

NITRILOTRIACETIC ACID

GHS Safety Data Sheet

Version No:2.0

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

NITRILOTRIACETIC ACID

OTHER NAMES

C6-H9-N-O6, C6-H9-N-O6, "acetic acid, nitrilotri-", "aminotriacetic acid", "N, N-bis(carboxymethyl)glycine", "glycine, N, N-bis(carboxymethyl)-", "glycine, N, N-bis(carboxymethyl)-", triglycine, "triglycollamic acid"

PRODUCT USE

Chelating and sequestering agent; builder in synthetic detergents.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

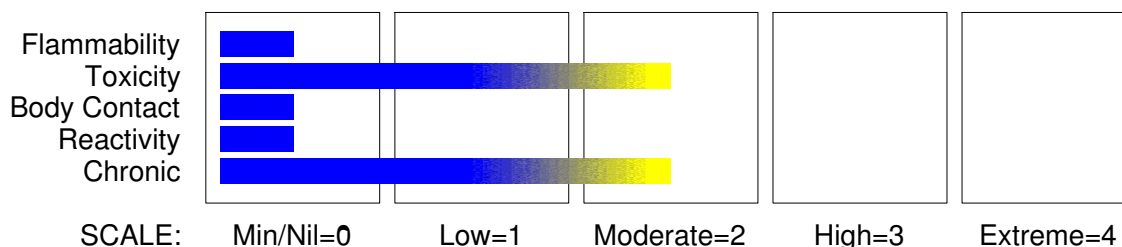
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

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HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Oral) Category 4

Carcinogen Category 2

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Section 2 - HAZARDS IDENTIFICATION



EMERGENCY OVERVIEW

HAZARD

WARNING

Determined by using GHS criteria:

H302 H351

Harmful if swallowed

Suspected of causing cancer

PRECAUTIONARY STATEMENTS

Prevention

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Wash hands thoroughly after handling.

Obtain special instructions before use.

Do not eat, drink or smoke when using this product.

Response

If exposed or concerned: Get medical attention advice.

Specific treatment: refer to Label or MSDS.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
nitritotriacetic acid	139-13-9	>95

Section 4 - FIRST AID MEASURES

SWALLOWED

Rinse mouth out with plenty of water.

For advice, contact a Poisons Information Centre or a doctor.

- If swallowed do NOT induce vomiting.

- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

- Observe the patient carefully.

- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious

- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.

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Section 4 - FIRST AID MEASURES

- Seek medical advice.

EYE

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

Brush off dust.

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered to be a significant fire risk, however containers may burn.
- In a fire may decompose on heating and produce toxic / corrosive fumes. May emit clouds of acrid smoke.

Decomposes on heating and produces acrid and toxic fumes of: carbon dioxide (CO₂), carbon monoxide (CO) and nitrogen oxides (NO_x).

FIRE INCOMPATIBILITY

Avoid contamination with strong oxidisers as ignition may result.

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Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Sweep up or
- Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).
- Place in clean drum then flush area with water.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment and dust respirator.
- Prevent spillage from entering drains, sewers or water courses.
- Recover product wherever possible. Avoid generating dust.
- Sweep / shovel up.
- If required, wet with water to prevent dusting.
- Put residues in labelled plastic bags or other containers for disposal.
- Wash area down with large quantity of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

nitritoltriaticetic acid 500 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

nitritoltriaticetic acid 500 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

nitritoltriaticetic acid 100 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

nitritoltriaticetic acid 35 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



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Section 6 - ACCIDENTAL RELEASE MEASURES

+ X + X 0 +

+: May be stored together

O: May be stored together with specific preventions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Multi-ply paper bag with sealed plastic liner or heavy gauge plastic bag.

NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.

STORAGE INCOMPATIBILITY

Avoid storage with oxidisers.

STORAGE REQUIREMENTS

Keep dry.

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- nitrilotriacetic acid:

CAS:26627- 44- 1 CAS:26627- 45- 2 CAS:139- 13- 9
CAS:80751- 51- 5

PERSONAL PROTECTION

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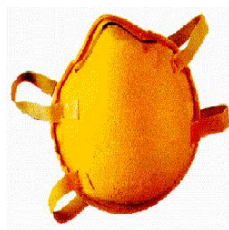
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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Polyethylene gloves or Rubber gloves.
Wear chemical protective gloves, eg. PVC.
Wear safety footwear.

OTHER

Overalls.
• Eyewash unit.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult your
Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Use in a well-ventilated area.
None required when handling small quantities.
OTHERWISE:.

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- (a): particle dust respirators, if necessary, combined with an absorption cartridge;
- (b): filter respirators with absorption cartridge or canister of the right type;
- (c): fresh-air hoods or masks
- Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
- Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.

Type of Contaminant:

direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

Air Speed:

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

- 1: Room air currents minimal or favourable to capture
- 2: Contaminants of low toxicity or of nuisance value only
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood- local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

White powder; does not mix with water well (1.28 gm/lt.)
Prismatic crystals from hot water.

PHYSICAL PROPERTIES

Solid.
Does not mix with water.

Molecular Weight: 191.16
Melting Range (°C): 230- 235 (decomp)
Solubility in water (g/L): Partly miscible
pH (1% solution): 2.3 (saturated)

Boiling Range (°C): Not applicable
Specific Gravity (water=1): Not available
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Volatile Component (%vol): Negligible
Relative Vapour Density (air=1): Not applicable
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not available
State: Divided solid

Evaporation Rate: Not applicable
Flash Point (°C): Not applicable
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C): Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN

The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Principal routes of exposure include skin contact and inhalation of dusts.

It may cause kidney and bladder neoplasms (growths) in rats and mice when given as the sodium salt at high levels in the diet (above 7500 ppm) or in

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Section 11 - TOXICOLOGICAL INFORMATION

drinking water. No neoplasms occur at lower levels. There is a sharp no-effect level. NTA is not biotransformed and is excreted entirely in the urine. It is not DNA reactive and studies on the mode of action have focused on its chelating effects in kidney and bladder. NTA carries zinc into the kidney ultrafiltrate where it is reabsorbed by kidney cells (tubular epithelium). Zinc is toxic to these cells producing cell injury and death leading to hyperplastic and eventually neoplastic responses. NTA in the urine chelates calcium extracting it from the urothelium of the renal pelvis and bladder; cell proliferation and possibly neoplasm occur as a result.

TOXICITY AND IRRITATION

TOXICITY

Oral (rat) LD50: 1100 mg/kg

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

The substance has been tested for mutagenicity in many different laboratory species but does not appear to be genotoxic.

NTA is not metabolized by mammals and is excreted via the kidneys.

[Data ex Chesser from European Amino-carboxylates Producers committee, 1992]

IRRITATION

Nil Reported

Section 12 - ECOLOGICAL INFORMATION

Fish LC50 (96hr.) (mg/l):	100
Daphnia magna EC50 (48hr.) (mg/l):	100
Algae IC50 (72hr.) (mg/l):	8.3- 510
COD:	0.75
Half- life Soil - High (hours):	672
Half- life Soil - Low (hours):	72
Half- life Air - High (hours):	8.1
Half- life Air - Low (hours):	0.81
Half- life Surface water - High (hours):	672
Half- life Surface water - Low (hours):	168
Half- life Ground water - High (hours):	1344
Half- life Ground water - Low (hours):	336
Aqueous biodegradation - Aerobic - High (hours):	672
Aqueous biodegradation - Aerobic - Low (hours):	168
Aqueous biodegradation - Anaerobic - High (hours):	2688
Aqueous biodegradation - Anaerobic - Low (hours):	672
Photooxidation half- life air - High (hours):	8.1
Photooxidation half- life air - Low (hours):	0.81

BOD 5 if unstated: 0.014

COD: 0.75

Nitrif. inhib.: 30% inhib at 100mg/L

Section 13 - DISPOSAL CONSIDERATIONS

Depending on location and conditions, neutralised material may be disposed to sewer if approved by regulatory authorities.

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

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Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA,
IMDG

Section 15 - REGULATORY INFORMATION

REGULATIONS

nitrilotriacetic acid (CAS: 139-13-9) is found on the following regulatory lists;
International Agency for Research on Cancer (IARC) Carcinogens
WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of
health significance in drinking-water

No data available for nitrilotriacetic acid as CAS: 26627-44-1, CAS: 26627-45-2, CAS:
80751-51-5.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
nitrilotriacetic acid	26627- 44- 1, 26627- 45- 2 , 139- 13- 9, 80751- 51- 5

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 12-May-2018