



SAFETY DATA SHEET

DOW CHEMICAL THAILAND LTD

Product name: DOWSIL™ 5-7113 Silicone Quat Microemulsion

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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™ 5-7113 Silicone Quat Microemulsion

Recommended use of the chemical and restrictions on use

Identified uses: Cosmetics

COMPANY IDENTIFICATION

DOW CHEMICAL THAILAND LTD
99/1 BJC 2 BUILDING,
SOI SAENGCHAN-RUBIA,
SUKHUMVIT 42 ROAD, PRAKANONG, KLONGTOEY,
BANGKOK 10110
THAILAND

Customer Information Number:

(66)2-3657000
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
Skin sensitisation - Category 1
Short-term (acute) aquatic hazard - Category 2
Long-term (chronic) aquatic hazard - Category 2

GHS label elements

Hazard pictograms



Signal word: **DANGER!**

Hazard statements

Causes skin irritation.
 May cause an allergic skin reaction.
 Causes serious eye damage.
 Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

Avoid breathing mist or vapours.
 Wash skin thoroughly after handling.
 Contaminated work clothing should not be allowed out of the workplace.
 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 or rash occurs: Get medical advice/ attention.
 Take off contaminated clothing and wash before reuse.
 Collect spillage.

Disposal

Dispose of contents and/or 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
Methylamino siloxane with glycidyl trimethylammonium chloride	495403-02-6	>= 20.0 - <= 27.0 %
Poly(oxy-1,2-ethanediyl), .alpha.-	127036-24-2	>= 6.0 - <= 8.0 %

undecyl-.omega.-hydroxy-,
branched and linear

2-Butyloctanol 3913-02-8 $\geq 2.5 - \leq 4.8 \%$

Alpha-undecyl-omega-
hydroxypoly(oxy-1,2-ethanediyl),
branched and linear 127036-24-2 $\geq 2.0 - \leq 4.0 \%$

Phenoxyethanol 122-99-6 $\geq 0.5 - \leq 1.0 \%$

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: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation or rash occurs. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. 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:

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage.

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

Unsuitable extinguishing media: None known..

Special hazards arising from the substance or mixture

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

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health..

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: 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. 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. 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
Phenoxyethanol	Dow IHG	TWA	5 ppm
Further information: SKIN: Absorbed via skin			

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. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). 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 material is heated or sprayed, 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	translucent
Odor	characteristic
Odor Threshold	No data available
pH	6 - 8
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)	1
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	10 cSt 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: Avoid contact with oxidizing materials.

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 Toxicity Endpoints:

Not classified based on available information.

Acute oral toxicity

Information for the Product:

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

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

Based on information for component(s):
LD50, Rat, > 2,000 mg/kg Estimated.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

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

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-omega-hydroxy-, branched and linear

LD50, Rat, 500 - 2,000 mg/kg

2-Butyloctanol

LD50, Rat, male, 12,930 mg/kg

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

LD50, Rat, > 2,000 mg/kg

Phenoxyethanol

LD50, Rat, 1,840 mg/kg

Acute dermal toxicity

Information for the Product:

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, Rabbit, > 2,000 mg/kg Estimated.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

The dermal LD50 has not been determined.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

The dermal LD50 has not been determined.

2-Butyloctanol

Based on data from similar materials LD50, Rabbit, > 2,000 mg/kg

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

The dermal LD50 has not been determined.

Phenoxyethanol

Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. LD50, Rabbit, > 2,214 mg/kg

Acute inhalation toxicity

Information for the Product:

Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material or mist may cause respiratory irritation.

As product: The LC50 has not been determined.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

The LC50 has not been determined.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

The LC50 has not been determined.

2-Butyloctanol

The LC50 has not been determined.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

The LC50 has not been determined.

Phenoxyethanol

LC50, Rat, 6 Hour, dust/mist, 1 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Causes skin irritation.

Information for the Product:

Based on information for component(s):

Brief contact may cause severe skin irritation with pain and local redness.

May cause more severe response on covered skin (under clothing, gloves).

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

Brief contact may cause severe skin irritation with pain and local redness.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-omega.-hydroxy-, branched and linear

Brief contact may cause slight skin irritation with local redness.

2-Butyloctanol

Brief contact may cause slight skin irritation with local redness.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

Brief contact may cause slight skin irritation with local redness.

Phenoxyethanol

Prolonged exposure not likely to cause significant skin irritation.

May cause more severe response on covered skin (under clothing, gloves).

Serious eye damage/eye irritation

Causes serious eye damage.

Information for the Product:

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:

Methylamino siloxane with glycidyl trimethylammonium chloride

May cause moderate eye irritation.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-omega.-hydroxy-, branched and linear

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

2-Butyloctanol

May cause slight temporary eye irritation.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

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

Phenoxyethanol

May cause moderate eye irritation.

May cause moderate corneal injury.

Sensitization

For skin sensitization:

May cause an allergic skin reaction.

For respiratory sensitization:

Not classified based on available information.

Information for the Product:

For skin sensitization:

Contains component(s) which have caused allergic skin sensitization in guinea pigs.

For respiratory sensitization:

No relevant data found.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

Has caused allergic skin reactions when tested in guinea pigs.

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No relevant data found.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-omega-hydroxy-, branched and linear

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

For respiratory sensitization:

No relevant data found.

2-Butyloctanol

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

For respiratory sensitization:

No relevant data found.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

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

For respiratory sensitization:

No relevant data found.

Phenoxyethanol

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

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

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

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-omega-hydroxy-, branched and linear

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

2-Butyloctanol

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

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

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

Phenoxyethanol

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

Aspiration Hazard

Not classified based on available information.

Information for the Product:

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

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

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

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-omega-hydroxy-, branched and linear

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

2-Butyloctanol

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

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

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

Phenoxyethanol

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

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)

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

No relevant data found.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

No relevant data found.

2-Butyloctanol

For similar material(s):

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

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

No relevant data found.

Phenoxyethanol

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

Blood.

Kidney.

Liver.

Thyroid.

Respiratory tract.

Carcinogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

No relevant data found.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

No relevant data found.

2-Butyloctanol

No relevant data found.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

No relevant data found.

Phenoxyethanol

No relevant data found.

Teratogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

No relevant data found.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

No relevant data found.

2-Butyloctanol

No relevant data found.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

No relevant data found.

Phenoxyethanol

Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive toxicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

No relevant data found.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

No relevant data found.

2-Butyloctanol

No relevant data found.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

No relevant data found.

Phenoxyethanol

In animal studies, did not interfere with reproduction.

Mutagenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methylamino siloxane with glycidyl trimethylammonium chloride

In vitro genetic toxicity studies were negative.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

In vitro genetic toxicity studies were negative.

2-Butyloctanol

In vitro genetic toxicity studies were negative.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

In vitro genetic toxicity studies were negative.

Phenoxyethanol

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

12. ECOLOGICAL INFORMATION

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

Ecotoxicity

Methylamino siloxane with glycidyl trimethylammonium chloride**Acute toxicity to aquatic invertebrates**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

EC50, Daphnia magna (Water flea), 48 Hour, > 1 - 10 mg/l, Estimated.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Danio rerio (zebra fish), 96 Hour, 1 - 10 mg/l

Toxicity to bacteria

EC50, 3 Hour, 100 - 1,000 mg/l, OECD Test Guideline 209

2-Butyloctanol**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, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 0.48 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), Static, 48 Hour, 0.14 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth, 2.1 mg/l, OECD Test Guideline 201

NOEC, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth, 0.38 mg/l, OECD Test Guideline 201

Toxicity to bacteria

Based on data from similar materials

EC0, activated sludge, Static, 3 Hour, >= 1,000 mg/l, OECD Test Guideline 209

Chronic toxicity to aquatic invertebrates

Based on data from similar materials

NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 14 µg/l

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Danio rerio (zebra fish), 96 Hour, > 1 - 10 mg/l

Toxicity to bacteria

EC50, 3 Hour, 100 - 500 mg/l, OECD Test Guideline 209

Phenoxyethanol

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 344 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, > 500 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth, 625 mg/l

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth, 70 mg/l

Toxicity to bacteria

EC50, Bacteria, 17 Hour, 880 mg/l

Chronic toxicity to fish

NOEC, Pimephales promelas (fathead minnow), flow-through test, 34 d, mortality, 23 mg/l

LOEC, Pimephales promelas (fathead minnow), flow-through test, 34 d, mortality, 50 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 9.43 mg/l

LOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 22.5 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, > 340 mg/kg

Persistence and degradability

Methylamino siloxane with glycidyl trimethylammonium chloride

Biodegradability: For similar material(s): Material is not readily biodegradable according to OECD/EEC guidelines.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-omega-hydroxy-, branched and linear

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

10-day Window: Pass

Biodegradation: > 90 %
Exposure time: 28 d
Method: OECD Test Guideline 301E

2-Butyloctanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
 10-day Window: Pass
Biodegradation: 84 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
 10-day Window: Pass
Biodegradation: > 90 %
Exposure time: 28 d
Method: OECD Test Guideline 301E

Phenoxyethanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
 10-day Window: Pass
Biodegradation: 90 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
 10-day Window: Pass
Biodegradation: > 90 %
Exposure time: 15 d
Method: OECD Test Guideline 301A or Equivalent

Theoretical Oxygen Demand: 2.18 mg/mg

Chemical Oxygen Demand: 2.12 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	22 %
10 d	71 %
20 d	80 %

Stability in Water (1/2-life)

Hydrolysis, half-life, > 1 year, pH 7, Half-life Temperature 50 °C, Estimated.

Bioaccumulative potential

Methylamino siloxane with glycidyl trimethylammonium chloride

Bioaccumulation: No relevant data found.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-omega.-hydroxy-, branched and linear

Bioaccumulation: No relevant data found.

2-Butyloctanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 5.5

Bioconcentration factor (BCF): 1.92 Estimated.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

Bioaccumulation: No relevant data found.

Phenoxyethanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 1.2 at 23 °C Measured

Bioconcentration factor (BCF): 0.35 Fish

Mobility in Soil

Methylamino siloxane with glycidyl trimethylammonium chloride

No relevant data found.

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

No relevant data found.

2-Butyloctanol

No relevant data found.

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

No relevant data found.

Phenoxyethanol

Partition coefficient (Koc): 40.74 Measured

Results of PBT and vPvB assessment

Methylamino siloxane with glycidyl trimethylammonium chloride

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

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

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

2-Butyloctanol

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

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

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

Phenoxyethanol

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Other adverse effects

Methylamino siloxane with glycidyl trimethylammonium chloride

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

Poly(oxy-1,2-ethanediyl), .alpha.-undecyl-.omega.-hydroxy-, branched and linear

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

2-Butyloctanol

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

Alpha-undecyl-omega-hydroxypoly(oxy-1,2-ethanediyl), branched and linear

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

Phenoxyethanol

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.(2-Butyloctanol, Methylamino siloxane with glycidyl trimethylammonium chloride)
UN number	UN 3082
Class	9
Packing group	III
Environmental hazards	2-Butyloctanol, Methylamino siloxane with glycidyl trimethylammonium chloride

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(2-Butyloctanol, Methylamino siloxane with glycidyl trimethylammonium chloride)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	2-Butyloctanol, Methylamino siloxane with glycidyl trimethylammonium 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.(2-Butyloctanol, Methylamino siloxane with glycidyl trimethylammonium 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

This product may subject restriction or prohibition under below authorities due to certain applications. For details, please refer to local regulations to decide if any actions (of notification, registration, and/or license in accordance with the determined specific rules and procedure) are needed before business activity happen (production, import, export or to have it in possession for transport and/or storage).

Department of Agriculture

Not applicable

Department of Energy Business

Not applicable

Department of Livestock

Banned and/or restricted

Department of Industrial Works

Not applicable

Food and Drug Administration

Banned and/or restricted

Department of Fisheries

Not applicable

16. OTHER INFORMATION

Revision

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

Legend

Dow IHG	Dow Industrial Hygiene Guideline
TWA	Time Weighted Average (TWA):

Full text of other abbreviations

AllC - Australian Inventory of Industrial Chemicals; 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; IECS - 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; TECl - Thailand Existing Chemicals Inventory; 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

DOW CHEMICAL THAILAND LTD urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other

than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
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