SAFETY DATA SHEET
THE DOW CHEMICAL COMPANY

Product name: XIAMETER™ MEM-0949 Cationic Emulsion **Issue Date:** 02/17/2022
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THE DOW CHEMICAL COMPANY 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. IDENTIFICATION

Product name: XIAMETER™ MEM-0949 Cationic Emulsion

Recommended use of the chemical and restrictions on use
Identified uses: Cosmetics

COMPANY IDENTIFICATION
THE DOW CHEMICAL COMPANY
2211 H.H. DOW WAY
MIDLAND MI 48674
UNITED STATES

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: CHEMTREC +1 800-424-9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification
GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Skin irritation - Category 2
Serious eye damage - Category 1
Reproductive toxicity - Category 2

Label elements
Hazard pictograms

Signal word: **DANGER!**

Hazards
Causes skin irritation.
Causes serious eye damage.
Suspected of damaging fertility or the unborn child.

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash skin thoroughly after handling.
Wear protective gloves, protective clothing, eye protection and/or 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 and/or doctor.
IF exposed or concerned: Get medical advice/ attention.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.

Storage
Store locked up.

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

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Silicone emulsion
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	>= 28.0 - <= 33.0 %
Octamethyl Cyclotetrasiloxane	556-67-2	>= 2.0 - <= 2.4 %
Ethoxylated branched C11-14, C13-rich alcohols	78330-21-9	>= 1.4 - <= 2.4 %
Hexadecyltrimethyl ammonium chloride	112-02-7	>= 1.6 - <= 2.0 %
Decamethylcyclopentasiloxane	541-02-6	>= 1.4 - <= 1.8 %

Hexadecyltrimethylammonium acetate	51374-75-5	>= 0.38 - <= 0.56 %
Methanol	67-56-1	>= 0.21 - <= 0.24 %
N,N-Dimethyl-1-hexadecanamine-hydrochloride	2016-45-7	>= 0.15 - <= 0.16 %

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: Rinse mouth with water. No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed:
Causes skin irritation. Causes serious eye damage. Suspected of damaging fertility or the unborn child.

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. If burn is present, treat as any thermal burn, after decontamination. 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: Carbon oxides. Silicon oxides. Nitrogen oxides (NOx). 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 absorbant. 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. Strong acids. Strong bases 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
Methanol	ACGIH	TWA	200 ppm
	Further information: Skin: Danger of cutaneous absorption		
	ACGIH	STEL	250 ppm
	Further information: Skin: Danger of cutaneous absorption		
	OSHA Z-1	TWA	260 mg/m3 200 ppm

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methanol	67-56-1	Methanol	Urine	End of shift (As soon as possible after exposure ceases)	15 mg/l	ACGIH BEI

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"). 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. In misty atmospheres, use an approved particulate 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	Fishy
Odor Threshold	No data available
pH	7.5
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	100 °C (212 °F)
Flash point	**closed cup** >100 °C (212 °F)
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	No data available
Decomposition temperature	No data available
Kinematic Viscosity	5 cSt at 25 °C (77 °F)
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. Avoid contact with: Strong acids Strong bases

Hazardous decomposition products:
Decomposition products can include and are not limited to: Formaldehyde. Ammonia. hydrogen chloride.

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:

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

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

Based on information for component(s):
LD50, Rat, > 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.

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

Ethoxylated branched C11-14, C13-rich alcohols

Acute toxicity estimate, 500 mg/kg Expert judgement

Hexadecyltrimethyl ammonium chloride
LD50, Rat, 699 mg/kg

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

Hexadecyltrimethylammonium acetate
Based on data from similar materials LD50, Rat, 1,550 mg/kg

Methanol
Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart. Effects may be delayed. LD50, Rat, > 5,000 mg/kg

Lethal Dose, Humans, 340 mg/kg Estimated.

Lethal Dose, Humans, 29 - 237 ml Estimated.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
Based on data from similar materials LD50, Rat, 699 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, > 5,000 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.

Ethoxylated branched C11-14, C13-rich alcohols
The dermal LD50 has not been determined.

Hexadecyltrimethyl ammonium chloride
Absorption has not been determined due to corrosivity.

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

Hexadecyltrimethylammonium acetate
Based on data from similar materials LD50, Rabbit, 528 mg/kg OECD Test Guideline 402

Methanol
Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death. LD50, Rabbit, 15,800 mg/kg

N,N-Dimethyl-1-hexadecanamine-hydrochloride
Based on data from similar materials LD50, Rabbit, 528 mg/kg

Acute inhalation toxicity

Information for the Product:

Vapors are primarily water; single exposure is not likely to be hazardous. Mist may cause irritation of 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

Ethoxylated branched C11-14, C13-rich alcohols
The LC50 has not been determined.

Hexadecyltrimethyl ammonium chloride
The LC50 has not been determined.

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

Hexadecyltrimethylammonium acetate
Prolonged excessive exposure may cause adverse effects. May cause respiratory tract irritation.

The LC50 has not been determined.

Methanol
Easily attainable vapor concentrations may cause serious adverse effects, even death. At lower concentrations: May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death. Effects may be delayed.

LC50, Rat, 4 Hour, vapour, 3 mg/l

N,N-Dimethyl-1-hexadecanamine-hydrochloride
The LC50 has not been determined.

Skin corrosion/irritation

Causes skin irritation.

Information for the Product:

Based on information for component(s):
Brief contact may cause moderate skin irritation with local redness.

Information for components:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated
For similar material(s):
Brief contact may cause skin irritation with local redness.

Octamethyl Cyclotetrasiloxane
Brief contact is essentially nonirritating to skin.

Ethoxylated branched C11-14, C13-rich alcohols
For similar material(s):
Prolonged contact may cause slight skin irritation with local redness.

Hexadecyltrimethyl ammonium 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.

Hexadecyltrimethylammonium acetate
For similar material(s):
Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Methanol
Prolonged contact may cause slight skin irritation with local redness.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
For similar material(s):
Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

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:

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated
For similar material(s):
May cause eye irritation.
May cause corneal injury.

Octamethyl Cyclotetrasiloxane
Essentially nonirritating to eyes.

Ethoxylated branched C11-14, C13-rich alcohols
For similar material(s):
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Hexadecyltrimethyl ammonium 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.

Hexadecyltrimethylammonium acetate
For similar material(s):
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Methanol
May cause eye irritation.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
For similar material(s):
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:
Not classified based on available information.

For respiratory sensitization:
Not classified based on available information.

Information for the Product:

Based on information for component(s):
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.

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

For respiratory sensitization:
No relevant data found.

Ethoxylated branched C11-14, C13-rich alcohols
For similar material(s):
For skin sensitization:
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No relevant data found.

Hexadecyltrimethyl ammonium 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.

Hexadecyltrimethylammonium acetate
For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Methanol
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

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:

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.

Ethoxylated branched C11-14, C13-rich alcohols
Available data are inadequate to determine single exposure specific target organ toxicity.

Hexadecyltrimethyl ammonium chloride
Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.

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

Methanol
Causes damage to organs.
Route of Exposure: Oral
Target Organs: Eyes, Central nervous system

N,N-Dimethyl-1-hexadecanamine-hydrochloride
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 available information, aspiration hazard could not be determined.

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.

Ethoxylated branched C11-14, C13-rich alcohols
Based on available information, aspiration hazard could not be determined.

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

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

Methanol
May be harmful if swallowed and enters airways.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
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)

Not classified based on available information.

Information for the Product:

Product test data not available.

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 animals, effects have been reported on the following organs:
Kidney.
Liver.
Respiratory tract.
Female reproductive organs.

Ethoxylated branched C11-14, C13-rich alcohols
No relevant data found.

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

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

Methanol
Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
For similar material(s):
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Carcinogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

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.

Ethoxylated branched C11-14, C13-rich alcohols
No relevant data found.

Hexadecyltrimethyl ammonium 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.

Methanol
Did not cause cancer in laboratory animals.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
No relevant data found.

Teratogenicity

Suspected of damaging fertility or the unborn child.

Information for the Product:

Product test data not available.

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.

Ethoxylated branched C11-14, C13-rich alcohols
No relevant data found.

Hexadecyltrimethyl ammonium 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.

Methanol
Methanol has caused birth defects in mice at doses nontoxic to the mother as well as slight behavioral effects in offspring of rats.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Information for the Product:

Product test data not available.

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.

Ethoxylated branched C11-14, C13-rich alcohols
No relevant data found.

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

Decamethylcyclopentasiloxane
In animal studies, did not interfere with reproduction.

Methanol
In animal studies, did not interfere with reproduction.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
For similar material(s): 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:

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.

Ethoxylated branched C11-14, C13-rich alcohols
No relevant data found.

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

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

Methanol
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative in some cases and positive in other cases.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
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.

Toxicity

Acute toxicity to aquatic invertebrates
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).

EC50, Daphnia magna (Water flea), 48 Hour, 0.97 mg/l, No information available.

Long-term (chronic) aquatic hazard
Chronic toxicity to aquatic invertebrates
Based on information for component(s):
NOEC, Daphnia magna (Water flea), 21 d, 1 mg/l

Persistence and degradability

Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated
Biodegradability: No relevant data found.

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, 3.9 d, pH 7, Half-life Temperature 25 °C, OECD Test Guideline 111

Ethoxylated branched C11-14, C13-rich alcohols
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
Based on data from similar materials
Biodegradation: 95 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Hexadecyltrimethyl ammonium chloride
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Fail
Biodegradation: > 60 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

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.

Hexadecyltrimethylammonium acetate
Biodegradability: Based on data from similar materials
Biodegradation: 60 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

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

Theoretical Oxygen Demand: 1.50 mg/mg

Chemical Oxygen Demand: 1.49 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	72 %
20 d	79 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 8 - 18 d
Method: Estimated.

N,N-Dimethyl-1-hexadecanamine-hydrochloride
Biodegradability: Based on data from similar materials
Biodegradation: 93.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

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

Ethoxylated branched C11-14, C13-rich alcohols
Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 6.3 Estimated.
Bioconcentration factor (BCF): 283 Fish Estimated.

Hexadecyltrimethyl ammonium 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): 3.08 Estimated by Structure-Activity Relationship (SAR).
Bioconcentration factor (BCF): 33 - 160 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.

Hexadecyltrimethylammonium acetate

Bioaccumulation: Based on data from similar materials
Partition coefficient: n-octanol/water(log Pow): > 6.91

Methanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.77 Measured
Bioconcentration factor (BCF): < 10 Leuciscus idus (Golden orfe) Measured

N,N-Dimethyl-1-hexadecanamine-hydrochloride

Bioaccumulation: No relevant data found.

Mobility in soil

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

No relevant data found.

Octamethyl Cyclotetrasiloxane

Partition coefficient (Koc): 16596 OECD Test Guideline 106

Ethoxylated branched C11-14, C13-rich alcohols

Partition coefficient (Koc): 5649 Estimated.

Hexadecyltrimethyl ammonium chloride

No relevant data found.

Decamethylcyclopentasiloxane

Partition coefficient (Koc): > 5000 Estimated.

Methanol

Partition coefficient (Koc): 0.44 Estimated.

N,N-Dimethyl-1-hexadecanamine-hydrochloride

No relevant data found.

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: Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section10 Regulatory Information, MSDS Section 15

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

DOT

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

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Hexadecyltrimethyl ammonium chloride, Hexadecyldimethylamine)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Hexadecyltrimethyl ammonium chloride, Hexadecyldimethylamine
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.(Hexadecyltrimethyl ammonium chloride, Hexadecyldimethylamine)
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

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Reproductive toxicity
Skin corrosion or irritation
Serious eye damage or eye irritation

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania Right To Know
The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	**CASRN**
Water	7732-18-5
Siloxanes and Silicones, di-Me, polymers with 3-[(2-aminoethyl)amino]propyl silsesquioxanes, hydroxy-terminated	68554-54-1

California Prop. 65
WARNING: This product can expose you to chemicals including Methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

United States TSCA Inventory (TSCA)
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System

NFPA

Health	Flammability	Instability
3	1	0

HMIS

Health	Flammability	Physical Hazard
3*	1	0

* = Chronic Effects (See Hazards Identification)

Revision

Identification Number: 4027261 / A001 / Issue Date: 02/17/2022 / Version: 11.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
STEL	Short-term exposure limit
TWA	8-hour, time-weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - 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

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY 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.
US