SAFETY DATA SHEET
THE DOW CHEMICAL COMPANY

Product name: VERSENEX™ 50% Chelating Agent

Issue Date: 11/23/2022
Print Date: 11/24/2022

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: VERSENEX™ 50% Chelating Agent

Recommended use of the chemical and restrictions on use
Identified uses: Chelating agent. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

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)
Corrosive to metals - Category 1
Acute toxicity - Category 4 - Inhalation
Skin irritation - Category 2
Eye irritation - Category 2A
Reproductive toxicity - Category 2
Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

Label elements
Hazard pictograms

Signal word: **WARNING!**

Hazards
May be corrosive to metals.
Causes skin irritation.
Causes serious eye irritation.
Harmful if inhaled.
Suspected of damaging fertility or the unborn child.
May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep only in original container.
Do not breathe mist or vapours.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing, eye protection and/or face protection.

Response
IF ON SKIN: Wash with plenty of soap and water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
If skin irritation occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
Absorb spillage to prevent material damage.

Storage
Store locked up.
Store in corrosive resistant container with a resistant inner liner.

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

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: pentasodium (carboxylatomethyl)iminobis(ethylenenitrilo)tetraacetate
This product is a substance.

Component	CASRN	Concentration
Pentasodium diethylenetriaminepentaacetate	140-01-2	48.0%
Water	7732-18-5	41.0%
Tetrasodium diethylenetriaminetetraacetate	75348-60-6	5.0%
Sodium hydroxyacetate	2836-32-0	3.0%
Sodium hydroxide	1310-73-2	< 1.5 %
Trisodium diethylenetriaminetriacetate	75348-61-7	1.0%
Trisodium nitrilotriacetate	5064-31-3	< 1.5 %

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. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Wash off with plenty of water.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

Most important symptoms and effects, both acute and delayed:
Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure if inhaled.

Indication of any immediate medical attention and special treatment needed
Notes to physician: Maintain adequate ventilation and oxygenation of the patient. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns and/or ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture.

Aspiration of vomitus may cause lung injury. Suggest endotracheal or esophageal control if lavage is done. 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: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam..

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds.. Combustion products may include and are not limited to:. Nitrogen oxides.. Carbon monoxide.. Carbon dioxide.. Ammonia..

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn..

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry.. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam..

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, see Section 8 of the safety data sheet..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate area. Keep upwind of spill. Ventilate area of leak or spill. Only trained and properly protected personnel must be involved in clean-up operations. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Non-combustible material. Collect in suitable and

properly labeled containers. Large spills: Dike area to contain spill. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not swallow. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in accordance with good manufacturing practices. Do not store in: Opened or unlabeled containers. Zinc. Aluminum and its alloys. Carbon steel. Copper. Copper alloys. Galvanized containers. Nickel. Store in original unopened container. See Section 10 for more specific information. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

Storage stability
Shelf life: Use within 24 Month
Storage temperature: -17.8 - 48.9 °C (-0.0 - 120.0 °F)

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
Sodium hydroxide	ACGIH	C	2 mg/m3
	OSHA Z-1	TWA	2 mg/m3
	OSHA P0	C	2 mg/m3

Exposure controls
Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. 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 when prolonged or frequently repeated contact could occur. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). 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: When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, 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, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

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	Colorless to yellow
Odor	Mild
Odor Threshold	No test data available
pH	11.0 - 12.0 1% *Literature*
Melting point/range	Not applicable to liquids
Freezing point	-28 °C (-18 °F) *Differential Scanning Calorimetry (DSC)*
Boiling point (760 mmHg)	109 °C (228 °F) *Estimated.*
Flash point	**closed cup** *Pensky-Martens Closed Cup ASTM D 93* No measurable flash point
Evaporation Rate (Butyl Acetate = 1)	< 0.8 *Estimated.*
Flammability (solid, gas)	Not applicable to liquids
Flammability (liquids)	Not expected to be a static-accumulating flammable liquid.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	Same as water
Relative Vapor Density (air = 1)	Same as water
Relative Density (water = 1)	1.38 at 25 °C (77 °F) / 25 °C *Estimated.*
Water solubility	completely miscible
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	Not applicable
Decomposition temperature	No test data available
Kinematic Viscosity	167 cSt at 20 °C (68 °F) *Estimated.*
Explosive properties	No test data available
Oxidizing properties	No test data available
Molecular weight	503 g/mol *Calculated.*

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

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Some components of this product can decompose at elevated temperatures.

Incompatible materials: Avoid contact with oxidizing materials. Flammable hydrogen may be generated from contact with metals such as: Aluminum.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials..

11. TOXICOLOGICAL INFORMATION

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

Information on likely routes of exposure
Ingestion, Inhalation, Skin contact, Eye contact.

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

Acute Toxicity Endpoints:
Harmful if inhaled.

Acute oral toxicity

Information for the Product:

Low toxicity if swallowed. Swallowing may result in irritation or burns of the mouth, throat, and gastrointestinal tract.

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

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

Information for components:

Pentasodium diethylenetriaminepentaacetate
For similar material(s): LD50, Rat, male and female, > 5,000 mg/kg OECD 401 or equivalent

Tetrasodium diethylenetriaminetetraacetate
Single dose oral LD50 has not been determined.

Sodium hydroxyacetate
LD50, Cat, 500 mg/kg

Sodium hydroxide
Single dose oral LD50 has not been determined.

Trisodium diethylenetriaminetriacetate
Single dose oral LD50 has not been determined.

Trisodium nitrilotriacetate
LD50, Rat, 1,300 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.

For similar material(s):
LD50, > 2,000 mg/kg No deaths occurred at this concentration.

Information for components:

Pentasodium diethylenetriaminepentaacetate
For similar material(s): LD50, Rat, male and female, > 2,000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

Tetrasodium diethylenetriaminetetraacetate
The dermal LD50 has not been determined.

Sodium hydroxyacetate
The dermal LD50 has not been determined.

Sodium hydroxide
The dermal LD50 has not been determined.

Trisodium diethylenetriaminetriacetate
The dermal LD50 has not been determined.

Trisodium nitrilotriacetate
LD50, Rabbit, 10,000 mg/kg

Acute inhalation toxicity

Information for the Product:

As product: The LC50 has not been determined.

Information for components:

Pentasodium diethylenetriaminepentaacetate

4 Hour, dust/mist, 1.5 mg/l

Tetrasodium diethylenetriaminetetraacetate
The LC50 has not been determined.

Sodium hydroxyacetate
As product: The LC50 has not been determined.

Sodium hydroxide
The LC50 has not been determined.

Trisodium diethylenetriaminetriacetate
The LC50 has not been determined.

Trisodium nitrilotriacetate
Dust may cause irritation to upper respiratory tract (nose and throat).

LD50, Rat, male, 4 Hour, dust/mist, > 5.0 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Causes skin irritation.

Information for the Product:

Based on data from similar materials
Prolonged contact may cause skin irritation with local redness.
Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.
May cause more severe response if skin is abraded (scratched or cut).

Information for components:

Pentasodium diethylenetriaminepentaacetate
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause moderate skin irritation with local redness.
May cause more severe response if skin is abraded (scratched or cut).
Not classified as corrosive to the skin according to DOT guidelines.

Sodium hydroxyacetate
Brief contact is essentially nonirritating to skin.

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

Trisodium nitrilotriacetate
Prolonged contact may cause slight skin irritation with local redness.
May cause more severe response if skin is abraded (scratched or cut).

Serious eye damage/eye irritation

Causes serious eye irritation.

Information for the Product:

Based on data from similar materials
May cause moderate eye irritation.
May cause corneal injury.

Information for components:

Pentasodium diethylenetriaminepentaacetate
May cause slight eye irritation.
Corneal injury is unlikely.

Sodium hydroxyacetate
May cause slight eye irritation.
Corneal injury is unlikely.

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

Trisodium nitrilotriacetate
May cause pain disproportionate to the level of irritation to eye tissues.
Solid.
May cause slight eye irritation.
May cause slight corneal injury.
Dust may irritate eyes.
For solutions:
May cause severe eye irritation.
May cause corneal injury.

Sensitization

For skin sensitization:
Not classified based on available information.

For respiratory sensitization:
Not classified based on available information.

Information for the Product:

For skin sensitization:
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant information found.

Information for components:

Pentasodium diethylenetriaminepentaacetate
For skin sensitization:
For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

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

For respiratory sensitization:
No relevant data found.

Sodium hydroxide
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No relevant data found.

Trisodium nitrilotriacetate
For respiratory sensitization:
Relevant data not available.

Did not cause allergic skin reactions when tested in humans.

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:

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

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

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

Trisodium nitrilotriacetate
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:

Aspiration into the respiratory system may occur during ingestion or vomiting. Due to corrosivity, tissue damage or lung injury may occur.

Information for components:

Pentasodium diethylenetriaminepentaacetate
Aspiration into the respiratory system may occur during ingestion or vomiting. Due to corrosivity, tissue damage or lung injury may occur.

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

Sodium hydroxide
Aspiration into the respiratory system may occur during ingestion or vomiting. Due to corrosivity, tissue damage or lung injury may occur.

Trisodium nitrilotriacetate
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)

May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Information for the Product:

Product test data not available.

Information for components:

Pentasodium diethylenetriaminepentaacetate
In animals, effects have been reported on the following organs:
Respiratory tract.
Kidney.
Urinary tract.
In animals, has been shown to cause deposition of calcium salts in various urinary tract tissues.

Sodium hydroxyacetate
In animals, effects have been reported on the following organs:
Kidney.
In animals, has been shown to cause deposition of calcium salts in various urinary tract tissues.

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

Trisodium nitrilotriacetate
In animals, effects have been reported on the following organs:
Urinary tract.
Repeated excessive exposures may alter concentrations of metals in the body.

Carcinogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Pentasodium diethylenetriaminepentaacetate
Although large dietary doses of NTA have caused urinary tumors in laboratory animals, there is little likelihood that NTA could cause cancer in humans, especially at subtoxic doses.

Sodium hydroxyacetate
No relevant data found.

Sodium hydroxide
No relevant data found.

Trisodium nitrilotriacetate
Although large dietary doses of NTA have caused urinary tumors in laboratory animals, there is little likelihood that NTA could cause cancer in humans, especially at subtoxic doses.

Carcinogenicity

Component	**List**	**Classification**
Trisodium nitrilotriacetate	IARC	Group 2B: Possibly carcinogenic to humans

Teratogenicity

Suspected of damaging fertility or the unborn child.

Information for the Product:

Product test data not available.

Information for components:

Pentasodium diethylenetriaminepentaacetate
EDTA and its sodium salts have been reported to cause birth defects in laboratory animals only at exaggerated doses that were toxic to the mother. These effects are likely associated with zinc deficiency due to chelation. Has been toxic to the fetus in lab animals at doses nontoxic to the mother.

Sodium hydroxyacetate
No relevant data found.

Sodium hydroxide
No relevant data found.

Trisodium nitrilotriacetate
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:

Pentasodium diethylenetriaminepentaacetate
No relevant data found.

Sodium hydroxyacetate
No relevant data found.

Sodium hydroxide
No relevant data found.

Trisodium nitrilotriacetate
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:

Pentasodium diethylenetriaminepentaacetate
In vitro genetic toxicity studies were negative.

Sodium hydroxyacetate
No relevant data found.

Sodium hydroxide
In vitro genetic toxicity studies were negative.

Trisodium nitrilotriacetate
In vitro genetic toxicity studies were negative in some cases and positive in other cases.
Animal genetic toxicity studies were predominantly negative.

12. ECOLOGICAL INFORMATION

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

Toxicity

Pentasodium diethylenetriaminepentaacetate
Acute toxicity to fish

Based on information for a similar material:
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).
Based on analogy.
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 854 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
For similar material(s):
LC50, Daphnia carinata., static test, 48 Hour, 245 mg/l, OECD Test Guideline 202 or Equivalent

Toxicity to bacteria
Based on analogy.
EC50, activated sludge, static test, 30 min, > 500 mg/l, OECD 209 Test

Chronic toxicity to fish
For similar material(s):
NOEC, Crimson-spotted rainbowfish (Melanotaenia fluviatilis), semi-static test, 28 d, number of offspring, 100 mg/l

Chronic toxicity to aquatic invertebrates
For similar material(s):
NOEC, Daphnia carinata., static test, 18 d, number of offspring, 67 mg/l

Tetrasodium diethylenetriaminetetraacetate

Acute toxicity to fish
No relevant data found.

Sodium hydroxyacetate

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).
For similar material(s):
EC50, Danio rerio (zebra fish), 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
Based on data from similar materials
EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
Based on data from similar materials
ErC50, Skeletonema costatum (marine diatom), 72 Hour, > 100 mg/l
Based on data from similar materials
NOEC, Skeletonema costatum (marine diatom), 72 Hour, > 1 mg/l

Toxicity to bacteria
Based on data from similar materials
EC50, Pseudomonas putida, 16 Hour, > 1,000 mg/l, DIN 38 412 Part 8

Sodium hydroxide

Acute toxicity to fish
May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.

Trisodium diethylenetriaminetriacetate

Acute toxicity to fish
No relevant data found.

Trisodium nitrilotriacetate

Acute toxicity to fish
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 103 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates
LC50, scud Gammarus sp., flow-through test, 96 Hour, 80 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, > 91.5 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC50, Pseudomonas fluorescens, Cell multiplication inhibition test, 8 Hour, 3,200 - 5,600 mg/l

Chronic toxicity to fish
NOEC, Pimephales promelas (fathead minnow), flow-through test, 229 d, mortality, 54 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, scud Gammarus sp., flow-through test, 141 d, mortality, 9.3 mg/l

Persistence and degradability

Pentasodium diethylenetriaminepentaacetate

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Fail
Biodegradation: 29 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
10-day Window: Fail
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 1.18 mg/mg

Tetrasodium diethylenetriaminetetraacetate

Biodegradability: No relevant data found.

Sodium hydroxyacetate

Biodegradability: For similar material(s): Material is expected to be readily biodegradable.

Theoretical Oxygen Demand: 0.49 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 9.3 d
Method: Estimated.

Sodium hydroxide

Biodegradability: Biodegradability is not applicable to inorganic substances.

Trisodium diethylenetriaminetriacetate

Biodegradability: No relevant data found.

Trisodium nitrilotriacetate

Biodegradability:
Material has inherent, ultimate biodegradability according to OECD test (s) guidelines (reaches > 60 or 70% biodegradation in OECD test(s).
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 100 %
Exposure time: 14 d
Method: OECD Test Guideline 301E or Equivalent
10-day Window: Not applicable
Biodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 302B or Equivalent

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	59 %
20 d	91 %

Photodegradation
Sensitization: OH radicals
Atmospheric half-life: 0.144 d
Method: Estimated.

Bioaccumulative potential

Bioaccumulation: No data available.

Mobility in soil

Pentasodium diethylenetriaminepentaacetate

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

Tetrasodium diethylenetriaminetetraacetate

No relevant data found.

Sodium hydroxyacetate

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): 1 Estimated.

Sodium hydroxide

Partition coefficient (Koc): 14 Estimated.

Trisodium diethylenetriaminetriacetate

No relevant data found.

Trisodium nitrilotriacetate

Partition coefficient (Koc): 44.06

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.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Corrosive liquid, basic, organic, n.o.s.(Sodium hydroxide, Pentasodium Diethylenetriaminepentaacetate)
UN number	UN 3267
Class	8
Packing group	III

Classification for SEA transport (IMO-IMDG):

Proper shipping name	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.(Sodium hydroxide, Pentasodium Diethylenetriaminepentaacetate)
UN number	UN 3267
Class	8
Packing group	III
Marine pollutant	No
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	Corrosive liquid, basic, organic, n.o.s.(Sodium hydroxide, Pentasodium Diethylenetriaminepentaacetate)
UN number	UN 3267
Class	8

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
Corrosive to metals
Acute toxicity (any route of exposure)
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
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 Worker and Community Right-To-Know Act:
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Prop. 65
This product contains a chemical that is at or below California Propositions 65's "safe harbor level" as determined via a risk assessment. Therefore, the chemical is not required to be listed as a Prop 65 chemical on the SDS or label.

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
2	0	0

Revision

Identification Number: 99198688 / A001 / Issue Date: 11/23/2022 / Version: 13.0
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)
C	Ceiling limit
OSHA P0	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
TWA	8-hour time weighted average

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.
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