# SAFETY DATA SHEET

**Australian statement of hazardous nature :** Classified as hazardous according to criteria of Safe Work Australia

## Section 1 - Identification

| | |
|---|---|
| **Product Name** | **Barium chloride dihydrate, ACS** |
| **CAS No** | 10326-27-9 |

| | |
|---|---|
| **Product Code** | **S55536** |
| **Address** | ThermoFisher Scientific Australia Pty Ltd<br>5 Caribbean Drive, Scoresby<br>VICTORIA 3179, Australia |
| **Emergency Tel.** | **CHEMTREC®**<br>**03 9757 4559 or +613 9757 4559** |
| **Telephone / Fax Numbers** | Tel: 1300 735 292<br>Fax: 1800 067 639 |
| **E-mail address** | ANZinfo@thermofisher.com |

| | |
|---|---|
| **Recommended Use** | Laboratory chemicals. |
| **Uses advised against** | This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list. This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern. |

## Section 2 - Hazard(s) Identification

**Classification under Safe Work Australia**

Classified as hazardous according to criteria of Safe Work Australia

**Physical hazards**
No hazards identified

**Health hazards**

| | |
|---|---|
| Acute Oral Toxicity | Category 3 |
| Acute Inhalation Toxicity - Dusts and Mists | Category 4 |
| Serious Eye Damage/Eye Irritation | Category 2 |

**Environmental hazards**
No hazards identified

**Label Elements**

Skull and Crossbones

**Signal Word** **Danger**

**Hazard Statements**
H301 - Toxic if swallowed
H332 - Harmful if inhaled
H319 - Causes serious eye irritation

**Precautionary Statements**
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin 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 eye protection/ face protection
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor if you feel unwell
P330 - Rinse mouth
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other information**

Toxic to terrestrial vertebrates

# Section 3 - Composition and Information on Ingredients

| Component | CAS No | Weight % |
|---|---|---|
| Barium Chloride dihydrate | 10326-27-9 | >95 |
| Barium chloride | 10361-37-2 | - |

# Section 4 - First Aid Measures

**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

**Ingestion** Do NOT induce vomiting. Call a physician or poison control center immediately.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Eye Contact** In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**General Advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Self-Protection of the First Aider** Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**First Aid Facilities** Eyewash, safety shower and washroom.

**Most important symptoms and** None reasonably foreseeable.

**effects**

**Notes to Physician** Treat symptomatically.

# Section 5 - Fire Fighting Measures

**Suitable Extinguishing Media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Extinguishing media which must not be used for safety reasons**
No information available.

**Hazardous Decomposition Products**
Hydrogen chloride gas.

**Decomposition Temperature**
> 100°C

**Specific Hazards Arising from the Chemical**
Thermal decomposition can lead to release of irritating gases and vapors.

**Special protective equipment and precautions for fire fighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

# Section 6 - Accidental Release Measures

**Emergency procedures**
Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

**Environmental Precautions**
Should not be released into the environment.

**Methods for Containment and Clean Up**

**Clean-up methods - small spillage**
Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

**Clean-up methods - large spillage**
Typically only supplied is small quantiites as packaged goods.
If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

**Reference to Other Sections**
Refer to protective measures listed in Sections 8 and 13.

# Section 7 - Handling and Storage

**Precautions for Safe Handling**
Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

**Conditions for Safe Storage, Including any Incompatibilities**
Keep containers tightly closed in a dry, cool and well-ventilated place.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

# Section 8 - Exposure Controls and Personal Protection

**Exposure limits**

**AUS** - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)] Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)] updated in August, 2005. Safe Work Australia **ACGIH** - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace. **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **DE** - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

| Component | Australia | New Zealand WEL | ACGIH TLV | The United Kingdom | Germany |
|---|---|---|---|---|---|
| Barium Chloride dihydrate | TWA: 0.5 mg/m³ | | TWA: 0.5 mg/m³ | STEL: 1.5 mg/m³ 15 min<br>TWA: 0.5 mg/m³ 8 hr | TWA: 0.5 mg/m³ (8 Stunden). AGW - exposure factor 1<br>TWA: 0.5 mg/m³ (8 Stunden). MAK Höhepunkt: 4 mg/m³ |
| Barium chloride | TWA: 0.5 mg/m³ | | TWA: 0.5 mg/m³ | STEL: 1.5 mg/m³ 15 min<br>TWA: 0.5 mg/m³ 8 hr | TWA: 0.5 mg/m³ (8 Stunden). AGW - exposure factor 1<br>TWA: 0.5 mg/m³ (8 Stunden). MAK Höhepunkt: 4 mg/m³ |

**Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

**Exposure Controls**

**Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment**

**Eye Protection** — Goggles (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial applications)

**Hand Protection** — Protective gloves

| Glove material | Breakthrough time | Glove thickness | AUS/NZ Standard | Glove comments |
|---|---|---|---|---|
| Natural rubber<br>Nitrile rubber<br>Neoprene<br>PVC | See manufacturers recommendations | - | AS/NZS 2161 | (minimum requirement) |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection** — Long sleeved clothing

**Repiratory Protection** — Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment

| | |
|---|---|
| | must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use and maintenance of repiratory protective devices |
| **Recommended Filter type:** | Particulates filter conforming to EN 143 (or AUS/NZ equivalent) |
| **Recommended half mask:-** | Particle filtering: EN149:2001 (or AUS/NZ equivalent)<br>When RPE is used a face piece Fit Test should be conducted |
| **Hygiene Measures** | Handle in accordance with good industrial hygiene and safety practice. |
| **Environmental exposure controls** | No information available. |

# Section 9 - Physical and Chemical Properties

**Information on basic physical and chemical properties**

| | | |
|---|---|---|
| **Appearance** | White | |
| **Physical State** | Solid | |
| **Odor** | Odorless | |
| **Odor Threshold** | No data available | |
| **pH** | 5-8 | 5% aq.solution |
| **Melting Point/Range** | 962 °C / 1763.6 °F | |
| **Softening Point** | No data available | |
| **Boiling Point/Range** | 1560 °C / 2840 °F | |
| **Flash Point** | No information available | **Method -** No information available |
| **Evaporation Rate** | Not applicable | Solid |
| **Flammability (solid,gas)** | No information available | |
| **Explosion Limits** | No data available | |
| **Vapor Pressure** | No data available | |
| **Vapor Density** | Not applicable | Solid |
| **Specific Gravity / Density** | 3.1 g/cm3 @20°C | |
| **Bulk Density** | No data available | |
| **Water Solubility** | Soluble | |
| **Solubility in other solvents** | No information available | |
| **Partition Coefficient (n-octanol/water)** | | |
| **Autoignition Temperature** | No data available | |
| **Decomposition Temperature** | > 100°C | |
| **Viscosity** | Not applicable | Solid |
| **Explosive Properties** | No information available | |
| **Oxidizing Properties** | No information available | |

**Other information**

| | |
|---|---|
| **Molecular Formula** | Ba Cl2 . 2 H2 O |
| **Molecular Weight** | 244.28 |

# Section 10 - Stability and Reactivity

| | |
|---|---|
| **Reactivity** | None known, based on information available |
| **Stability** | Stable under normal conditions. |
| **Conditions to Avoid** | Incompatible products, Excess heat. |
| **Incompatible Materials** | Strong oxidizing agents, Acids. |
| **Hazardous Decomposition Products** | Hydrogen chloride gas. |
| **Hazardous Polymerization** | Hazardous polymerization does not occur. |

# Section 11 - Toxicological Information

**Information on Toxicological Effects**

**Product Information**

**(a) acute toxicity;**

**Oral** No data available
**Dermal** No data available
**Inhalation** No data available

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Barium Chloride dihydrate | LD50 = 100mg/kg (ATE)<br>118mg/kg (rat)<br>(anhydrous - IUCLID) | | LD50 > 1.1 mg/L |
| Barium chloride | LD50 = 118 mg/kg ( Rat ) | | LC50 > 1.1 mg/L ( Rat ) 243 min |

**(b) skin corrosion/irritation;** No data available

**(c) serious eye damage/irritation;** No data available

**(d) respiratory or skin sensitization;**

**Respiratory** No data available
**Skin** No data available

**(e) germ cell mutagenicity;** No data available

Not mutagenic in AMES Test

**(f) carcinogenicity;** No data available

There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** No data available

**Target Organs** No information available.

**(j) aspiration hazard;** Not applicable
Solid

**Symptoms / effects,both acute and delayed** No information available

# Section 12 - Ecological Information

**Ecotoxicity effects** Do not empty into drains.

| Component | Freshwater Fish | Water Flea | Freshwater Algae | Microtox |
|---|---|---|---|---|
| Barium Chloride dihydrate | LC50 >152 mg/L/96h (Danio rerio) | | | |
| Barium chloride | | EC50: = 14.5 mg/L, 48h (Daphnia magna) | | |

| | |
|---|---|
| **Persistence and Degradability** | |
| **Persistence** | Soluble in water, Persistence is unlikely, based on information available. |
| **Degradability** | Not relevant for inorganic substances. |
| **Bioaccumulative Potential** | Bioaccumulation is unlikely |
| **Mobility** | The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility Highly mobile in soils |
| **Endocrine Disruptor Information** | This product does not contain any known or suspected endocrine disruptors |
| **Persistent Organic Pollutant** | This product does not contain any known or suspected substance |
| **Ozone Depletion Potential** | This product does not contain any known or suspected substance |

# Section 13 - Disposal Considerations

| | |
|---|---|
| **Waste from Residues/Unused Products** | Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations. |
| **Contaminated Packaging** | Dispose of this container to hazardous or special waste collection point. |
| **Other Information** | Chemical wastes should be disposed through a licensed commercial waste collection service. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. |

# Section 14 - Transport Information

**IMDG/IMO**

| | |
|---|---|
| **UN-No** | UN1564 |
| **Proper Shipping Name** | Barium compound, n.o.s. |
| **Technical Shipping Name** | Barium chloride dihydrate |
| **Hazard Class** | 6.1 |
| **Packing Group** | III |

**ADG**

| | |
|---|---|
| **UN-No** | UN1564 |
| **Proper Shipping Name** | Barium compound, n.o.s. |
| **Technical Shipping Name** | Barium chloride dihydrate |
| **Hazard Class** | 6.1 |
| **Packing Group** | III |

**IATA**

| | |
|---|---|
| **UN-No** | UN1564 |
| **Proper Shipping Name** | Barium compound, n.o.s. |
| **Technical Shipping Name** | Barium chloride dihydrate |
| **Hazard Class** | 6.1 |
| **Packing Group** | III |

| | |
|---|---|
| **Environmental hazards** | No hazards identified |
| **Special Precautions** | No special precautions required |
| **Additional information** | None known |

# Section 15 - Regulatory Information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**National Regulations** **Australia**

See section 8 for national exposure control parameters.

**Standard for the Uniform Scheduling of Medicines and Poisons**
No poison schedule number allocated.

**Australian Industrial Chemicals Introduction Scheme (AICIS)**

| Component | Australian Industrial Chemicals Introduction Scheme (AICIS) | Additional information |
|---|---|---|
| Barium Chloride dihydrate - 10326-27-9 | Present | - |
| Barium chloride - 10361-37-2 | Present | - |

**Australian - Illicit Drug Precursors/Reagents Substance List**
This product does not contain any substance(s) on the Illicit Drug Precursors/Reagents list.

**Chemicals of Security Concern**
This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

**National pollutant inventory** Not applicable

**Prohibition or notification/licensing requirements**
Shown below are details of specific prohibition/notifications or licencing requirements when they apply.

This product does not contain any substance(s) subject to Prohibition, Authorization or Restriction.

**International Inventories**

| Component | AICS | NZIoC | EINECS | ELINCS | TSCA | DSL | NDSL | PICCS | ENCS | ISHL | IECSC | KECL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium Chloride dihydrate | X | X | - | - | - | - | - | X | X | X | X | - |
| Barium chloride | X | X | 233-788-1 | - | X | X | - | X | X | X | X | KE-02037 |

**Legend:** X - Listed. '-' - Not Listed. **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

**International Regulations**

**Ozone Depletion Potential** This product does not contain any known or suspected substance

**Persistent Organic Pollutant** This product does not contain any known or suspected substance

**Rotterdam Convention (PIC)** Not applicable

**Basel convention on the control of transboundary movements of hazardous wastes and their dispoal**

Not applicable.

| Component | CAS No | OECD HPV | Restriction of Hazardous Substances (RoHS) | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|---|---|---|---|---|---|
| Barium Chloride dihydrate | 10326-27-9 | Listed | Not applicable | Not applicable | Not applicable |
| Barium chloride | 10361-37-2 | Listed | Not applicable | Not applicable | Not applicable |

**Authorisation/Restrictions according to EU REACH** Not applicable

# Section 16 - Other Information

**Legend**

**AICS** - Australian Inventory of Chemical Substances
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**IECSC** - Chinese Inventory of Existing Chemical Substances
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**TWA** - Time Weighted Average
**IARC** - International Agency for Research on Cancer
**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association
**MARPOL** - International Convention for the Prevention of Pollution from Ships
**NZS 5433:2012** - Transport of Dangerous Goods on Land
**LD50** - Lethal Dose 50%
**EC50** - Effective Concentration 50%
**WEL** - Workplace Exposure Limit
**DNEL** - Derived No Effect Level
**POW** - Partition coefficient Octanol:Water
**vPvB** - very Persistent, very Bioaccumulative
**VOC** - (Volatile Organic Compound)

**NZIoC** - New Zealand Inventory of Chemicals
**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
**ENCS** - Japanese Existing and New Chemical Substances
**KECL** - Korean Existing and Evaluated Chemical Substances
**CAS** - Chemical Abstracts Service
**ACGIH** - American Conference of Governmental Industrial Hygienists Predicted No Effect Concentration (PNEC)
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code
**OECD** - Organisation for Economic Co-operation and Development
**LC50** - Lethal Concentration 50%
**ATE** - Acute Toxicity Estimate
**RPE** - Respiratory Protective Equipment
**NOEC** - No Observed Effect Concentration
**BCF** - Bioconcentration factor
**PBT** - Persistent, Bioaccumulative, Toxic

**Key literature references and sources for data**
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Training Advice**
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

**Revision Date** 20-Nov-2022
**Revision Summary** Not applicable.

**This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).**

**Disclaimer**

**The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage,**

transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

# End of Safety Data Sheet