1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Nitrilotriacetic acid
Product Number: N9877
Brand: Sigma-Aldrich
Supplier: Sigma-Aldrich Corporation
Supplier Address: 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Carcinogen, Target Organ Effect, Harmful by ingestion., Irritant

Target Organs
Kidney, Bladder

GHS Classification
Acute toxicity, Oral (Category 4)
Skin corrosion (Category 1)
Serious eye damage (Category 1)
Carcinogenicity (Category 2)

GHS Label elements, including precautionary statements

Signal word: Danger

Hazard statement(s)
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H351 Suspected of causing cancer.

Precautionary statement(s)
P281 Use personal protective equipment as required.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: *
Flammability: 1
Physical hazards: 0

NFPA Rating
- Health hazard: 2
- Fire: 1
- Reactivity Hazard: 0

Potential Health Effects
- Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
- Skin: Harmful if absorbed through skin. Causes skin irritation.
- Eyes: Causes eye irritation.
- Ingestion: Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Tris(carboxymethyl)amine
N,N-Bis(carboxymethyl)glycine
NTA

Formula: C₆H₉NO₆
Molecular Weight: 191.14 g/mol

<table>
<thead>
<tr>
<th>Component</th>
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<tr>
<td>CAS-No.</td>
<td>139-13-9</td>
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<tr>
<td>EC-No.</td>
<td>205-355-7</td>
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4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested: Dermatril® (Aldrich Z677272, Size M)

Splash protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 30 min
Material tested: Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form       powder
Colour     white

Safety data

pH          1.7 - 2.7 at 10 g/l at 23 °C (73 °F)
Melting point/freezing point: Melting point/range: 245 °C (473 °F) - dec.
Boiling point no data available
Flash point  100 °C (212 °F) - closed cup
Ignition temperature no data available
Autoignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Vapour pressure no data available
Density     no data available
Water solubility no data available
Partition coefficient: n-octanol/water no data available
Relative vapour density no data available
Odour       odourless
Odour Threshold no data available
Evaporation rate no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents, Strong bases

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 1,100 mg/kg

Inhalation LC50
no data available

Dermal LD50
Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit - No skin irritation

Serious eye damage/eye irritation
Eyes - rabbit - Eye irritation

Respiratory or skin sensitization
no data available

Germ cell mutagenicity

no data available

Carcinogenicity
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Nitrilotriacetic acid)
      2B - Group 2B: Possibly carcinogenic to humans (Nitrilotriacetic acid)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: Reasonably anticipated to be a human carcinogen (Nitrilotriacetic acid)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

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Skin
Harmful if absorbed through skin. Causes skin irritation.

Eyes
Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: AJ0175000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish
LC50 - Leuciscus idus melanotus - 475 mg/l - 48 h
LC0 - Leuciscus idus melanotus - 460 mg/l - 48 h
LC50 - other fish - > 100 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h

Toxicity to algae
Growth inhibition LOEC - Desmodesmus subspicatus (green algae) - 5 mg/l - 72 h

Persistence and degradability
Biodegradability
Result: > 90 % - Readily biodegradable.

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards
Carcinogen, Target Organ Effect, Harmful by ingestion., Irritant
SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

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SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.

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16. OTHER INFORMATION

Further information
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