1 - Product and Company Information

Product Name                  Cetyltrimethylammonium Bromide, 95%
Product Number                855820
Company                       Sigma-Aldrich Pte Ltd
                             #02-14 The Capricorn, Sci. Park II
                             Singapore 117528
                             Singapore
Technical Phone #             (65) 6779 1200
Fax                           (65) 6779 1822

2 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Harmful if swallowed. Irritating to respiratory system and skin.
Risk of serious damage to eyes. Very toxic to aquatic organisms.

3 - Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Product Name</th>
<th>CAS #</th>
<th>EC no</th>
<th>Annex I Index Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cetyltrimethylammonium Bromide</td>
<td>57-09-0</td>
<td>200-311-3</td>
<td>None</td>
</tr>
</tbody>
</table>

Formula                  C19H42N.Br
Molecular Weight         364.46 AMU
Synonyms                Acetoquat CTAB * Bromat * Centimide * Cetarol *
                                      * Cetrimonium bromide * Cetyltrimethylammonium bromide *
                                      * N-Cetyltrimethylammonium bromide *
                                      * Cirrasol-OD * CTAB * Cycloton V *
                                      * 1-Hexadecanaminium, N,N,N-trimethyl-, bromide *
                                      * Hexadecyltrimethylammonium bromide *
                                      * N-Hexadecyl-N,N,N-trimethylammonium bromide *
                                      * (1-Hexadecyl)trimethylammonium bromide *
                                      * Lauroseptol * Lissolamine * Lissolamine A *
                                      * Micol * Palmitytrimethyl ammonium bromide *
                                      * Pollacid * Quamonium * Softex KW *
                                      * Trimethylcetylammonium bromide *
                                      * N,N,N-Trimethyl-1-hexadecanaminium bromide *
                                      * Trimethylhexadecylammonium bromide

4 - First Aid Measures

AFTER INHALATION
If inhaled, remove to fresh air. If not breathing give
artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT
In case of contact, immediately wash skin with soap and copious
amounts of water.

AFTER EYE CONTACT
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

AFTER INGESTION
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS
Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING
Directions for Safe Handling: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Conditions of Storage: Keep tightly closed.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS
Safety shower and eye bath. Mechanical exhaust required.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory Protection: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance Physical State: Solid
10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: BQ7875000

ACUTE TOXICITY

LD50
Oral
Rat
410 mg/kg

LD50
Intravenous
Rat
44 MG/KG
Remarks: Lungs, Thorax, or Respiration: Other changes.

LD50
Intraperitoneal
Mouse
106 MG/KG
Remarks: Behavioral: Convulsions or effect on seizure threshold.
Lungs, Thorax, or Respiration: Respiratory depression.

LD50
Intravenous
Mouse
32 MG/KG
Remarks: Lungs, Thorax, or Respiration: Other changes.

LD50
Intraperitoneal
Rabbit
125 MG/KG

LD50
Subcutaneous
Rabbit
125 MG/KG

LD50
Subcutaneous
Guinea pig
100 MG/KG

IRRITATION DATA

Skin
Mouse
50 mg
1H
Remarks: Open irritation test

Eyes
Rabbit
450 mg
Remarks: Severe irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE
To the best of our knowledge, the chemical, physical, and
toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE
Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes severe eye irritation.
Inhalation: May be harmful if inhaled. Material is irritating to
mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

CHRONIC EXPOSURE - TERATOGEN

Species: Mouse
Dose: 10500 UG/KG
Route of Application: Intraperitoneal
Exposure Time: (8D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal
system.

Species: Mouse
Dose: 10500 UG/KG
Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

Species: Mouse
Dose: 35 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (12D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Mouse
Dose: 35 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (8D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

12 - Ecological Information

ELIMINATION

Elimination: 100 %

ECOTOXICOLOGICAL EFFECTS
Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h
Value: 0.03 mg/l

Test Type: LC50 Fish
Species: Brachydanio rerio
Time: 96 h
Value: 0.3 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR
UN#: 3077
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s

IMDG
UN#: 3077
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s
Marine Pollutant: No
Severe Marine Pollutant: No
IATA
UN#: 3077
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES
INDICATION OF DANGER: Xn-N
Harmful. Dangerous for the environment.
R-PHRASES: 22-37/38-41-50
Harmful if swallowed. Irritating to respiratory system and skin. Risk of serious damage to eyes. Very toxic to aquatic organisms.
S-PHRASES: 26-39-61
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection. Avoid release to the environment. Refer to special instructions/safety data sheets.

COUNTRY SPECIFIC INFORMATION

Germany
WGK: 3
ID-Number: 600
KBwS-Decision

16 - Other Information

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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