1. Identification

Product Name 2-Mercaptobenzimidazole

Cat No. : A18350

CAS-No 583-39-1

Synonyms 2-Benzimidazolethiol

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
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

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
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Acute oral toxicity</th>
<th>Skin Sensitization</th>
<th>Specific target organ toxicity - (repeated exposure)</th>
<th>Target Organs - Thyroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Category 3</td>
<td>Category 1</td>
<td>Category 2</td>
<td></td>
</tr>
</tbody>
</table>

Label Elements

Signal Word
Danger

Hazard Statements
Toxic if swallowed
May cause an allergic skin reaction
May cause damage to organs through prolonged or repeated exposure
Precautionary Statements

Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray

Response
Get medical attention/advice if you feel unwell

Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse

Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth

Storage
Store locked up

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Mercaptobenzimidazole</td>
<td>583-39-1</td>
<td>&gt; 98</td>
</tr>
</tbody>
</table>

4. First-aid measures

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

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation
Remove to fresh air. Get medical attention immediately if symptoms occur.

Ingestion
Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms and effects
May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician
Treat symptomatically
5. Fire-fighting measures

Suitable Extinguishing Media
- Water spray.
- Carbon dioxide (CO$_2$).
- Dry chemical.
- Chemical foam.

Unsuitable Extinguishing Media
- No information available

Flash Point
- > 250 °C / > 482 °F

Autoignition Temperature
- 480 °C / 896 °F

Explosion Limits
- Upper: No data available
- Lower: No data available

Sensitivity to Mechanical Impact
- No information available

Sensitivity to Static Discharge
- No information available

Specific Hazards Arising from the Chemical
- Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
- Nitrogen oxides (NOx).
- Carbon monoxide (CO).
- Carbon dioxide (CO$_2$).
- Sulfur oxides.
- Hydrogen cyanide (hydrocyanic acid).
- Sulfides.

Protective Equipment and Precautions for Firefighters
- As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

Personal Precautions
- Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions
- Should not be released into the environment.

Methods for Containment and Clean Up
- Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling
- Wear personal protective equipment/facemask. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage
- Keep in a dry, cool and well-ventilated place. Refer product specification and/or product label for specific storage temperature requirement. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines
- This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures
- None under normal use conditions.

Personal Protective Equipment
9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Powder Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Beige</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>5.65 (@ 30°C ) 1% aq. solution</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>302 - 307 °C / 575.6 - 584.6 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>451 °C / 843.8 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt; 250 °C / &gt; 482 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability or explosive limits Upper</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability or explosive limits Lower</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>0 mmHg @ 25°C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility</td>
<td>2.6 g/L @ 23 °C</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>480 °C / 896 °F</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>C7H6N2S</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>150.2</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactive Hazard</td>
<td>None known, based on information available</td>
</tr>
<tr>
<td>Stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>Avoid dust formation. Incompatible products.</td>
</tr>
<tr>
<td>Incompatible Materials</td>
<td>Strong oxidizing agents, Strong bases</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2), Sulfur oxides, Hydrogen cyanide (hydrocyanic acid), Sulfides</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>No information available.</td>
</tr>
<tr>
<td>Hazardous Reactions</td>
<td>None under normal processing.</td>
</tr>
</tbody>
</table>

11. Toxicological information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral (rat)</th>
<th>LD50 Dermal (rat)</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Mercaptobenzimidazole</td>
<td>LD50 = 300 mg/kg</td>
<td>LD50 &gt;2000 mg/kg bw</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Eye/face Protection  
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection  
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection  
No protective equipment is needed under normal use conditions.

Hygiene Measures  
Handle in accordance with good industrial hygiene and safety practice.
2-Mercaptobenzimidazole

Revision Date 14-Feb-2020

Toxicologically Synergistic Products
Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation
No information available

Sensitization
May cause sensitization by skin contact

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Mercaptobenzimidazole</td>
<td>583-39-1</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects
No information available

Reproductive Effects
No information available.

Developmental Effects
No information available.

Teratogenicity
No information available.

STOT - single exposure
None known

STOT - repeated exposure
Thyroid

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability
Soluble in water. Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation
No information available.

Mobility
Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Packing Group</th>
<th>TDGL</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2811</td>
<td>TOXIC SOLIDS, ORGANIC, N.O.S.</td>
<td>6.1</td>
<td>III</td>
<td></td>
</tr>
</tbody>
</table>

UN-No

<table>
<thead>
<tr>
<th>Proper Shipping Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxic solid, organic, n.o.s.</td>
</tr>
</tbody>
</table>
15. Regulatory information

United States of America Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active/Inactive</th>
<th>TSCA - EPA Regulatory Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Mercaptobenzimidazole</td>
<td>583-39-1</td>
<td>X</td>
<td>ACTIVE</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Mercaptobenzimidazole</td>
<td>583-39-1</td>
<td>X</td>
<td>-</td>
<td>209-502-6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-10607</td>
</tr>
</tbody>
</table>

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations Not applicable

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland This product does not contain any DHS chemicals.
16. Other information

Prepared By
Health, Safety and Environmental Department
Email: tech@alfa.com
www.alfa.com

Revision Date 14-Feb-2020
Print Date 14-Feb-2020

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of SDS