1. PRODUCT AND COMPANY IDENTIFICATION
Product Name: Di(hydrogenated tallow)dimethylammonium chloride, Dimethyldioctadecylammonium chloride, mixture of homologs, Quaternium-18
Product Number: sc-257099
Supplier: Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, CA 95060
800.457.3801 or 831.457.3800
Emergency: ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255 (1-800-CHEMCALL) or call +613 9573 3112

2. HAZARDS IDENTIFICATION
Emergency Overview
OSHA Hazards
Flammable liquid, Target Organ Effect, Irritant
Target Organs
Nerves, Kidney, Cardiovascular system, Gastrointestinal tract, Liver
GHS Classification
Flammable liquids (Category 3)
Skin irritation (Category 3)
Serious eye damage (Category 1)
Acute aquatic toxicity (Category 1)
GHS Label elements, including precautionary statements
Signal word: Danger
Hazard statement(s)
H316 Causes mild skin irritation.
H226 Flammable liquid and vapor.
H318 Causes serious eye damage.
H400 Very toxic to aquatic life.
Precautionary statement(s)
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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 May be harmful if inhaled. Causes respiratory tract irritation.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS
Synonyms: Di(hydrogenated tallow)dimethylammonium chloride; Quaternium-18; Dimethyldioctadecylammonium chloride, mixture of homologs
<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>61789-80-8</td>
<td>263-090-2</td>
<td>-</td>
<td>&gt;= 71 %</td>
</tr>
<tr>
<td>2-Propanol</td>
<td>200-661-7</td>
<td>603-117-00-0</td>
<td>&gt;= 12 - &lt;= 17 %</td>
</tr>
<tr>
<td>Water</td>
<td>231-791-2</td>
<td>-</td>
<td>&gt;= 8 - &lt;= 12 %</td>
</tr>
</tbody>
</table>

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. 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. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

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

Hazardous combustion products
Hazardous decomposition products formed under fire conditions - Carbon 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. Discharge into the environment must be avoided.

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 inhalation of vapor or mist.

Conditions for safe storage
Store in cool place. 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. Store at room temperature.
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>2-Propanol</td>
<td>67-63-0</td>
<td>TWA</td>
<td>200 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Eye & Upper Respiratory Tract irritation Central Nervous System impairment Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

| STEL | 400 ppm | USA. ACGIH Threshold Limit Values (TLV) |

Eye & Upper Respiratory Tract irritation Central Nervous System impairment Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

| TWA | 400 ppm | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| STEL | 500 ppm | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| TWA | 400 ppm | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |

The value in mg/m³ is approximate.

| TWA | 400 ppm | USA. NIOSH Recommended Exposure Limits |
| ST  | 500 ppm | USA. NIOSH Recommended Exposure Limits |

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
Tightly fitting safety goggles. Faceshield (8-inch minimum). 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

<table>
<thead>
<tr>
<th>Form</th>
<th>paste</th>
<th>pH</th>
<th>6 - 9</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Boiling point</td>
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</tr>
<tr>
<td>Flash point - closed cup</td>
<td>25 °C</td>
<td>Ignition temperature</td>
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</tr>
<tr>
<td>Autoignition temperature</td>
<td>no data available</td>
<td>Lower explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>no data available</td>
<td>Vapor pressure</td>
<td>no data available</td>
</tr>
<tr>
<td>Density</td>
<td>no data available</td>
<td>Water solubility</td>
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</tr>
<tr>
<td>Relative vapor density</td>
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<td>Odor</td>
<td>no data available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>no data available</td>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>no data available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Partition coefficient: n-octanol/water | no data available | |
10. STABILITY AND REACTIVITY
Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
Vapors may form explosive mixture with air.
Conditions to avoid
Heat, flames and sparks.
Materials to avoid
Strong oxidizing agents, Acids, Acid anhydrides, Halogens, Aluminium
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions - Carbon 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: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (2-Propanol)
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a
known or anticipated carcinogen by NTP.
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 May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion May be harmful if swallowed.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Synergistic effects
no data available
Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION
Toxicity
Persistence and degradability
no data available
Bioaccumulative potential
Mobility in soil
no data available
PBT and vPvB assessment
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: 1274  Class: 3  Packing group: III
Proper shipping name: n-Propanol
Marine pollutant: No
Poison Inhalation Hazard: No
IMDG
UN number: 1274  Class: 3  Packing group: III  EMS-No: F-E, S-D
Proper shipping name: PROPAANOL
Marine pollutant: No
IATA
UN number: 1274  Class: 3  Packing group: III
Proper shipping name: n-Propanol

15. REGULATORY INFORMATION
OSHA Hazards
Flammable liquid, Target Organ Effect, 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:
  2-Propanol  CAS-No. 67-63-0
SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard
Massachusetts Right To Know Components
  2-Propanol  CAS-No. 67-63-0
Pennsylvania Right To Know Components
  Water  CAS-No. 7732-18-5
  2-Propanol  CAS-No. 67-63-0
  Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, chlorides  CAS-No. 61789-80-8
New Jersey Right To Know Components
  Water  CAS-No. 7732-18-5
  2-Propanol  CAS-No. 67-63-0
  Quaternary ammonium compounds, bis(hydrogenated tallow alkyl)dimethyl, chlorides  CAS-No. 61789-80-8
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION
The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

12/6/2012