SECTION 1: Identification

1.1. Identification

Product name: BARIUM ISOPROPOXIDE
Product code: AKB120
Product form: Substance
Physical state: Solid
Formula: C6H14BaO2
Synonyms: BARIUM 2-PROPOXIDE
Chemical family: METAL COMPOUND

1.2. Recommended use and restrictions on use

Recommended use: Chemical intermediate

1.3. Supplier

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazard(s) Identification

2.1. Classification of the substance or mixture

GHS-US classification

<table>
<thead>
<tr>
<th>Flammable solids Category 2</th>
<th>H228 - Flammable solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-heating substances and mixtures Category 2</td>
<td>H252 - Self-heating in large quantities; may catch fire</td>
</tr>
<tr>
<td>Skin corrosion/irritation Category 1B</td>
<td>H314 - Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation Category 1</td>
<td>H318 - Causes serious eye damage</td>
</tr>
</tbody>
</table>

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

Hazard pictograms (GHS US):

Signal word (GHS US): Danger

Hazard statements (GHS US):

- H228 - Flammable solid
- H252 - Self-heating in large quantities; may catch fire
- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage

Precautionary statements (GHS US):

- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P210 - Keep away from heat, open flames, sparks. - No smoking.
- P235+P410 - Keep cool. Protect from sunlight
- P240 - Ground/Bond container and receiving equipment
- P241 - Use explosion-proof electrical equipment
- P260 - Do not breathe dust.
- P264 - Wash hands thoroughly after handling.
- P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
- P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower
- 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
- P310 - Immediately call a doctor
- P311 - Specific treatment (see first aid instructions on this label)
- P363 - Wash contaminated clothing before reuse.
- P370+P378 - In case of fire: Use dry chemical, dry soda ash to extinguish.
- P405 - Store locked up.
- P407 - Maintain air gap between stacks/pallets.
2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Name</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono-constituent</td>
<td>BARIUM ISOPROPOXIDE</td>
<td>24363-37-9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
</table>
| Barium isoprooxide    | (CAS-No.) 24363-37-9 | 95 - 100 | Flam. Sol. 2, H228  
                        |                    |      | Self-heat. 2, H252          
                        |                    |      | Skin Corr. 1B, H314         
                        |                    |      | Eye Dam. 1, H318             |

Full text of hazard classes and H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

- **First-aid measures general**: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

- **First-aid measures after inhalation**: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention.

- **First-aid measures after skin contact**: Wash with plenty of soap and water. Get medical advice/attention.

- **First-aid measures after eye contact**: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

- **First-aid measures after ingestion**: Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

- **Symptoms/effects**: Causes severe skin burns and eye damage.

- **Symptoms/effects after inhalation**: May cause irritation to the respiratory tract. Barium vapors and dust have moderate toxicity.

- **Symptoms/effects after skin contact**: Causes (severe) skin burns.

- **Symptoms/effects after eye contact**: Causes serious eye damage.

- **Symptoms/effects after ingestion**: In general, soluble barium salts, such as the chloride and sulfide, have been reported as poisonous when taken orally. The insoluble salt, barium sulfate, is used in radiography and is not acutely toxic.

4.3. Immediate medical attention and special treatment, if necessary
No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

- **Suitable extinguishing media**: Dry chemical. Dry soda ash.
- **Unsuitable extinguishing media**: Do not use straight streams.

5.2. Specific hazards arising from the chemical

- **Fire hazard**: Flammable solid. Self-heating in large quantities; may catch fire. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Special protective equipment and precautions for fire-fighters

- **Firefighting instructions**: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.
- **Protection during firefighting**: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- **Protective equipment**: Wear protective equipment as described in Section 8.
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Provide local exhaust or general room ventilation to minimize exposure to dust.

Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Store locked up. Keep cool. Protect from sunlight.
Storage area: Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Barium isopropoxide (24363-37-9) | ACGIH | ACGIH TWA (mg/m³) | 0.5 mg/m³ soluble compounds as Ba |

8.2. Appropriate engineering controls

Appropriate engineering controls: Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Physical state | Solid |
| Appearance     | Crystals. |
| Molecular mass | 255.52 g/mol |
| Color          | Off-white to amber. |
| Odor           | Characteristic. |
| Odor threshold | No data available |
| Refractive index | No data available |
BARIUM ISOPROPOXIDE
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
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</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
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<tr>
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<td>&gt; 130 °C decomposes</td>
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<tr>
<td>Freezing point</td>
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</tr>
<tr>
<td>Boiling point</td>
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</tr>
<tr>
<td>Flash point</td>
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<tr>
<td>Auto-ignition temperature</td>
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</tr>
<tr>
<td>Decomposition temperature</td>
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<tr>
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<tr>
<td>Vapor pressure</td>
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<tr>
<td>Log Kow</td>
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<td>Viscosity, dynamic</td>
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<tr>
<td>Explosive properties</td>
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<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable in sealed containers.

10.3. Possibility of hazardous reactions
Decomposes in contact with moist air. Material decomposes slowly in contact with air by reaction with water, liberating isopropanol and barium hydroxide.

10.4. Conditions to avoid
Heat. Open flame. Sparks.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified
Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified
Aspiration hazard : Not classified
Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Barium vapors and dust have moderate toxicity.
Symptoms/effects after skin contact : Causes (severe) skin burns.
Symptoms/effects after eye contact: Causes serious eye damage.

Symptoms/effects after ingestion: In general, soluble barium salts, such as the chloride and sulfide, have been reported as poisonous when taken orally. The insoluble salt, barium sulfate, is used in radiography and is not acutely toxic.

Reason for classification: Expert judgment

### SECTION 12: Ecological information

#### 12.1. Toxicity
No additional information available

#### 12.2. Persistence and degradability
No additional information available

#### 12.3. Bioaccumulative potential
No additional information available

#### 12.4. Mobility in soil
No additional information available

#### 12.5. Other adverse effects
Effect on the ozone layer: No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

- **Sewage disposal recommendations**: Do not dispose of waste into sewer.
- **Product/Packaging disposal recommendations**: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
- **Ecology - waste materials**: Avoid release to the environment.

### SECTION 14: Transport information

#### 14.1. UN number

- **UN-No.(DOT)**: 3205
- **DOT NA no.**: UN3205

#### 14.2. UN proper shipping name

- **Transport document description**: UN3205 Alkaline earth metal alcoholates, n.o.s. (BARIUM ISOPROPOXIDE), 4.2, III
- **Proper Shipping Name (DOT)**: Alkaline earth metal alcoholates, n.o.s. (BARIUM ISOPROPOXIDE)
- **Class (DOT)**: 4.2 - Class 4.2 - Spontaneously combustible material 49 CFR 173.124
- **Packing group (DOT)**: III - Minor Danger
- **Hazard labels (DOT)**: 4.2 - Spontaneously combustible

#### DOT Packaging Non Bulk (49 CFR 173.xxx)

- 213

#### DOT Packaging Bulk (49 CFR 173.xxx)

- 241

#### DOT Packaging Exceptions (49 CFR 173.xxx)

- None

#### DOT Symbols

- G - Identifies PSN requiring a technical name

#### 14.3. Additional information

- **Emergency Response Guide (ERG) Number**: 135
- **Other information**: No supplementary information available.

#### Transport by sea

- **DOT Vessel Stowage Location**: B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
BARIUM ISOPROPOXIDE
Safety Data Sheet

Air transport
DOT Quantity Limitations Passenger aircraft/rail : 25 kg
(49 CFR 173.27)
DOT Quantity Limitations Cargo aircraft only (49 : 100 kg
CFR 175.75)

SECTION 15: Regulatory information
15.1. US Federal regulations
BARIUM ISOPROPOXIDE (24363-37-9)
TSCA Exemption/Exclusion
CAUTION: This material is supplied for research and development
purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and
must meet the requirements of the exemption, including supervision by a
"technically qualified individual" as defined by 40 CFR 720.3(ee). The use
of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is
not permitted in the United States.

Barium isopropoxide (24363-37-9)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
CANADA
No additional information available

EU-Regulations
No additional information available

National regulations
Barium isopropoxide (24363-37-9)
Japanese Poisonous and Deleterious Substances Control Law

15.3. US State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental
and/or reproductive harm

SECTION 16: Other information
Full text of H-phrases:

<table>
<thead>
<tr>
<th>H228</th>
<th>Flammable solid</th>
</tr>
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<tbody>
<tr>
<td>H252</td>
<td>Self-heating in large quantities; may catch fire</td>
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<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
</tbody>
</table>

Abbreviations and acronyms:
Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm:
millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV:
threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC:
International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating
Health
2 Moderate Hazard - Temporary or minor injury may occur

Flammability
2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient
temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F
but below 200 F. (Classes II & IIIA)

Physical
1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high
temperatures and pressures. Materials may react non-violently with water or undergo
dangerous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.
Date of issue: 12/28/2016 Version: 1.0
BARIUM ISOPROPOXIDE
Safety Data Sheet

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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