1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 3-Aminopropyl functionalized silica
Product Number : 660442
Brand : Aldrich
Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant

Target Organs
Nerves., Liver, Heart, Eyes, Kidney, Central nervous system, Cardiovascular system., Gastrointestinal tract, Lungs

GHS Classification
Flammable liquids (Category 2)
Acute toxicity, Oral (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 1)
Specific target organ toxicity - single exposure (Category 3)
Specific target organ toxicity - repeated exposure, Inhalation (Category 2)

GHS Label elements, including precautionary statements

Pictogram

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Danger</th>
</tr>
</thead>
</table>

Hazard statement(s)
- H225 : Highly flammable liquid and vapour.
- H303 : May be harmful if swallowed.
- H315 : Causes skin irritation.
- H319 : Causes serious eye irritation.
- H335 : May cause respiratory irritation.
- H370 : Causes damage to organs.
- H373 : May cause damage to organs through prolonged or repeated exposure if inhaled.

Precautionary statement(s)
- P210 : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard: 2
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 3
Reactivity Hazard: 0

Potential Health Effects

Inhalation Toxic if inhaled. Causes respiratory tract irritation.
Skin Toxic if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>Flam. Liq. 2; H225</td>
<td>60 - 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>64-17-5</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-578-6</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>603-002-00-5</td>
<td></td>
</tr>
<tr>
<td>Methanol</td>
<td>Flam. Liq. 2; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2; STOT SE 1; H225, H301 + H311 + H331, H315, H319, H370</td>
<td>1 - 5 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>67-56-1</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-659-6</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>603-001-00-X</td>
<td></td>
</tr>
<tr>
<td>2-Propanol</td>
<td>Flam. Liq. 2; Eye Irrit. 2; STOT SE 3; H225, H319, H336</td>
<td>1 - 5 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>67-63-0</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-661-7</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>603-117-00-0</td>
<td></td>
</tr>
<tr>
<td>Quartz</td>
<td>STOT RE 2; H373</td>
<td>1 - 5 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>14808-60-7</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>238-878-4</td>
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</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, silicon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>TWA</td>
<td>1,000 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td>TWA</td>
<td>1,000 ppm 1,900 mg/m3</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1,000 ppm 1,900 mg/m3</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
</tbody>
</table>

The value in mg/m3 is approximate.
<table>
<thead>
<tr>
<th>Substance</th>
<th>TWA</th>
<th>STEL</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol 67-56-1</td>
<td>1,000 ppm 1,900 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA 200 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEL 250 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA 200 ppm 260 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEL 250 ppm 325 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA 200 ppm 260 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
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<td>STEL 250 ppm 325 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA 200 ppm 260 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEL 250 ppm 325 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td>2-Propanol 67-63-0</td>
<td>TWA 200 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<tr>
<td></td>
<td>STEL 400 ppm</td>
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<td></td>
<td>TWA 400 ppm 980 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
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</tr>
<tr>
<td></td>
<td>STEL 500 ppm 1,225 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
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<tr>
<td></td>
<td>TWA 400 ppm 980 mg/m³</td>
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<td>TWA 400 ppm 980 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STEL 500 ppm 1,225 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
</tr>
<tr>
<td>Quartz 14808-60-7</td>
<td>TWA 0.025 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA 0.025 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
</tbody>
</table>
Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form liquid
Colour no data available

Safety data
pH no data available
Melting point/freezing point no data available
Boiling point 75 - 78 °C (167 - 172 °F)
Flash point 4.4 °C (39.9 °F) - closed cup
Ignition temperature no data available
Autoignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapour pressure no data available
Density 0.836 g/cm3 at 25 °C (77 °F)
Water solubility no data available
Partition coefficient: n-octanol/water no data available
Relative vapour density no data available
Odour no data available
Odour Threshold no data available
Evaporation rate no data available
10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid
Aluminium, Acids, Oxidizing agents, Alkali metals, Halogenated compounds, Ammonia, Acid chlorides, Acid anhydrides, Reducing agents, Hydrogen fluoride, Peroxides

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, silicon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
no data available

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes: no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: 1 - Group 1: Carcinogenic to humans (Quartz)
IARC: 1 - Group 1: Carcinogenic to humans (Quartz)
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (2-Propanol)
NTP: Known to be human carcinogen (Quartz)
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

- **Inhalation**: Toxic if inhaled. Causes respiratory tract irritation.
- **Ingestion**: Toxic if swallowed.
- **Skin**: Toxic if absorbed through skin. Causes skin irritation.
- **Eyes**: Causes eye irritation.

**Signs and Symptoms of Exposure**
Central nervous system depression, narcosis, Nausea, Dizziness, Damage to the heart. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**
no data available

**Additional Information**
RTECS: Not available

12. ECOLOGICAL INFORMATION

**Toxicity**
no data available

**Persistence and degradability**
no data available

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
no data available

13. DISPOSAL CONSIDERATIONS

**Product**
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**
Dispose of as unused product.

14. TRANSPORT INFORMATION

**DOT (US)**
- UN number: 1170
- Class: 3
- Packing group: II
- Proper shipping name: Ethanol solutions
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IMDG**
- UN number: 1170
- Class: 3
- Packing group: II
- EMS-No: F-E, S-D
Proper shipping name: ETHANOL SOLUTION
Marine pollutant: No

IATA
UN number: 1170  Class: 3  Packing group: II
Proper shipping name: Ethanol solution

15. REGULATORY INFORMATION

OSHA Hazards
Flammable liquid, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>1987-01-01</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
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</thead>
<tbody>
<tr>
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<tr>
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<td>2007-03-01</td>
</tr>
<tr>
<td>2-Propanol</td>
<td>67-63-0</td>
<td>1987-01-01</td>
</tr>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>2007-03-01</td>
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</tbody>
</table>

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
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<th>CAS-No.</th>
<th>Revision Date</th>
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<tr>
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<td>2007-03-01</td>
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</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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</tr>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>1988-10-01</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

- Acute Tox.  Acute toxicity
- Eye Irrit.  Eye irritation
- Flam. Liq.  Flammable liquids
- H225  Highly flammable liquid and vapour.
- H301 + H311 + Toxic if swallowed, in contact with skin or if inhaled
- H331
- H315  Causes skin irritation.
- H319  Causes serious eye irritation.
H336       May cause drowsiness or dizziness.
H370       Causes damage to organs.
H373       May cause damage to organs through prolonged or repeated exposure if inhaled.
Skin Irrit. Skin irritation
STOT RE    Specific target organ toxicity - repeated exposure
STOT SE    Specific target organ toxicity - single exposure

Further information
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