

According to the UN GHS revision 8

Creation Date: April 20, 2026

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1. IDENTIFICATION

1.1 GHS Product identifier

Product name: Nitrilotriacetic acid

Catalog Number: T20841

CAS Number: 139-13-9

1.2 Other means of identification

Other names: -

1.3 Recommended use of the chemical and restrictions on use

Identified uses:

1.4 Supplier's details

Company: Targetmol Chemicals Inc.

Address: 34 Washington Street, Wellesley Hills, Massachusetts 02481 USA

Tel/Fax: (781) 999-4286

1.5 Emergency phone number

Emergency phone number: 781-999-4286

Service hours: Monday to Friday, 9am-5pm (Standard timezone: UTC/GMT -5 hours).

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Carcinogenicity, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s):



Signal word: Warning

Hazard statement(s):
H319 Causes serious eye irritation
H351 Suspected of causing cancer

Precautionary statement(s):

Prevention: P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Response: P318 IF exposed or concerned, get medical advice.

Storage: P405 Store locked up.

Disposal: P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number
Nitrilotriacetic acid	-	139-13-9	205-355-7

4. FIRST-AID MEASURES

4.1 Description of necessary first-aid measures

General advice

no data available

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink.

4.2 Most important symptoms/effects, acute and delayed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Organic acids and related compounds

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Toxicity and health hazard of these compounds are low. Contact with eyes causes irritation. (USCG, 1999)

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

This chemical is a combustible solid. Use dry chemical, carbon dioxide, water spray, or alcohol foam extinguishers.

5.2 Specific hazards arising from the chemical

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

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This study used acidity, ethylenediaminetetraacetic acid and nitrilotriacetic acid treatment processes to explore the removal efficiencies of heavy metals from urban and industrial sludges. The results indicate that the optimum treatment efficiencies of heavy metals extraction from sludge are related to the species of heavy metals in sludge, dosage of extractants and the reaction time. The removal efficiency of a three stage countercurrent process was higher than those of single stage processes... The cost of the acid treatment process per unit weight of heavy metal extracted was lowest in conditions of high heavy metal concentrations, but the ethylenedinitrilotetraacetic process was the cheapest with low heavy metal concentrations.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants and strong bases. Well closed. Store in a refrigerator or in a cool, dry place.

Powder: -20°C for 3 years | In solvent: -80°C for 1 year

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

MAK: carcinogen category: 3A

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid
Color	White
Odour	no data available
Melting point/freezing point	242 °C. Atm. press.:Ca. 1 atm.
Boiling point or initial boiling point and boiling range	429 °C. Atm. press.:Ca. 1 atm.
Flammability	Combustible under specific conditions. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	255 °C. Atm. press.:Ca. 1 atm.

Auto-ignition temperature	no data available
Decomposition temperature	242°C
pH	pH of saturated aqueous solution = 2.3
Kinematic viscosity	no data available
Solubility	DMSO: 15 mg/mL (78.48 mM),Sonication is recommended. 0.1M NaOH: 15 mg/mL (78.48 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
N-octanol-water partition coefficient	log Pow = -3.81. Temperature:25 °C. Remarks:QSAR.
Vapour pressure	Ca. 0 Pa. Temperature:25 °C. Remarks:Modified Grain Method.
Density and/or relative density	1.5784 g/cm ³ (Estimated)
Relative vapour density	no data available
Particle characteristics	no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Decomposes on burning. This produces toxic and irritating fumes including nitrogen oxides. The solution in water is a weak acid. Reacts with strong bases and strong oxidants.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Dust explosion possible if in powder or granular form, mixed with air.NITRILOTRIACETIC ACID is incompatible with strong oxidizers, aluminum, copper, copper alloy and nickel. It is also incompatible with strong bases. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Violent reaction with strong bases.

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /nitrogen oxides/.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral: LD50 - rat - 1 580 mg/kg bw. Remarks:Effect level expressed as the acid.

Inhalation: LC0 - rat - > 3.7 mg/L air.

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Evaluation: There is inadequate evidence in humans for the carcinogenicity of nitrilotriacetic acid and its salts. There is sufficient evidence in experimental animals for the carcinogenicity of nitrilotriacetic acid and its sodium salts. Overall evaluation: Nitrilotriacetic acid and its salts are possibly carcinogenic in humans (Group 2B).

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

This substance is possibly carcinogenic to humans.

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish: LC50 - Pimephales promelas - 85 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Gammarus sp. - 73 mg/L - 96 h.

Toxicity to algae: NOEC - Selenastrum capricomutum, Scenedesmus subspiratus, Chlorella vulgaris - 3.7 mg/L - 5 d.

Toxicity to microorganisms: EC5 - Chilomonas paramecium - > 400 mg/L - 72 h.

12.2 Persistence and degradability

AEROBIC: In a river die-away study using Ruhr River water from Germany, nitrilotriacetic acid biodegradation rate constants of 0.30/day (25 deg C) and 0.07/day (2 deg C) were measured which correspond to respective half-lives of 2.3 and 9.9 days(1). In a die-away test Ohio River water, 100% degradation was observed after 12-14 days of incubation which included an 8-10 day lag period(2). In aerobic die-away tests using Detroit and Meramec River water, 100% degradation was observed after 3-15 days of incubation(3). In river die-away tests using river water from both upstream and downstream of the Heath, OH treatment plant, 100% degradation occurred within 10 days in the downstream water and within 16 days in the upstream water(4). In die-away tests using freshwater-sediment from Hamilton Harbor, Lake Erie, 100% degradation occurred in 3-11 days of incubation at input concentrations of 1-12 ppm(5). In CO2 evolution tests using river water inocula from various sites (Fukushima, Japan; Perkinsville, IN; Brantford, Ontario; Cincinnati, OH) located downstream from treatment plants and low concentrations of nitrilotriacetic acid (0.001-1 ppm), rate constants ranging from 0.12 to 1.28/day were measured which correspond to half-lives of 0.54 to 5.8 days(6). Nitrilotriacetic acid was rapidly degraded in river die-away studies using Grand River (Ontario, Can) water and Ohio River water(7); half-lives in the Grand River water ranged from 0.34-0.64 days while the Ohio River water had a 15-day CO2 evolution of 90%(7). Mineralization of nitrilotriacetic acid in Cayuga Lake water (Ithaca, NY) was 90% or greater in 20 days of incubation at concentrations of 1 ug/mL and 10 ng/mL(8); however, at 0.1 ng/L, mineralization was much slower (about 15% in 60 days)(8).

12.3 Bioaccumulative potential

BCFs of <9 to 24 and 109 were measured in carp (Cyprinus carpio) exposed for 28 days at nitrilotriacetic acid concentrations of 3 and 0.3 mg/L, respectively(1). According to a classification scheme(2), these BCFs suggest the potential for bioconcentration in aquatic organisms is low to moderate(SRC).

12.4 Mobility in soil

The Koc of nitrilotriacetic acid is estimated as <286(SRC), using a measured Kd value of <10 in a creek sediment containing 3.5% organic carbon(1). According to a classification scheme(2), this Koc suggests that nitrilotriacetic acid is expected to have high to moderate mobility in soil(SRC). Soil Rf values of 0.33-0.41 that were measured by thin-layer chromatography also suggest moderate to high soil mobility of nitrilotriacetic acid(3). Nitrilotriacetic acid had a reported Kd of 0.3 giving a half-life of 5 days(4). The pKa1 of nitrilotriacetic acid is 3.03(5), indicating that this compound will exist almost entirely in anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(6).

12.5 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

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Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. TRANSPORT INFORMATION

14.1 UN Number

no data available

14.2 UN Proper Shipping Name

no data available

14.3 Transport hazard class(es)

no data available

14.4 Packing group, if applicable

no data available

14.5 Environmental hazards

no data available

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.
EC Inventory	Listed.
United States Toxic Substances Control Act (TSCA) Inventory	Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
New Zealand Inventory of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

16. OTHER INFORMATION

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

no data available

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