated skin contact may cause dermatitis. Small, repeated doses of ingested nitrates can lead to weakness, general depression, headache and mental impairment.

12. Ecological information

Ecotoxicity	Toxic for aquatic organisms. Toxic for plants and animals. The following applies to barium compounds: barium ions toxic for aquatic organisms, hazard for drinking water! The following applies to nitrates in general: may contribute to the eutrophication of water supplies. Hazard for drinking water.
Environmental Protection	Do not allow to enter waters, waste water, or soil!
Acute Toxicity - Fish	Brachydanio rerio LC50: < 100 mg/l; The following applies to barium compounds: fish: lethal as from 158 mg/l: Salmo lethal as from 158 mg/l (as $BaCl_2$); L. idus LC50: 870 mg/l (as $BaCl_2$); The following applies to nitrates in general: fish: LC50 > 500 mg/l.
Acute Toxicity - Daphnia	The following applies to barium compounds: crustaceans: toxic as from 29 mg/l.
Acute Toxicity - Algae	The following applies to barium compounds: Sc. quadricauda toxic as from 34 mg/l.

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.

14. Transport information

Transport Information	Dangerous Goods of Class 5.1 Oxidising Agents are incompatible in a placard load with any of the following: - Class 1, Class 2.1, Class 2.3, Class 3, Class 4, Class 5.2, Class 7, Class 8, Fire risk substances and combustible liquids. Dangerous Goods of Class 6 (Toxic and Infectious Substances)

	are incompatible in a placard load with any of the following: -Class 1, Class 3, if the Class 3 dangerous goods are nitromethane, Class 8, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids; and are incompatible with food and food packaging in any quantity.
U.N. Number	1446
UN proper shipping name	BARIUM NITRATE
Transport hazard class(es)	5.1
Sub.Risk	6.1
Hazchem Code	1Y
Packing Group	II
EPG Number	5B1
IERG Number	31

15. Regulatory information

Regulatory Information	Listed in the Australian Inventory of Chemical Substances (AICS). Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule	S6

16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Chemical Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'.
Contact Person/Point	Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Chem-Supply accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.
Empirical Formula & Structural Formula	Ba(NO3)2

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