Sodium methoxide

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Description: Sodium methoxide
Cat No.: L05673
Synonyms: Sodium methylate
CAS-No: 124-41-4
Molecular Formula: C H₃ Na O

Supplier
Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham, Lancashire LA3 2XY
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

Emergency Telephone Number
Call Carechem 24 at
+44 (0) 1865 407333 (English only);
+44 (0) 1235 239670 (Multi-language)

E-mail address
uktech@alfa.com
www.alfa.com
Product Safety Department

Recommended Use
Laboratory chemicals.

Uses advised against
No Information available

SECTION 2. HAZARD IDENTIFICATION

Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable solids</td>
<td>Category 1</td>
</tr>
<tr>
<td>Self-heating substances/mixtures</td>
<td>Category 1</td>
</tr>
<tr>
<td>Substances/mixtures corrosive to metal</td>
<td>Category 1</td>
</tr>
<tr>
<td>Acute Oral Toxicity</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>Category 1 A</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Label Elements
Signal Word  Danger

Hazard Statements
H225 - Highly flammable liquid and vapor
H228 - Flammable solid
H251 - Self-heating: may catch fire
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H302 - Harmful if swallowed

Precautionary Statements
Prevention
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P234 - Keep only in original container
P235 + P410 - Keep cool. Protect from sunlight
P240 - Ground/bond container and receiving equipment
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

Response
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position 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 POISON CENTER or doctor/ physician
P330 - Rinse mouth
P390 - Absorb spillage to prevent material damage

Storage
P402 - Store in a dry place
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P406 - Store in corrosive resistant polypropylene container with a resistant inliner
P407 - Maintain air gap between stacks/ pallets
P420 - Store away from other materials

Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards
Vapors may cause flash fire or explosion. Highly flammable. Self-heating; may catch fire. Combustible material. May be corrosive to metals. Reacts violently with water. Water reactive. Dust can form an explosive mixture in air.

Health Hazards
Corrosive. Causes skin and eye burns. Causes serious eye damage. Harmful if swallowed.

Environmental hazards
Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Reacts violently with water. Is not likely mobile in the environment. Reacts with water. Reacts violently with water.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
</table>

Page 2
SECTION 4. FIRST AID MEASURES

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

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation
Move to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. If not breathing, give artificial respiration.

Ingestion
Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects
Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Self-Protection of the First Aider
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician
Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Dry chemical, soda ash, lime or sand.

Extinguishing media which must not be used for safety reasons
Water.

Specific Hazards Arising from the Chemical

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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. Evacuate personnel to safe areas. Remove all sources of ignition. Avoid dust formation. Take precautionary measures against static discharges. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions
Avoid release to the environment. See Section 12 for additional ecological information.
Methods for Containment and Clean Up
Remove all sources of ignition. Do not expose spill to water. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling
Use only under a chemical fume hood. Wear personal protective equipment. Do not breathe vapors/dust. Do not get in eyes, on skin, or on clothing. Do not ingest. Use spark-proof tools and explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not allow contact with water.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep away from water. Keep under nitrogen. Flammables area. Corrosives area.

Specific Use(s)
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>China Ceiling: 2 mg/m³</th>
<th>Taiwan TWA: 2 mg/m³</th>
<th>Hong Kong Ceiling: 2 mg/m³</th>
<th>The United Kingdom 2 mg/m³ STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV Ceiling: 2 mg/m³</th>
<th>OSHA PEL (Vacated) Ceiling: 2 mg/m³</th>
<th>NIOSH IDLH TWA: 2 mg/m³</th>
<th>European Union Ceiling: 2 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Exposure Controls

Engineering Measures
Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection
Goggles (European standard - EN 166)

Hand Protection
Protective gloves

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neoprene</td>
<td>See manufacturers recommendations</td>
<td>-</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
</tbody>
</table>

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Large scale/emergency use**

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Particulates filter conforming to EN 143

**Small scale/Laboratory use**

Maintain adequate ventilation Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

No information available.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Light yellow</td>
</tr>
<tr>
<td><strong>Physical State</strong></td>
<td>Powder Solid</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Odorless</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>13 @ 20 °C</td>
</tr>
<tr>
<td><strong>Melting Point/Range</strong></td>
<td>126 °C / 258.8 °F</td>
</tr>
<tr>
<td><strong>Softening Point</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Boiling Point/Range</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flammability (solid,gas)</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Explosion Limits</strong></td>
<td><strong>Lower</strong> 7.3</td>
</tr>
<tr>
<td><strong>Upper</strong></td>
<td>36</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>50 mmHg @ 20 °C</td>
</tr>
<tr>
<td><strong>Vapor Density</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Specific Gravity / Density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Bulk Density</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Water Solubility</strong></td>
<td>Reacts violently with water</td>
</tr>
<tr>
<td><strong>Solubility in other solvents</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Partition Coefficient (n-octanol/water)</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Component**

<table>
<thead>
<tr>
<th>Sodium methoxide</th>
<th>$\log P_{OW}$</th>
</tr>
</thead>
</table>

| Autoignition Temperature | 70 °C / 158 °F |
| Decomposition Temperature | No data available |
| **Viscosity**           | Not applicable |
| **Explosive Properties** | No information available |
| **Oxidizing Properties** | No information available |

**Molecular Formula**

C H3 Na O

**Molecular Weight**

54.02

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**SECTION 10. STABILITY AND REACTIVITY**

No data available.
Stability

Water reactive. Moisture sensitive. Air sensitive.

Hazardous Reactions

Reacts violently with water.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to Avoid

Temperatures above 65°C. Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Incompatible products. Exposure to moist air or water.

Materials to avoid


Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Sodium oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Product Information

(a) acute toxicity:

<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>Sodium methoxide</td>
<td>1687 mg/kg</td>
<td>&gt;2000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>140 - 340 mg/kg</td>
<td>1350 mg/kg ( Rabbit )</td>
<td></td>
</tr>
<tr>
<td>Sodium carbonate</td>
<td>2800 mg/kg ( Rat )</td>
<td>&gt; 2000 mg/kg (rabbit)</td>
<td>2.3 mg/l 2h ( Rat )</td>
</tr>
</tbody>
</table>

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory Based on available data, the classification criteria are not met
Skin Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Based on available data, the classification criteria are not met
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Based on available data, the classification criteria are not met

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Not applicable

Solid

Symptoms / effects, both acute and delayed

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.
Ecotoxicity effects

This product contains the following substance(s) which are hazardous for the environment. Reacts with water so no ecotoxicity data for the substance is available.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Fish</th>
<th>Water Flea</th>
<th>Freshwater Algae</th>
<th>Microtox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium methoxide</td>
<td>LC50: = 346 mg/L, 48h static (Leuciscus idus)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>LC50: = 45.4 mg/L, 96h static (Oncorhynchus mykiss)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sodium carbonate</td>
<td>Lepomis macrochirus: LC50: 300 mg/L/96h Gambusia affinis: LC50: 740 mg/L/96h</td>
<td>EC50: = 265 mg/L, 48h (Daphnia magna)</td>
<td>EC50: = 242 mg/L, 120h (Nitzschia)</td>
<td>-</td>
</tr>
</tbody>
</table>

Persistence and Degradability

**Persistence**
Reacts violently with water, Persistence is unlikely, based on information available.

**Degradability**
Decomposes in contact with water, Reacts with water.

**Degradation in sewage treatment plant**
Water reactive. Neutralization is normally necessary before waste water is discharged into water treatment plants. No information available. Reacts violently with water.

Bioaccumulative Potential

Product does not bioaccumulate due to reaction with water; Bioaccumulation is unlikely

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
<th>Bioconcentration factor (BCF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium methoxide</td>
<td>-0.75</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Mobility in soil

Reacts with water Reacts violently with water Is not likely mobile in the environment Is predicted to have low mobility in the environment

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from Residues / Unused Products
Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging
Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

Other Information
Waste codes should be assigned by the user based on the application for which the product was used. Do not dispose of waste into sewer. Can be incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Solutions with high pH-value must be neutralized before discharge.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport

UN-No | UN1431
Proper Shipping Name | SODIUM METHYLATE MIXTURE
Hazard Class | 4.2
Subsidiary Hazard Class | 8
Packing Group | II
IMDG/IMO

UN-No: UN1431
Proper Shipping Name: SODIUM METHYLATE MIXTURE
Hazard Class: 4.2
Subsidiary Hazard Class: 8
Packing Group: II

IATA

UN-No: UN1431
Proper Shipping Name: SODIUM METHYLATE MIXTURE
Hazard Class: 4.2
Subsidiary Hazard Class: 8
Packing Group: II

Special Precautions for User: No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of dangerous goods GB 12268-2012</th>
<th>Taiwan Toxic Chemical Substances Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium methoxide</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>204-699-5</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>215-185-5</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sodium carbonate</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>207-838-8</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By: Health, Safety and Environmental Department
Creation Date: 29-May-2013
Revision Date: 22-Mar-2018

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Chemical incident response training.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

Legend
Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

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.