



SAFETY DATA SHEET

DOW CHEMICAL THAILAND LTD

Product name: DOWSIL™ SM 8904 Cosmetic Emulsion

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DOW CHEMICAL THAILAND LTD encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: DOWSIL™ SM 8904 Cosmetic Emulsion

Recommended use of the chemical and restrictions on use

Identified uses: Cosmetics

COMPANY IDENTIFICATION

DOW CHEMICAL THAILAND LTD
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THAILAND

Customer Information Number:

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SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: (66)38-925-400

Local Emergency Contact: 038-925-400

2. HAZARDS IDENTIFICATION

GHS Classification

Skin corrosion/irritation - Category 2
Serious eye damage/eye irritation - Category 1
Short-term (acute) aquatic hazard - Category 1
Long-term (chronic) aquatic hazard - Category 2

GHS label elements

Hazard pictograms



Signal word: **DANGER!**

Hazard statements

Causes skin irritation.
 Causes serious eye damage.
 Very toxic to aquatic life.
 Toxic to aquatic life with long lasting effects.

Precautionary statements**Prevention**

Wash skin thoroughly after handling.
 Avoid release to the environment.
 Wear protective gloves/ eye protection/ face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
 If skin irritation occurs: Get medical advice/ attention.
 Take off contaminated clothing and wash before reuse.
 Collect spillage.

Disposal

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

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Concentration
Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated	68554-54-1	>= 32.0 - <= 36.0 %
Dimethyldilaurylammonium chloride	3401-74-9	>= 2.8 - <= 3.2 %
Octamethyl Cyclotetrasiloxane	556-67-2	>= 1.6 - <= 2.0 %
1-Octadecanaminium, N,N,N-trimethyl-, chloride	112-03-8	>= 1.5 - <= 1.7 %

Decamethylcyclopentasiloxane	541-02-6	>= 1.3 - <= 1.5 %
Hexadecyltrimethyl ammonium chloride	112-02-7	>= 0.34 - <= 0.38 %

4. FIRST AID MEASURES

Description of first aid measures

General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing; consult a physician.

Skin contact: Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Water spray. Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical.

Unsuitable extinguishing media: None known..

Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides. Silicon oxides. Nitrogen oxides (NO_x). Chlorine compounds.

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health.. Fire burns more vigorously than would be expected..

Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.. Use personal protective equipment..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Do not release the product to the aquatic environment above defined regulatory levels. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Soak up with inert absorbent material. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Dispose of saturated absorbent or cleaning materials appropriately, since spontaneous heating may occur. See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get on skin or clothing. Avoid inhalation of vapour or mist. Do not swallow. Do not get in eyes. Keep container tightly closed. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied. Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Conditions for safe storage: Keep in properly labelled containers. Store locked up. Keep tightly closed. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Octamethyl Cyclotetrasiloxane	US WEEL	TWA	10 ppm
Decamethylcyclopentasiloxane	US WEEL	TWA	10 ppm

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	liquid
Color	white
Odor	slight
Odor Threshold	No data available

pH	No data available
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	> 100 °C
Flash point	closed cup >100 °C
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	0.99
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	> 100 °C
Decomposition temperature	No data available
Kinematic Viscosity	50 mm ² /s at 25 °C
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Molecular weight	No data available
Particle size	Not applicable

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents.

Conditions to avoid: None known.

Incompatible materials: Oxidizing agents

Hazardous decomposition products:

Decomposition products can include and are not limited to: Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Information on likely routes of exposure

Inhalation, Eye contact, Skin contact, Ingestion.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute oral toxicity

Very low toxicity if swallowed. Swallowing may result in irritation of the mouth, throat, and gastrointestinal tract.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):

LD50, > 5,000 mg/kg Estimated.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

Single dose oral LD50 has not been determined.

Dimethyldilaurylammonium chloride

Based on data from similar materials LD50, Rat, 658 mg/kg OECD Test Guideline 401

Octamethyl Cyclotetrasiloxane

LD50, Rat, male, > 4,800 mg/kg No deaths occurred at this concentration.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

LD50, Rat, male and female, 560.5 mg/kg OECD 401 or equivalent

Decamethylcyclopentasiloxane

LD50, Rat, male and female, > 24,134 mg/kg

Hexadecyltrimethyl ammonium chloride

LD50, Rat, 699 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):

LD50, > 2,000 mg/kg Estimated.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

The dermal LD50 has not been determined.

Octamethyl Cyclotetrasiloxane

LD50, Rat, male and female, > 2,400 mg/kg No deaths occurred at this concentration.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

For similar material(s): LD50, Rabbit, male and female, 528 mg/kg OECD Test Guideline 402

Decamethylcyclopentasiloxane

LD50, Rabbit, male and female, > 2,000 mg/kg No deaths occurred at this concentration.

Hexadecyltrimethyl ammonium chloride

LD50, Rabbit, 528 mg/kg

Acute inhalation toxicity

Brief exposure (minutes) is not likely to cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

As product: The LC50 has not been determined.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

The LC50 has not been determined.

Octamethyl Cyclotetrasiloxane

LC50, Rat, male and female, 4 Hour, dust/mist, 36 mg/l OECD Test Guideline 403

1-Octadecanaminium, N,N,N-trimethyl-, chloride

The LC50 has not been determined.

Decamethylcyclopentasiloxane

LC50, Rat, male and female, 4 Hour, dust/mist, 8.67 mg/l

Hexadecyltrimethyl ammonium chloride

The LC50 has not been determined.

Skin corrosion/irritation

Based on information for component(s):

Brief contact may cause skin irritation with local redness.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

Based on data from similar materials

Brief contact may cause skin irritation with local redness.

Dimethyldilaurylammonium chloride

Based on data from similar materials

Octamethyl Cyclotetrasiloxane

Brief contact is essentially nonirritating to skin.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Decamethylcyclopentasiloxane

Prolonged contact is essentially nonirritating to skin.

Hexadecyltrimethyl ammonium chloride

Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Solid.

Serious eye damage/eye irritation

Based on information for component(s):

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

Based on data from similar materials

May cause eye irritation.

May cause corneal injury.

Dimethyldilaurylammonium chloride

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Octamethyl Cyclotetrasiloxane

Essentially nonirritating to eyes.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Decamethylcyclopentasiloxane

Essentially nonirritating to eyes.

Hexadecyltrimethyl ammonium chloride

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Sensitization

For skin sensitization:

No relevant data found.

For respiratory sensitization:

No relevant data found.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

For skin sensitization:

No relevant data found.

For respiratory sensitization:
No relevant data found.

Dimethyldilaurylammonium chloride

Based on data from similar materials

Octamethyl Cyclotetrasiloxane

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Decamethylcyclopentasiloxane

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Hexadecyltrimethyl ammonium chloride

For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Available data are inadequate to determine single exposure specific target organ toxicity.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

Available data are inadequate to determine single exposure specific target organ toxicity.

Octamethyl Cyclotetrasiloxane

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Decamethylcyclopentasiloxane

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Hexadecyltrimethyl ammonium chloride

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

Information for components:**Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated**

Based on available information, aspiration hazard could not be determined.

Octamethyl Cyclotetrasiloxane

May be harmful if swallowed and enters airways.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

Based on physical properties, not likely to be an aspiration hazard.

Decamethylcyclopentasiloxane

Based on physical properties, not likely to be an aspiration hazard.

Hexadecyltrimethyl ammonium chloride

Based on available information, aspiration hazard could not be determined.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Contains component(s) which have been reported to cause effects on the following organs in animals:

Kidney.

Liver.

Respiratory tract.

Female reproductive organs.

Information for components:**Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated**

No relevant data found.

Dimethyldilaurylammonium chloride

Based on data from similar materials

Octamethyl Cyclotetrasiloxane

In animals, effects have been reported on the following organs:

Kidney.

Liver.

Respiratory tract.

Female reproductive organs.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

For similar material(s):

Based on available data, repeated exposures to small amounts are not anticipated to cause significant adverse effects.

Decamethylcyclopentasiloxane

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Hexadecyltrimethyl ammonium chloride

Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Carcinogenicity

Results from a 2 year repeated vapour inhalation exposure study to rats of decamethylcyclopentasiloxane (D5) indicate effects (uterine endometrial tumors) in female animals. This finding occurred at the highest exposure dose (160 ppm) only. Studies to date have not demonstrated if this effect occurs through a pathway that is relevant to humans. Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only. Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans. Repeated exposure in rats to D4 resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

Information for components:**Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated**

No relevant data found.

Octamethyl Cyclotetrasiloxane

Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only. Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans. Repeated exposure in rats to D4 resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

No relevant data found.

Decamethylcyclopentasiloxane

Results from a 2 year repeated vapour inhalation exposure study to rats of decamethylcyclopentasiloxane (D5) indicate effects (uterine endometrial tumors) in female animals. This finding occurred at the highest exposure dose (160 ppm) only. Studies to date have not demonstrated if this effect occurs through a pathway that is relevant to humans.

Hexadecyltrimethyl ammonium chloride

No relevant data found.

Teratogenicity

No relevant data found.

Information for components:**Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated**

No relevant data found.

Octamethyl Cyclotetrasiloxane

Did not cause birth defects or any other fetal effects in laboratory animals.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Decamethylcyclopentasiloxane

Did not cause birth defects or any other fetal effects in laboratory animals.

Hexadecyltrimethyl ammonium chloride

For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity

In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals. Contains component(s) which have interfered with fertility in animal studies.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

No relevant data found.

Octamethyl Cyclotetrasiloxane

In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, has been shown to interfere with fertility.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

In animal studies, a similar material has been shown not to interfere with reproduction.

Decamethylcyclopentasiloxane

In animal studies, did not interfere with reproduction.

Hexadecyltrimethyl ammonium chloride

For similar material(s): In animal studies, did not interfere with reproduction.

Mutagenicity

No relevant data found.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

No relevant data found.

Octamethyl Cyclotetrasiloxane

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

Not mutagenic in Ames Test

Decamethylcyclopentasiloxane

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Hexadecyltrimethyl ammonium chloride

For similar material(s): In vitro genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity**Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated****Acute toxicity to fish**

No relevant data found.

Dimethyldilaurylammonium chloride**Acute toxicity to fish**

Based on data from similar materials

LC50, Danio rerio (zebra fish), 96 Hour, 0.97 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

Based on data from similar materials

EC50, Daphnia magna (Water flea), 48 Hour, 0.057 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

Based on data from similar materials

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.156 mg/l, OECD Test Guideline 201

Based on data from similar materials

EC10, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.0514 mg/l, OECD Test Guideline 201

Toxicity to bacteria

Based on data from similar materials

EC10, 3 Hour, 5.95 mg/l, OECD Test Guideline 209

Chronic toxicity to aquatic invertebrates

Based on data from similar materials

NOEC, Daphnia magna (Water flea), 21 d, 0.021 mg/l

Octamethyl Cyclotetrasiloxane**Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

No toxicity at the limit of solubility

LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 0.022 mg/l

No toxicity at the limit of solubility

LC50, Cyprinodon variegatus (sheepshead minnow), flow-through, 14 d, > 0.0063 mg/l

Acute toxicity to aquatic invertebrates

No toxicity at the limit of solubility

EC50, Mysidopsis bahia (opossum shrimp), flow-through test, 96 Hour, > 0.0091 mg/l

No toxicity at the limit of solubility

EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.015 mg/l

Acute toxicity to algae/aquatic plants

No toxicity at the limit of solubility

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, > 0.022 mg/l

Chronic toxicity to fish

No toxicity at the limit of solubility

NOEC, Oncorhynchus mykiss (rainbow trout), 93 d, \geq 0.0044 mg/l

Chronic toxicity to aquatic invertebrates

No toxicity at the limit of solubility

NOEC, Daphnia magna (Water flea), 21 d, \geq 0.0079 mg/l

1-Octadecanaminium, N,N,N-trimethyl-, chloride

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, zebra fish (Brachydanio rerio), semi-static test, 96 hrs, 0.07 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, water flea Daphnia magna, Static, 48 hrs, 0.04 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Selenastrum capricornutum (green algae), Static, 72 hrs, Growth rate inhibition, 0.08 mg/l, OECD Test Guideline 201

NOEC, Selenastrum capricornutum (green algae), Static, 72 Hour, Growth rate inhibition, 0.04 mg/l, OECD Test Guideline 201

Toxicity to bacteria

EC50, Pseudomonas putida, 16 Hour, 1.1 mg/l

Chronic toxicity to fish

For similar material(s):

NOEC, Pimephales promelas (fathead minnow), 28 d, > 0.032 mg/l

Chronic toxicity to aquatic invertebrates

For similar material(s):

NOEC, Daphnia magna (Water flea), 21 d, 0.0068 mg/l

Decamethylcyclopentasiloxane

Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

No toxicity at the limit of solubility

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 16 µg/l, OECD Test Guideline 204 or Equivalent

Acute toxicity to aquatic invertebrates

No toxicity at the limit of solubility

EC50, Daphnia magna, 48 Hour, > 2.9 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

No toxicity at the limit of solubility
ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate, > 0.012 mg/l
No toxicity at the limit of solubility
NOEC, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate, 0.012 mg/l

Chronic toxicity to fish

No toxicity at the limit of solubility
LC50, Oncorhynchus mykiss (rainbow trout), 14 d, > 16 mg/l
No toxicity at the limit of solubility
NOEC, Oncorhynchus mykiss (rainbow trout), 45 d, >= 0.017 mg/l
No toxicity at the limit of solubility
NOEC, Oncorhynchus mykiss (rainbow trout), 90 d, >= 0.014 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna, 21 d, 0.015 mg/l

Toxicity to soil-dwelling organisms

This product does not have any known adverse effect on the soil organisms tested.
NOEC, Eisenia fetida (earthworms), >= 76 mg/kg

Hexadecyltrimethyl ammonium chloride

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
LC50, Danio rerio (zebra fish), 96 Hour, 0.19 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna, 48 Hour, 0.09 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 0.05 mg/l

Toxicity to bacteria

EC50, Pseudomonas putida, 16 Hour, 0.96 mg/l, DIN 38 412 Part 8

Chronic toxicity to fish

Based on data from similar materials
NOEC, Pimephales promelas (fathead minnow), 28 d, 32.2 µg/l

Chronic toxicity to aquatic invertebrates

Based on data from similar materials
NOEC, Daphnia magna (Water flea), 21 d, 6.8 µg/l

Persistence and degradability

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

Biodegradability: No relevant data found.

Dimethyldilaurylammonium chloride

Biodegradability: Based on data from similar materials
Biodegradation: 69 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Octamethyl Cyclotetrasiloxane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 3.7 %

Exposure time: 28 d

Method: OECD Test Guideline 310

Stability in Water (1/2-life)

Hydrolysis, DT50, 69.3 - 144 Hour, pH 7, Half-life Temperature 24.6 °C, OECD Test Guideline 111

Photodegradation

Atmospheric half-life: 16 d

Method: Estimated.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

Biodegradation: 18 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 0.289 d

Decamethylcyclopentasiloxane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 0.14 %

Exposure time: 28 d

Method: OECD Test Guideline 310

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 7.15 d

Method: Estimated.

Hexadecyltrimethyl ammonium chloride

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 93.5 %

Exposure time: 28 d

Method: OECD Test Guideline 301A or Equivalent

10-day Window: Not applicable

Biodegradation: 75 %

Exposure time: 28 d

Method: OECD Test Guideline 302B or Equivalent

Bioaccumulative potential**Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated**

Bioaccumulation: No relevant data found.

Octamethyl Cyclotetrasiloxane

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Partition coefficient: n-octanol/water(log Pow): 6.49 Measured

Bioconcentration factor (BCF): 12,400 Pimephales promelas (fathead minnow) Measured

1-Octadecanaminium, N,N,N-trimethyl-, chloride

Bioaccumulation: Based on data from similar materials Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 4.17 Estimated.

Bioconcentration factor (BCF): 79 Lepomis macrochirus (Bluegill sunfish)

Decamethylcyclopentasiloxane

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 5.2 Measured

Bioconcentration factor (BCF): 2,010 Fish Estimated.

Hexadecyltrimethyl ammonium chloride

Bioaccumulation: Based on data from similar materials No relevant data found.

Bioconcentration factor (BCF): 33 - 160 Lepomis macrochirus (Bluegill sunfish)

Mobility in Soil**Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated**

No relevant data found.

Octamethyl Cyclotetrasiloxane

Expected to be relatively immobile in soil (Koc > 5000).

1-Octadecanaminium, N,N,N-trimethyl-, chloride

Expected to be relatively immobile in soil (Koc > 5000).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient (Koc): 5.9 Estimated.

Decamethylcyclopentasiloxane

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient (Koc): > 5000 Estimated.

Hexadecyltrimethyl ammonium chloride

No relevant data found.

Results of PBT and vPvB assessment

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Dimethyldilaurylammonium chloride

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Octamethyl Cyclotetrasiloxane

Octamethylcyclotetrasiloxane (D4) meets the current REACH Annex XIII criteria for PBT and vPvB. In Canada, D4 has been assessed and deemed to meet the PtT criteria. However, D4 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D4 is not biomagnifying in aquatic and terrestrial food webs. D4 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D4 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Decamethylcyclopentasiloxane

Decamethylcyclopentasiloxane (D5) meets the current REACH Annex XIII criteria for vPvB. However, D5 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D5 is not biomagnifying in aquatic and terrestrial food webs. D5 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D5 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms. Based on an independent scientific panel of experts, the Canadian Minister of the Environment has concluded that "D5 is not entering the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity, or that constitute or may constitute a danger to the environment on which life depends".

Hexadecyltrimethyl ammonium chloride

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Other adverse effects**Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Dimethyldilaurylammonium chloride

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Octamethyl Cyclotetrasiloxane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

1-Octadecanaminium, N,N,N-trimethyl-, chloride

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Decamethylcyclopentasiloxane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Hexadecyltrimethyl ammonium chloride

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Octadecyltrimethyl ammonium chloride, Dimethyldilaurylammonium chloride)
UN number	UN 3082
Class	9
Packing group	III
Environmental hazards	Octadecyltrimethyl ammonium chloride, Dimethyldilaurylammonium chloride

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Octadecyltrimethyl ammonium chloride, Dimethyldilaurylammonium chloride)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Octadecyltrimethyl ammonium chloride, Dimethyldilaurylammonium chloride
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Octadecyltrimethyl ammonium chloride, Dimethyldilaurylammonium chloride)
UN number	UN 3082
Class	9
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Emergency Decree on Controlling the Use of Volatile Substances B.E. 2533

Not applicable

Hazardous Substance Act B.E. 2535

Department of Agriculture

Not applicable

Department of Energy Business

Not applicable

Department of Livestock

Not applicable

Department of Industrial Works

Not applicable

Food and Drug Administration

Not applicable

Department of Fisheries

Not applicable

16. OTHER INFORMATION

Revision

Identification Number: 6021175 / A176 / Issue Date: 24.06.2020 / Version: 6.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL -

Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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