

SAFETY DATA SHEET

Nitric Acid 50-60%

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Issued: 18/04/2023
Revision No: 1

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product identifier:

Product name: Nitric Acid 50%

Relevant identified uses of the substance or mixture and uses advised against:

Identified uses: Fertilizer. pH adjustment. Metal Treatment. Laboratory reagent.

Company name: Nexchem Ltd
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Leycroft Road
Leicester
LE4 1ET
Tel: 0116 2311130
24/7 Emergency Tel: 0800 246 1274
Email: sales@nexchem.co.uk

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification (SI 2019 No. 720):

Physical hazards: Met. Corr. 1 - H290

Health hazards: Acute Tox. 4 - H332. Skin Corr. 1A - H314. Eye Dam. 1 - H318.

Environmental hazards: Not Classified.

Label elements:

Hazard pictograms:



Signal word: Danger

Hazard statements:
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.

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Precautionary statements:

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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/ doctor.

Supplemental label information: EUH071 Corrosive to the respiratory tract.

Contains: Nitric acid ... %

Supplementary precautionary statements: P234 Keep only in original packaging.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash contaminated skin thoroughly after handling.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P312 Call a POISON CENTRE/doctor if you feel unwell.
P321 Specific treatment (see medical advice on this label).
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P406 Store in a corrosion-resistant container with a resistant inner liner.
P501 Dispose of contents/ container in accordance with national regulations.

Other hazards:

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures:	Nitric acid ... %	50-60%
CAS number:	7697-37-2	
EC number:	231-714-2	

Classification:

Ox. Liq. 2 - H272
Met. Corr. 1 - H290
Acute Tox. 1 - H330
Skin Corr. 1A - H314
Eye Dam. 1 - H318

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

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4. FIRST AID MEASURES

Description of first aid measures:

General information:

Show this Safety Data Sheet to the medical personnel.

Inhalation:

Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Place unconscious person on their side in the recovery position and ensure breathing can take place. Get medical attention immediately.

Ingestion:

Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Loosen tight clothing such as collar, tie or belt. Get medical attention immediately.

Skin contact:

It is important to remove the substance from the skin immediately. Take off immediately all contaminated clothing. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention. Get medical attention immediately.

Eye contact:

Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes. Get medical attention immediately.

Protection of first aiders:

First aid personnel should wear appropriate protective equipment during any rescue. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed:

Inhalation:

Corrosive to the respiratory tract. Causes burns. Irritating to respiratory system. Shortness of breath.

Ingestion:

May cause chemical burns in mouth, oesophagus and stomach. Symptoms following overexposure may include the following: Severe stomach pain. Nausea, vomiting.

Skin contact:

Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.

Eye contact:

Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

Indication of any immediate medical attention and special treatment needed:

Notes for the doctor:

Treat symptomatically. Development of symptoms may be delayed for 24 to 48 hours.

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Suitable extinguishing media: Water. Carbon dioxide (CO₂).

Unsuitable extinguishing media: Dry chemicals. Foam.

Special hazards arising from the substance or mixture:

Specific hazards:

Severe corrosive hazard. Water used for fire extinguishing, which has been in contact with the product, may be corrosive.

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Hazardous combustion products: Thermal decomposition or combustion products may include the following substances: Oxides of nitrogen.

Advice for firefighters:

Protective actions during firefighting: Avoid breathing fire gases or vapours. Keep upwind to avoid inhalation of gases, vapours, fumes and smoke. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters: Regular protection may not be safe. Wear chemical protective suit. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing will provide a basic level of protection for chemical incidents.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personal precautions: No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage. Ensure procedures and training for emergency decontamination and disposal are in place. Do not touch or walk into spilled material. Avoid inhalation of vapours. Provide adequate ventilation. Use suitable respiratory protection if ventilation is inadequate.

Environmental precautions: The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms. Avoid discharge to the aquatic environment. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

Methods and material for containment and cleaning up:

Methods for cleaning up: Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. This product is corrosive. Approach the spillage from upwind. Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Reference to other sections: For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

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7. HANDLING AND STORAGE

Precautions for safe handling:

Usage precautions:

Wear protective clothing as described in Section 8 of this safety data sheet. If ventilation is inadequate, suitable respiratory protection must be worn. Avoid the formation of mists. This product is corrosive. Immediate first aid is imperative. Do not handle until all safety precautions have been read and understood. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use. Do not handle broken packages without protective equipment. Do not reuse empty containers.

Advice on general occupational hygiene: Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

Conditions for safe storage, including any incompatibilities:

Storage precautions:

Store in accordance with local regulations. Keep away from flammable and combustible materials. Store away from the following materials: Store away from incompatible materials (see Section 10). Keep only in the original container. Keep container tightly closed, in a cool, well-ventilated place. Keep containers upright. Protect containers from damage. Store in corrosive resistant container with a resistant inner liner. Bund storage facilities to prevent soil and water pollution in the event of spillage. The storage area floor should be leak-tight, jointless and not absorbent.

Specific end use(s):

The identified uses for this product are detailed in Section 1.2.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

Occupational exposure limits:

Nitric acid ... %

Short-term exposure limit (15-minute): WEL 1 ppm 2.6 mg/m³

WEL = Workplace Exposure Limit.

Nitric acid ... % (CAS: 7697-37-2)

DNEL:

Workers - Inhalation; Long term local effects: 2.6 mg/m³

Workers - Inhalation; Short term local effects: 2.6 mg/m³

Exposure controls:

Appropriate engineering controls: Provide adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimise exposure. Provide eyewash station and safety shower.

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- Eye/face protection:** Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment that provides appropriate eye and face protection should be worn. Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Hand protection:** Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacture, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, wear gloves that are proven to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.
- Other skin and body protection:** Wear chemical protective suit. Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.
- Hygiene measures:** Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Warn cleaning personnel of any hazardous properties of the product.
- Respiratory protection:** Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'UKCA'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges suitable for intended use should be used. Full face mask respirators with replaceable filter cartridges suitable for intended use should be used. Gas filter, type E.
- Environmental exposure controls:** Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Avoid release to the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

- Appearance:** Liquid.
- Colour:** Colourless.
- Odour:** Pungent.
- pH:** Aqueous solutions are acidic.
- Bulk density:** ~ 1.31 kg/l
- Other information:**

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10. STABILITY AND REACTIVITY

Reactivity: There are no known reactivity hazards associated with this product.

Chemical stability:

Stability: Stable at normal ambient temperatures and when used as recommended.

Possibility of hazardous reactions: No potentially hazardous reactions known.

Conditions to avoid: Avoid heat, flames and other sources of ignition. Avoid exposure to high temperatures or direct sunlight.

Incompatible materials:

Materials to avoid: Organic compounds. Reducing agents. Alkalis. Powdered metal. Hydrogen sulphide (H₂S). Alcohols. Chlorates. Carbides. Carbon steel. Monel. Copper. Other metals or alloys. In contact with some metals can generate hydrogen gas, which can form explosive mixtures with air.

Hazardous decomposition products: Oxides of nitrogen.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Acute toxicity – inhalation:

Notes (inhalation LC₅₀): Acute Tox. 3 - H331 Toxic if inhaled.

ATE inhalation (vapours mg/l): 5.3

Skin corrosion/irritation:

Skin corrosion/irritation: Skin Corr. 1A - H314 Causes severe skin burns and eye damage.

Serious eye damage/irritation:

Serious eye damage/irritation: Eye Dam. 1 - H318 Causes serious eye damage.

Toxicological information on ingredients: Nitric acid ... %

Acute toxicity – oral:

Notes (oral LD₅₀): Technical impossibility to obtain the data. Corrosive.

Acute toxicity – dermal:

Notes (dermal LD₅₀): Technical impossibility to obtain the data. Corrosive.

Acute toxicity – inhalation:

Acute toxicity inhalation (LC₅₀ vapours mg/l): 0.2

Species: Rat

Notes (inhalation LC₅₀): LC₅₀ >2.65 mg/l, Inhalation, Rat applicable for dilutions ≤70% nitric acid

ATE inhalation (vapours mg/l): 0.2

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Skin corrosion/irritation:

Skin corrosion/irritation: Corrosive to skin.

Serious eye damage/irritation:

Serious eye damage/irritation: Corrosive

Respiratory sensitisation:

Respiratory sensitisation: Technical impossibility to obtain the data. Corrosive.

Skin sensitisation:

Skin sensitisation: Technical impossibility to obtain the data. Corrosive

Germ cell mutagenicity:

Genotoxicity - in vitro: Based on available data the classification criteria are not met.

Genotoxicity - in vivo: Based on available data the classification criteria are not met.

Carcinogenicity:

Carcinogenicity: Based on available data the classification criteria are not met.

Reproductive toxicity:

Reproductive toxicity – fertility: Based on available data the classification criteria are not met.

Reproductive toxicity – development: Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure:

STOT - single exposure: Not available.

Specific target organ toxicity - repeated exposure:

STOT - repeated exposure: Not available.

Aspiration hazard:

Aspiration hazard: Based on available data the classification criteria are not met.

12. ECOLOGICAL INFORMATION

Ecotoxicity: The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

Toxicity:

Ecological information on ingredients.

Acute aquatic toxicity:

Acute toxicity – fish: Read-across data.

LC₅₀, 96 hour: 1559 mg/l, Topeka shiner (Notropis Topeka).

Acute toxicity - aquatic invertebrates: Read-across data.

EC₅₀, 48 hour: 490 mg/l, Daphnia magna

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Persistence and degradability:

Ecological information on ingredients.

Persistence and degradability: Not applicable. Substance is inorganic.

Bioaccumulative potential:

Ecological information on ingredients.

Bioaccumulative potential: The product is not bioaccumulating.

Mobility in soil:

Ecological information on ingredients.

Mobility: No data available.

Results of PBT and vPvB assessment:

Ecological information on ingredients.

Results of PBT and vPvB assessment: Not relevant. Substance is inorganic.

Other adverse effects:

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

General information:

Neutralise spilled material with crushed limestone, slaked lime (calcium hydroxide), soda ash (sodium carbonate) or sodium bicarbonate. The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods:

Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Dispose of contents/container in accordance with local regulations. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

14. TRANSPORT INFORMATION

UN number:

UN No. (ADR/RID): 2031

UN No. (IMDG): 2031

UN No. (ICAO): 2031

UN No. (ADN): 2031

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UN proper shipping name:

Proper shipping name (ADR/RID): NITRIC ACID

Proper shipping name (IMDG): NITRIC ACID

Proper shipping name (ICAO): NITRIC ACID

Proper shipping name (ADN): NITRIC ACID

Transport hazard class(es):

ADR/RID class: 8

ADR/RID classification code: CO1

ADR/RID label: 8

IMDG class: 8

ICAO class/division: 8

ADN class: 8

Transport labels:



Packing group:

ADR/RID packing group: II

IMDG packing group: II

ICAO packing group: II

ADN packing group: II

Environmental hazards:

Environmentally hazardous substance/marine pollutant: No.

Special precautions for user:

EmS: F-A, S-B

ADR transport category: 2

Emergency Action Code: 2R

Hazard Identification Number (ADR/RID): 80

Tunnel restriction code: (E)

Transport in bulk according to Annex II of MARPOL and the IBC Code:

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable.

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15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

National regulations:

Health and Safety at Work etc. Act 1974 (as amended).
The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].
EH40/2005 Workplace exposure limits.
The Poisons Act 1972 (Explosives Precursors) (Amendment) Regulations 2018.
Control of Poisons and Explosives Precursors Regulation 2015.
Offensive Weapons Act 2019.

Chemical safety assessment:

No chemical safety assessment has been carried out.

Note:

The regulatory information given above only indicates the principal regulations specifically Applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Abbreviations and acronyms used in the safety data sheet:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
IATA: International Air Transport Association.
ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
IMDG: International Maritime Dangerous Goods.
CAS: Chemical Abstracts Service.
ATE: Acute Toxicity Estimate.
LC50: Lethal Concentration to 50 % of a test population.
EC₅₀: 50% of maximal Effective Concentration.
PBT: Persistent, Bioaccumulative and Toxic substance.
vPvB: Very Persistent and Very Bioaccumulative.
DNEL: Derived No Effect Level.
PNEC: Predicted No Effect Concentration.
UN: United Nations.
IBC: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code).

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Classification abbreviations and acronyms: Acute Tox. = Acute toxicity.

Eye Dam. = Serious eye damage.

Skin Corr. = Skin corrosion.

Met. Corr. = Corrosive to metals.

Classification procedures according to SI 2019 No. 720: Acute Tox. 3 - H331:

Calculation method. Eye Dam. 1 - H318.

Skin Corr. 1A - H314.

On basis of test data. Met. Corr. 1 - H290.

Hazard statements in full:

H272 May intensify fire; oxidiser.

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H330 Fatal if inhaled.

H331 Toxic if inhaled.

Legal disclaimer:

The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation.

This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.