SAFETY DATA SHEET
BARIUM CHLORIDE 0.5M


SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product name
BARIUM CHLORIDE 0.5M
Product number
1655

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses
Laboratory reagent.
Uses advised against
No specific uses advised against are identified.

1.3. Details of the supplier of the safety data sheet
Supplier
Reagent Chemical Services
18 Aston Fields Road
Whitehouse Industrial Estate
Runcorn
Cheshire WA7 3DL

T: 01928 716903 (08.30 - 17.00)
F: 01928 716425
E: info@reagent.co.uk

1.4. Emergency telephone number
Emergency telephone
OHES Environmental Ltd 24-7
Tel. 0333 333 9939 (24 hour)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification (EC 1272/2008)
Physical hazards
Not Classified
Health hazards
Not Classified
Environmental hazards
Not Classified

2.2. Label elements
Hazard statements
NC Not Classified

2.3. Other hazards
This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures
BARIUM CHLORIDE 0.5M

<table>
<thead>
<tr>
<th>BARIUM CHLORIDE</th>
<th>10-30%</th>
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<tbody>
<tr>
<td>CAS number: 10361-37-2</td>
<td>EC number: 233-788-1</td>
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</table>

Classification
Acute Tox. 3 - H301
Acute Tox. 4 - H332

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information
The product is considered to be a low hazard under normal conditions of use. Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.

Inhalation
Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.

Ingestion
Rinse mouth thoroughly with water. Remove any dentures. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.

Skin contact
Remove affected person from source of contamination. Rinse immediately with plenty of water.

Eye contact
Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes.

Protection of first aiders
First aid personnel should wear appropriate protective equipment during any rescue.

4.2. Most important symptoms and effects, both acute and delayed

General information
The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation
Prolonged inhalation of high concentrations may damage respiratory system.

Ingestion
Gastrointestinal symptoms, including upset stomach. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation.

Skin contact
Prolonged contact may cause dryness of the skin.

Eye contact
May cause temporary eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor
Treat symptomatically.

Specific treatments
No special treatment required.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture
BARIUM CHLORIDE 0.5M

Specific hazards
The product is not flammable. When handled correctly, undamaged units represent no danger.

Hazardous combustion products
Thermal decomposition or combustion products may include the following substances: Chlorides. Oxides of the following substances: Barium.

5.3. Advice for firefighters
Protective actions during firefighting
Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Contain and collect extinguishing water.

Special protective equipment for firefighters
Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Personal precautions
Follow precautions for safe handling described in this safety data sheet. Wear protective clothing as described in Section 8 of this safety data sheet. Wash thoroughly after dealing with a spillage.

For emergency responders
Wear suitable protective equipment, including gloves, goggles/face shield, respirator, boots, clothing or apron, as appropriate.

6.2. Environmental precautions
Environmental precautions
Avoid discharge to the aquatic environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up
Wear protective clothing as described in Section 8 of this safety data sheet. Small Spillages: Wipe up with an absorbent cloth and dispose of waste safely. Large Spillages: Contain and absorb spillage with sand, earth or other non-combustible material. Place waste in labelled, sealed containers. Wash thoroughly after dealing with a spillage. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

6.4. Reference to other sections
Reference to other sections
For personal protection, see Section 8. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Usage precautions
Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Avoid contact with skin and eyes. Keep away from food, drink and animal feeding stuffs.

Advice on general occupational hygiene
Good personal hygiene procedures should be implemented. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Take off contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities
Storage precautions
Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from freezing and direct sunlight. Store away from the following materials: Store in accordance with local regulations. Acids. Alkalis.

Storage class
Chemical storage.

7.3. Specific end use(s)
BARIUM CHLORIDE 0.5M

Specific end use(s)  The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

BARIUM CHLORIDE

Long-term exposure limit (8-hour TWA): WEL 0.05 mg/m³
WEL = Workplace Exposure Limit

BARIUM CHLORIDE (CAS: 10361-37-2)

DNEL

Industry - Dermal; Long term systemic effects: 22 mg/kg/day

8.2. Exposure controls

Protective equipment

Provide adequate general and local exhaust ventilation.

Appropriate engineering controls

Eye/face protection  Wear eye protection. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection  Wear protective gloves. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. To protect hands from chemicals, gloves should comply with European Standard EN374. For exposure up to 8 hours, wear gloves made of the following material: Polyvinyl chloride (PVC). Neoprene. Thickness: ~ 0.2 mm

Other skin and body protection  Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

Hygiene measures  Good personal hygiene procedures should be implemented. When using do not eat, drink or smoke. Wash at the end of each work shift and before eating, smoking and using the toilet. Wash contaminated clothing before reuse. Clean equipment and the work area every day.

Respiratory protection  Provide adequate ventilation. Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Wear a respirator fitted with the following cartridge: Organic vapour filter. Gas and combination filter cartridges should comply with European Standard EN14387. Check that the respirator fits tightly and the filter is changed regularly.

Environmental exposure controls  Not regarded as dangerous for the environment.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance  Liquid.

Colour  Colourless.

Odour  Odourless.
BARIA CHLORIDE 0.5M

pH
Not determined.

Melting point
No specific test data are available.

Initial boiling point and range
Not determined.

Flash point
Not determined. Scientifically unjustified.

Evaporation rate
Not determined.

Flammability (solid, gas)
Technical impossibility to obtain the data.

Upper/lower flammability or explosive limits
Not determined. Technically not feasible.

Other flammability
Not determined.

Vapour density
Not determined.

Relative density
Not determined.

Solubility(ies)
Miscible with water.

Partition coefficient
Not determined.

Auto-ignition temperature
Not determined. Technical impossibility to obtain the data.

Decomposition Temperature
No specific test data are available.

Viscosity
Not determined.

Explosive properties
Not considered to be explosive.

Explosive under the influence of a flame
Not considered to be explosive.

Oxidising properties
The mixture itself has not been tested but none of the ingredient substances meet the criteria for classification as oxidising.

9.2. Other information
None.

SECTION 10: Stability and reactivity

10.1. Reactivity
Reactivity
The following materials may react violently with the product: Strong acids. Strong alkalis.

10.2. Chemical stability
Stability
Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions
Possibility of hazardous reactions
Reactions with the following materials may generate heat: Strong acids. Strong alkalis.

10.4. Conditions to avoid
Conditions to avoid
Avoid excessive heat for prolonged periods of time. Avoid freezing. Avoid contact with the following materials: Strong acids. Strong alkalis.

10.5. Incompatible materials
Materials to avoid
Avoid contact with the following materials: Strong acids. Strong alkalis.

10.6. Hazardous decomposition products
BARIUM CHLORIDE 0.5M

Hazardous decomposition products

Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Chlorides. Oxides of the following substances: Barium.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects
Not regarded as a health hazard under current legislation.

Acute toxicity - oral
Notes (oral LD₅₀)
Based on available data the classification criteria are not met.

ATE oral (mg/kg) 44,247.79

Acute toxicity - dermal
Notes (dermal LD₅₀)
Based on available data the classification criteria are not met.

Acute toxicity - inhalation
Notes (inhalation LC₅₀)
Based on available data the classification criteria are not met.

ATE inhalation (gases ppm) 39,823.01
ATE inhalation (vapours mg/l) 97.35
ATE inhalation (dusts/mists mg/l) 13.27

Skin corrosion/irritation
Animal data
Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation
Based on available data the classification criteria are not met.

Respiratory sensitisation
Respiratory sensitisation
Based on available data the classification criteria are not met.

Skin sensitisation
Skin sensitisation
Based on available data the classification criteria are not met.

Germ cell mutagenicity
Genotoxicity - in vitro
Based on available data the classification criteria are not met.

Carcinogenicity
Carcinogenicity
Based on available data the classification criteria are not met.

IARC carcinogenicity
None of the ingredients are listed or exempt.

Reproductive toxicity
Reproductive toxicity - fertility
Based on available data the classification criteria are not met.

Reproductive toxicity - development
Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure
STOT - single exposure
Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure
STOT - repeated exposure
Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard
**BARIUM CHLORIDE 0.5M**

**Aspiration hazard**
Based on available data the classification criteria are not met.

**General information**
No specific health hazards known. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

**Inhalation**
Prolonged inhalation of high concentrations may damage respiratory system.

**Ingestion**
Gastrointestinal symptoms, including upset stomach. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation.

**Skin contact**
Prolonged contact may cause dryness of the skin.

**Eye contact**
May cause temporary eye irritation.

**Route of entry**
Ingestion Inhalation Skin and/or eye contact

**Target organs**
No specific target organs known.

**SECTION 12: Ecological Information**

**Ecotoxicity**
Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

**12.1. Toxicity**

**Toxicity**
Based on available data the classification criteria are not met.

**Acute toxicity - fish**
No specific test data are available.

**Acute toxicity - aquatic invertebrates**
No specific test data are available.

**12.2. Persistence and degradability**

**Persistence and degradability**
The degradability of the product is not known.

**12.3. Bioaccumulative potential**

**Bioaccumulative potential**
No data available on bioaccumulation.

**Partition coefficient**
Not determined.

**12.4. Mobility in soil**

**Mobility**
The product is water-soluble and may spread in water systems. The product is non-volatile.

**12.5. Results of PBT and vPvB assessment**

**Results of PBT and vPvB assessment**
This substance is not classified as PBT or vPvB according to current EU criteria.

**12.6. Other adverse effects**

**Other adverse effects**
None known.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

**General information**
The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.
Disposal methods

Waste packaging should be collected for reuse or recycling. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor.

SECTION 14: Transport information

General

The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

SECTION 15: Regulatory information

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

National regulations


EU legislation


Guidance

Workplace Exposure Limits EH40.

Authorisations (Title VII Regulation 1907/2006)

No specific authorisations are known for this product.

Restrictions (Title VIII Regulation 1907/2006)

No specific restrictions on use are known for this product.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.
BARIUM CHLORIDE 0.5M

Inventories
EU - EINECS/ELINCS
All the ingredients are listed or exempt.

SECTION 16: Other information

<table>
<thead>
<tr>
<th>Abbreviations and acronyms used in the safety data sheet</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.</td>
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<tr>
<td>ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.</td>
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<td>RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.</td>
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<td>IATA: International Air Transport Association.</td>
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<td>IMDG: International Maritime Dangerous Goods.</td>
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<td>CAS: Chemical Abstracts Service.</td>
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<td>ATE: Acute Toxicity Estimate.</td>
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<td>LC₅₀: Lethal Concentration to 50 % of a test population.</td>
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<tr>
<td>LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).</td>
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<td>EC₅₀: 50% of maximal Effective Concentration.</td>
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<td>PBT: Persistent, Bioaccumulative and Toxic substance.</td>
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<td>vPvB: Very Persistent and Very Bioaccumulative.</td>
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<td>DNEL: Derived No Effect Level.</td>
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<tr>
<td>DMEL: Derived Minimal Effect Level.</td>
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<td>PNEC: Predicted No Effect Concentration.</td>
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General information
Only trained personnel should use this material.

Classification procedures according to Regulation (EC) 1272/2008
Not Classified for Health, Not Classified for Environmental: Calculation method.

Training advice
Read and follow manufacturer's recommendations.

Revision date
22/01/2018

Revision
4

Supersedes date
22/09/2017

SDS number
10118

SDS status
Approved.

Hazard statements in full
H301 Toxic if swallowed.
H332 Harmful if inhaled.

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.