

## 1 Identification

### Product identifier

**Product name:** Barium 2-methoxyethoxide, 10% w/v in 2-methoxyethanol

**Stock number:** 41256

**CAS Number:**

115503-13-4

**Index number:**

603-011-00-4

**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

Thermo Fisher Scientific Chemicals, 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 business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

**Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS08 Health hazard

Repr. 1A H360 May damage fertility or the unborn child.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

**Hazards not otherwise classified** No information known.

### Label elements

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

### Hazard pictograms



GHS02 GHS07 GHS08

**Signal word** Danger

### Hazard statements

H226 Flammable liquid and vapour.

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.

H360 May damage fertility or the unborn child.

### Precautionary statements

P201 Obtain special instructions before use.

P308+P313 IF exposed or concerned: Get medical advice/attention.

### WHMIS classification

B3 - Combustible liquid

D2A - Very toxic material causing other toxic effects



### Classification system

**HMIS ratings (scale 0-4)**

**(Hazardous Materials Identification System)**

HEALTH 2 Health (acute effects) = 2

FIRE 2 Flammability = 2

REACTIVITY 2 Physical Hazard = 2

### Other hazards

### Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

## 3 Composition/information on ingredients

### Chemical characterization: Substances

#### CAS# Description:

115503-13-4 Barium 2-methoxyethoxide, 10% w/v in 2-methoxyethanol

#### Identification number(s):

Index number: 603-011-00-4

**Product name: Barium 2-methoxyethoxide, 10% w/v in 2-methoxyethanol**

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**4 First-aid measures**

**Description of first aid measures**

**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** Seek medical treatment.

**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** CO2, sand, extinguishing powder. Do not use water.

**Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Barium oxide

**Advice for firefighters**

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

**Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.

**Methods and material for containment and cleaning up:**

Keep away from ignition sources.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

**Prevention of secondary hazards:** Keep away from ignition sources.

**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**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

**Information about protection against explosions and fires:**

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Keep ignition sources away.

**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 oxidizing agents.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**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:**

2-Methoxyethanol (ethylene glycol monomethyl ether)  
ppm

ACGIH TLV 5 (skin)

Austria MAK 5 (skin)

Belgium TWA 5 (skin)

Denmark TWA 5 (skin)

Finland TWA 25; 40-STEL (skin)

France VME 5 (skin)

Germany MAK 5 (skin)

Hungary TWA 15 mg/m3; 30 mg/m3-STEL (skin)

Japan OEL 5 (skin)

Korea TLV 5 (skin)

Netherlands MAC-TGG 5 (skin)

Norway TWA 5

Poland TWA 15 mg/m3; 60 mg/m3-STEL

Russia TWA 5

Sweden NGV 5; 10-KTV (skin)

Switzerland MAK-W 5; 10-KZG-W (skin)

United Kingdom TWA 5 (skin)

USA PEL 25 (skin)

Barium, and soluble compounds, as Ba

(Contd. on page 3)  
USA

**Product name: Barium 2-methoxyethoxide, 10% w/v in 2-methoxyethanol**

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mg/m<sup>3</sup>  
ACGIH TLV 0.5; Not classified as a human carcinogen  
Austria MAK 0.5  
Belgium TWA 0.5  
Denmark TWA 0.5  
Finland TWA 0.5  
Germany MAK 0.5 (total dust)  
Hungary 0.5-STEEL  
Ireland TWA 0.5  
Korea TLV 0.5  
Netherlands MAC-TGG 0.5  
Norway TWA 0.5  
Poland TWA 0.5; 1.5-STEEL  
Sweden TWA 0.5  
Switzerland MAK-W 0.5  
United Kingdom LTEL 0.5  
USA PEL 0.5

**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.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

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

**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.

**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:** Liquid  
**Color:** Light yellow  
**Odor:** Sweet  
**Odor threshold:** Not determined.

**pH-value:** Not determined.

**Change in condition**

**Melting point/Melting range:** -86.5 °C (-124 °F) (estimated)  
**Boiling point/Boiling range:** 124.5 °C (256 °F) (estimated)  
**Sublimation temperature / start:** Not determined

**Flash point:** 46 °C (115 °F) (estimated)  
**Flammability (solid, gaseous)** Not determined.  
**Ignition temperature:** 285 °C (545 °F) (estimated)  
**Decomposition temperature:** Not determined  
**Auto igniting:** Not determined.

**Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures is possible.

**Explosion limits:**

**Lower:** 2.4 Vol % (estimated)  
**Upper:** 20.6 Vol % (estimated)

**Vapor pressure:** Not determined

**Density:** Not determined

**Relative density** Not determined.

**Vapor density** Not determined.

**Evaporation rate** Not determined.

**Solubility in / Miscibility with**

**Water:** Decomposes

**Partition coefficient (n-octanol/water):** Not determined.

**Viscosity:**

**dynamic:** Not determined.

**kinematic:** Not determined.

**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**

Possible formation of peroxides.

Reacts with strong oxidizing agents

**Conditions to avoid** No further relevant information available.

**Incompatible materials:**

Oxidizing agents

Oxygen

**Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Barium oxide

USA

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Product name: **Barium 2-methoxyethoxide, 10% w/v in 2-methoxyethanol**

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11 Toxicological information

Information on toxicological effects

Acute toxicity:

Harmful if inhaled.

Harmful in contact with skin.

Harmful if swallowed.

Danger through skin absorption.

**LD/LC50 values that are relevant for classification:** No data

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

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

**Sensitization:** No sensitizing effects known.

**Germ cell mutagenicity:** No effects known.

**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.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

**Reproductive toxicity:** May damage fertility or the unborn child.

**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.

**Other information (about experimental toxicology):** Reproductive effects have been observed on tests with laboratory animals.

**Subacute to chronic toxicity:**

Barium compounds may cause severe gastroenteritis, including abdominal pain, vomiting and diarrhea, tremors, faintness, paralysis of the arms and legs, and slow or irregular heartbeat. Severe cases may produce collapse and death due to respiratory failure. Soluble barium compounds are more likely to cause these effects than insoluble compounds. Inhalation of fumes may cause sore throat, coughing, labored breathing, and irritation of the respiratory tract as well as the above symptoms.

2-Methoxyethanol (ethylene glycol monomethyl ether) has caused birth defects, bone marrow damage, anemia, fetotoxicity, immunosuppression and damage to the male reproductive system. Acute effects can include nausea, headache and vomiting. Chronic exposure also causes kidney, liver, lung, central nervous system and immune system damage.

**Subacute to chronic toxicity:** No effects known.

**Subacute to chronic toxicity:**

Glycol ethers may cause irritation to the skin, lungs, and eyes. Congestion and edema in the lungs has been reported. Liver and kidney damage has been reported.

Tests with animals have resulted in birth defects, testicular damage and sperm damage. Exposure may cause blood and central nervous system effects. Severe aplastic anemia, macrocytic anemia, and blood platelet reductions have been reported. Central nervous system effects include drowsiness, fatigue, tremors and mental dullness.

**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 product to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Danger to drinking water if even small quantities leak into the ground.

Avoid transfer into the environment.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

13 Disposal considerations

Waste treatment methods

**Recommendation** Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

**Recommendation:** Disposal must be made according to official regulations.

14 Transport information

UN-Number

DOT, IMDG, IATA

UN1188

UN proper shipping name

DOT

IMDG, IATA

Ethylene glycol monomethyl ether  
ETHYLENE GLYCOL MONOMETHYL ETHER

Transport hazard class(es)

DOT



Class

Label

Class

Label

IMDG, IATA

3 Flammable liquids.

3

3 (F1) Flammable liquids

3



Class

Label

3 Flammable liquids.

3

Packing group

DOT, IMDG, IATA

III

Environmental hazards:

Not applicable.

Special precautions for user

Warning: Flammable liquids

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USA

|                                                                                                |                                                  |
|------------------------------------------------------------------------------------------------|--------------------------------------------------|
| <b>Product name: Barium 2-methoxyethoxide, 10% w/v in 2-methoxyethanol</b>                     |                                                  |
| (Contd. of page 4)                                                                             |                                                  |
| <b>EMS Number:</b>                                                                             | F-E,S-D                                          |
| <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> Not applicable. |                                                  |
| <b>Transport/Additional information:</b>                                                       |                                                  |
| <b>DOT</b>                                                                                     |                                                  |
| <b>Marine Pollutant (DOT):</b>                                                                 | No                                               |
| <b>UN "Model Regulation":</b>                                                                  | UN1188, Ethylene glycol monomethyl ether, 3, III |

|                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>15 Regulatory information</b>                                                                                                                                                                                                                                                                                                                                                                                                 |  |
| <b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b>                                                                                                                                                                                                                                                                                                                            |  |
| <b>GHS label elements</b> The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)                                                                                                                                                                                                                                                                                                                        |  |
| <b>Hazard pictograms</b>                                                                                                                                                                                                                                                                                                                                                                                                         |  |
|                                                                                                                                                                                                                                                                                                                                                  |  |
| GHS02 GHS07 GHS08                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| <b>Signal word</b> Danger                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Hazard statements</b>                                                                                                                                                                                                                                                                                                                                                                                                         |  |
| H226 Flammable liquid and vapour.                                                                                                                                                                                                                                                                                                                                                                                                |  |
| H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.                                                                                                                                                                                                                                                                                                                                                         |  |
| H360 May damage fertility or the unborn child.                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <b>Precautionary statements</b>                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| P201 Obtain special instructions before use.                                                                                                                                                                                                                                                                                                                                                                                     |  |
| P308+P313 IF exposed or concerned: Get medical advice/attention.                                                                                                                                                                                                                                                                                                                                                                 |  |
| <b>National regulations</b>                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only. This product must be used by or directly under the supervision of a technically qualified individual as defined by TSCA. This product must not be used for commercial purposes or in formulations for commercial purposes. |  |
| <b>SARA Section 313 (specific toxic chemical listings)</b>                                                                                                                                                                                                                                                                                                                                                                       |  |
| 115503-13-4 Barium 2-methoxyethoxide, 10% w/v in 2-methoxyethanol                                                                                                                                                                                                                                                                                                                                                                |  |
| <b>California Proposition 65</b>                                                                                                                                                                                                                                                                                                                                                                                                 |  |
| <b>Prop 65 - Chemicals known to cause cancer</b> Substance is not listed.                                                                                                                                                                                                                                                                                                                                                        |  |
| <b>Prop 65 - Developmental toxicity</b> Substance is not listed.                                                                                                                                                                                                                                                                                                                                                                 |  |
| <b>Prop 65 - Developmental toxicity, female</b> Substance is not listed.                                                                                                                                                                                                                                                                                                                                                         |  |
| <b>Prop 65 - Developmental toxicity, male</b> Substance is not listed.                                                                                                                                                                                                                                                                                                                                                           |  |
| <b>Information about limitation of use:</b>                                                                                                                                                                                                                                                                                                                                                                                      |  |
| For use only by technically qualified individuals.                                                                                                                                                                                                                                                                                                                                                                               |  |
| This product contains barium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.                                                                                                                                                                                                                                                         |  |
| This product contains a glycol ether and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.                                                                                                                                                                                                                                                 |  |
| <b>Other regulations, limitations and prohibitive regulations</b>                                                                                                                                                                                                                                                                                                                                                                |  |
| <b>Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.</b> Substance is not listed.                                                                                                                                                                                                                                                                                                     |  |
| <b>The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.</b>                                                                                                                                                                                                                                  |  |
| Substance is not listed.                                                                                                                                                                                                                                                                                                                                                                                                         |  |
| <b>Annex XIV of the REACH Regulations (requiring Authorisation for use)</b> Substance is not listed.                                                                                                                                                                                                                                                                                                                             |  |
| <b>Chemical safety assessment:</b> A Chemical Safety Assessment has not been carried out.                                                                                                                                                                                                                                                                                                                                        |  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>16 Other information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
| 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. |  |
| <b>Department issuing SDS:</b> Global Marketing Department                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| <b>Date of preparation / last revision</b> 11/24/2015 / -                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <b>Abbreviations and acronyms:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)                                                                                                                                                                                                                                                                                         |  |
| IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)                                                                                                                                                                                                                                                                                                                                                                               |  |
| ICAO: International Civil Aviation Organization                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)                                                                                                                                                                                                                                                                                                                                                                                   |  |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| IATA: International Air Transport Association                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| ACGIH: American Conference of Governmental Industrial Hygienists (USA)                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| OSHA: Occupational Safety and Health Administration (USA)                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| NTP: National Toxicology Program (USA)                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| IARC: International Agency for Research on Cancer                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| EPA: Environmental Protection Agency (USA)                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |