1: Identification

Product identifier

Product name: Barium chloride, ultra dry

Stock number: 14549
CAS Number: 10361-37-2
EC number: 233-788-1
Index number: 056-004-00-8

Relevant identified uses of the substance or mixture and uses advised against.

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:
During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2: Hazard(s) identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T: Toxic
R25: Toxic if swallowed.
Xn; Harmful
R20: Harmful by inhalation.

Information concerning particular hazards for human and environment: Not applicable

Hazard not otherwise classified No information known.

Label elements

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labeled according to the CLP regulation.

Label pictograms

GHS06

Signal word Danger

Hazard statements

H301 Toxic if swallowed.
H332 Harmful if inhaled.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P321 Specific treatment (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D1A - Very toxic material causing immediate and serious toxic effects

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 2
Flammability = 0
Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

(Contd. on page 2)
3: Composition/information on ingredients

Chemical characterization: Substances
CAS# Description:
10361-37-2 Barium chloride, anhydrous
Identification number(s):
EC number: 233-788-1
Index number: 056-004-00-8

4: First-aid measures

Description of first aid measures
General information
Immediately remove any clothing soiled by the product. In case of irregular breathing or respiratory arrest provide artificial respiration. After inhalation supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice. After skin contact immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice. After eye contact rinse opened eye for several minutes under running water. Then consult a doctor. After swallowing Do not induce vomiting; immediately call for medical help.

Information for doctor
Most important symptoms and effects, both acute and delayed No further relevant information available. Indication of any immediate medical attention and special treatment needed No further relevant information available.

5: Fire-fighting measures

Extinguishing media
Suitable extinguishing agents Product is not flammable. Use fire fighting measures that suit the surrounding fire. Special hazards arising from the substance or mixture If this product is involved in a fire, the following can be released: Barium oxide Hydrogen chloride (HCl)
Advice for firefighters

6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation. Environmental precautions: Do not allow product to reach sewage system or any water course. Do not allow to penetrate the ground/soil. Methods and material for containment and cleaning up: Dispose contaminated material as waste according to item 13. Ensure adequate ventilation. Prevention of secondary hazards: No special measures required. Reference to other sections
See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7: Handling and storage

Handling
Precautions for safe handling Handle under dry protective gas. Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace. Information about protection against explosions and fires: The product is not flammable
Conditions for safe storage, including any incompatibilities
Storage Requirements to be met by storerooms and receptacles: No special requirements. Information about storage in one common storage facility: Store away from water/moisture. Store away from oxidizing agents. Further information about storage conditions: Store under dry inert gas. This product is hygroscopic. Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Protect from humidity and water. Specific end use(s) No further relevant information available.

8: Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Control parameters
Components with limit values that require monitoring at the workplace:
10361-37-2 Barium chloride, anhydrous (100.0%)
PEL (USA) Long-term value: 0.5 mg/m³ as Ba
REL (USA) Long-term value: 0.5 mg/m³ as Ba
**TLV (USA)** Long-term value: 0.5 mg/m³ as $\text{Ba}$

**EL (Canada)** Long-term value: 0.5 mg/m³ as $\text{Ba}$

**Additional Information:** No data

**Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

Recommended filter device for short term use:

Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

**Protection of hands:** Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

**Material of gloves:** Nitrile rubber, NBR

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

### 9: Physical and chemical properties

**Information on basic physical and chemical properties**

**General information**

**Appearance:**

- **Form:** Powder/crystalline/beads
- **Color:** White
- **Odor:** Odorless
- **Odor threshold:** Not determined.

**pH-value:** Not applicable.

**Change in condition**

- **Melting point/Melting range:** 963 °C (1765 °F)
- **Boiling point/Boiling range:** 1560 °C (2840 °F)
- **Sublimation temperature/start:** Not determined

**Flammability (solid, gaseous):** Not determined

**Ignition temperature:** Not determined

**Decomposition temperature:** Not determined

**Auto igniting:** Not determined.

**Danger of explosion:** Not determined.

**Explosion limits:**

- **Lower:** Not determined
- **Upper:** Not determined

**Vapor pressure:** Not applicable

**Density at 20 °C (68 °F):** 3.9 g/cm³ (32.546 lbs/gal)

**Relative density:** Not determined

**Vapor density:** Not applicable

**Evaporation rate:** Not applicable

**Solubility in / Miscibility with:**

- **Water at 25 °C (77 °F):** 370 g/l
- **Partition coefficient (n-octanol/water):** Not determined

**Viscosity:**

- **Dynamic:** Not applicable
- **Kinematic:** Not applicable

**Other information:** No further relevant information available.

### 10: Stability and reactivity

**Reactivity** No information known.

**Chemical stability** Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided** Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions** Reacts with strong oxidizing agents

**Incompatible materials:**

- Water/moisture

**Oxidizing agents**

**Hazardous decomposition products:**

- Barium oxide
- Hydrogen chloride (HCl)

### 11: Toxicological information

**Information on toxicological effects**

**Acute toxicity:** Harmful if inhaled.

**Toxic if swallowed:**

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

**LD/LC50 values that are relevant for classification:**

- **Oral LD50:** 150 mg/kg (mouse)
- **116 mg/kg (rat)**

**Skin irritation or corrosion:** May cause irritation

**Eye irritation or corrosion:** May cause irritation

**Sensitization:** No sensitizing effects known.

**Germ cell mutagenicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

**Carcinogenicity:**

- EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.
- ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.
(Contd. of page 3)

38.0.35

(inhalation) EPA-CBD: Carcinogenic potential cannot be determined.
(oral) EPA-NL: Not likely to be carcinogenic to humans.

Reproductive toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12: Ecological information
Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability: No further relevant information available.
Bioaccumulative potential: No further relevant information available.
Mobility in soil: No further relevant information available.
Additional ecological information:
General notes: Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Avoid transfer into the environment.
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

13: Disposal considerations
Waste treatment methods
Recommendation Consult state, local or national regulations to ensure proper disposal.
Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.

14: Transport information
UN-Number
DOT, IMDG, IATA UN1564

UN proper shipping name

DOT Barium compounds, n.o.s. (Barium chloride, anhydrous)
IMDG, IATA BARIUM COMPOUND, N.O.S. (Barium chloride, anhydrous)

Transport hazard class(es)

DOT

Class 6.1 Toxic substances.
Label 6.1
Class 6.1 (T5) Toxic substances
Label 6.1

IMDG, IATA

Class 6.1 Toxic substances.
Label 6.1

Packing group

DOT, IMDG, IATA III

Environmental hazards: Not applicable.
Special precautions for user Warming: Toxic substances
EMS Number: F-A,S-A

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15: Regulatory information
Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory. All components of this product are listed on the Canadian Domestic Substances List (DSL).
SARA Section 313 (specific toxic chemical listings)
10361-37-2 Barium chloride, anhydrous

California Proposition 65
Prop 65 - Chemicals known to cause cancer Substance is not listed.
Prop 65 - Developmental toxicity Substance is not listed.
Prop 65 - Developmental toxicity, female Substance is not listed.
Prop 65 - Developmental toxicity, male Substance is not listed.
Information about limitation of use: For use only by technically qualified individuals. Other regulations, limitations and prohibitive regulations
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
REACH - Pre-registered substances Substance is listed.
Product name: Barium chloride, ultra dry

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Health, Safety and Environmental Department.

Date of preparation / last revision 09/12/2014 / -

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)
Acute Tox. 3: Acute toxicity, Hazard Category 3
Acute Tox. 4: Acute toxicity, Hazard Category 4