

SECTION-1: Identification of the substance / mixture and the company / undertaking

Catalogue Number	CS-O-32791
Product Name	Nitric Acid
CAS No.	7697-37-2
Category	Fine Chemicals
Synonyms	Aqua Fortis; Azotic Acid; Fumic Acid; Hydrogen Nitrate; NSC 147791; NSC 15203; Nital; Nitric acid (HONO ₂); Nitryl hydroxide;
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email sales@clearsynth.com for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Acute toxicity (Category 4)

2.2 Label Elements

Signal Word: Warning



Hazard Statement(s)

Code	Statement
H272	Not available
H314	Not available
H330	Not available

H331	Not available
H290	Not available
H318	Causes serious eye damage.
H302	Harmful if swallowed.
H370	Not available
H372	Not available
H402	Not available
H304	Not available

Precautionary Statement(s)

Code	Statement
P210	Not available
P220	Not available
P260	Not available
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Not available
P301+P330+P331	Not available
P302+P361+P354	Not available
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P354+P338	Not available
P316	Not available
P320	Not available
P321	Specific treatment (see ... on this label).
P363	Not available
P370+P378	Not available
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulation

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P234	Not available
P264+P265	Not available
P317	Not available
P390	Not available
P406	Not available
P270	Not available
P301+P317	Not available
P330	Not available
P273	Not available
P308+P316	Not available
P319	Get medical help if you feel unwell.
P301+P316	Not available
P331	Not available

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Nitric Acid

CAS Number : 7697-37-2

Molecular Formula : HNO₃

Molecular Weight : 63.01

Parent Chemical : Nitric Acid

Synonyms : Aqua Fortis; Azotic Acid; Fumic Acid; Hydrogen Nitrate; NSC 147791; NSC 15203; Nital; Nitric acid (HONO₂); Nitryl hydroxide;

Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures

General advice:

- Seek medical attention immediately for all exposures. Show this SDS to the physician.
- Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.

Inhalation:

- Move person to fresh air. Keep at rest in a position comfortable for breathing.
- If breathing is difficult, trained personnel should administer oxygen.

- If not breathing, give artificial respiration by trained personnel.
- Immediate medical attention required.

Skin contact:

- Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Do not apply neutralizing chemicals to the skin.
- Get immediate medical attention.

Eye contact:

- Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally.
- Remove contact lenses if present and easy to do; continue rinsing.
- Immediate ophthalmologic/medical attention required.

Ingestion:

- Rinse mouth with water if conscious.
- Do NOT induce vomiting.
- Never give anything by mouth to an unconscious person.
- Immediate medical attention required.

4.2 Most important symptoms and effects, both acute and delayed

- Corrosive: causes severe skin burns and eye damage.
- Inhalation may cause severe irritation/burns to respiratory tract; coughing, choking, shortness of breath; delayed pulmonary effects may occur.
- Ingestion may cause severe burns to mouth, throat, and gastrointestinal tract.

4.3 Indication of any immediate medical attention and special treatment needed

- Treat symptomatically.
- Risk of delayed respiratory effects; medical observation may be required.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media:

- Use extinguishing media appropriate for surrounding fire (e.g., water spray/fog).

Unsuitable extinguishing media:

- Not available.

5.2 Special hazards arising from the substance or mixture

- Not combustible; strong oxidizer.
- Contact with many organic materials, reducing agents, metals, or combustibles may intensify fire or cause violent reaction.
- Thermal decomposition/combustion may produce nitrogen oxides.

5.3 Advice for firefighters

- Wear self-contained breathing apparatus (SCBA) and full protective gear.
- Use water spray to cool containers exposed to fire.
- Prevent fire-fighting water from entering drains or waterways.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Evacuate area; restrict access.
- Provide adequate ventilation.
- Avoid breathing vapors/mist and avoid contact with skin/eyes.
- Wear appropriate PPE (acid-resistant gloves, protective clothing, chemical splash goggles/face shield; respiratory protection as needed).

6.2 Environmental precautions

- Prevent entry into sewers, drains, and waterways.
- Notify authorities if release enters the environment.

6.3 Methods and material for containment and cleaning up

- Stop leak if safe to do so.
- Contain spill with inert, non-combustible absorbent (e.g., sand/earth/vermiculite).
- Carefully collect into compatible, corrosion-resistant containers for disposal.
- Do not use combustible absorbents (e.g., sawdust).
- Wash spill area with plenty of water after material pickup, if permitted.

6.4 Reference to other sections

- See Section 8 for exposure controls/personal protection.
- See Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Handle in a chemical fume hood or with local exhaust ventilation.
- Avoid breathing vapors/mist; avoid contact with skin, eyes, and clothing.
- Use corrosion-resistant equipment.
- Keep away from heat and incompatible materials.
- Do not mix with other chemicals unless specifically directed by qualified personnel.
- Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

- Store in tightly closed, corrosion-resistant container in a cool, dry, well-ventilated area.
- Protect from direct sunlight and heat.
- Segregate from incompatible materials including: bases/alkalis, reducing agents, organic materials, combustibles, metals, cyanides, sulfides, carbides, and many reactive chemicals.
- Store away from food and beverages.

7.3 Specific end use(s)

- Fine chemical / laboratory use. No further information available.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits:

- Not available.

8.2 Exposure controls

Engineering controls:

- Use local exhaust ventilation or fume hood.
- Provide eyewash station and safety shower.

Personal protective equipment (PPE):

Eye/face protection:

- Chemical splash goggles and face shield.

Skin protection:

- Acid-resistant gloves and protective clothing (e.g., apron, lab coat/chemical suit as appropriate).

Respiratory protection:

- Use appropriate respiratory protection if ventilation is inadequate or if exposure limits may be exceeded. Selection should be based on hazard assessment and applicable regulations.

Hygiene measures:

- Remove contaminated clothing and wash before reuse.
- Do not eat, drink, or smoke when using this product.

Environmental exposure controls:

- Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	Liquid
b) Color	Colorless to yellowish
c) Odor	Pungent, acrid
d) pH	No data available
e) Vapour Pressure	Not applicable
f) Viscosity	No data available

Property	Value
g) Initial Boiling Point and boiling range	Not applicable
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	Not applicable
k) Explosion Limit, Lower	Not applicable
l) Explosion Limit, Upper	Not applicable
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

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10.1 Reactivity

- Strong oxidizing acid; reacts vigorously with many substances.

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- Violent reactions possible with bases, reducing agents, many organic compounds, and some metals.
- May generate toxic nitrogen oxides under certain conditions.

10.4 Conditions to avoid

- Heat, direct sunlight, contamination, and contact with incompatible materials.

10.5 Incompatible materials

- Bases/alkalis, reducing agents, organic materials/combustibles, metals, cyanides, sulfides, carbides, and other reactive chemicals.

10.6 Hazardous decomposition products

- Nitrogen oxides.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity: LC50 (rat) = 67 ppm (NO2)/4H LD50: 138 ppm over 30 minutes (Inhalation, Rat) (A677)
- Skin corrosion/irritation: Nitric acid is a corrosive acid and a powerful oxidizing agent. The major hazard posed by it is chemical burns as it carries out acid hydrolysis with proteins (amide) and fats (ester) which consequently

decomposes living tissue (e.g. skin and flesh). Concentrated nitric acid stains human skin yellow due to its reaction with the keratin. These yellow stains turn orange when neutralized. Systemic effects are unlikely, however, and the substance is not considered a carcinogen or mutagen. Skin contact with nitric acid can cause redness, pain, and severe skin burns. Nitric acid may cause severe burns to the eye and permanent eye damage. Severe and rapid corrosive burns of the mouth, gullet and gastrointestinal tract will result if nitric acid is swallowed. Symptoms include burning, choking, nausea, vomiting and severe pain.

- Serious eye damage/eye irritation: No data available.

- Respiratory or skin sensitization: No data available.

- Germ cell mutagenicity: Nitric acid is a corrosive acid and a powerful oxidizing agent. The major hazard posed by it is chemical burns as it carries out acid hydrolysis with proteins (amide) and fats (ester) which consequently decomposes living tissue (e.g. skin and flesh). Concentrated nitric acid stains human skin yellow due to its reaction with the keratin. These yellow stains turn orange when neutralized. Systemic effects are unlikely, however, and the substance is not considered a carcinogen or mutagen.

- Carcinogenicity: Nitric acid is a corrosive acid and a powerful oxidizing agent. The major hazard posed by it is chemical burns as it carries out acid hydrolysis with proteins (amide) and fats (ester) which consequently decomposes living tissue (e.g. skin and flesh). Concentrated nitric acid stains human skin yellow due to its reaction with the keratin. These yellow stains turn orange when neutralized. Systemic effects are unlikely, however, and the substance is not considered a carcinogen or mutagen.

- Reproductive toxicity: No data available.

- STOT-single exposure: /LABORATORY ANIMALS: Acute Exposure/ ... A single exposure to nitric acid mist in a concentration of 63 mg/cu m had no apparent adverse effect on rats.

- STOT-repeated exposure: /LABORATORY ANIMALS: Acute Exposure/ Hamsters were exposed to an intratracheal installation of 0.5 mL of 0.08N nitric acid (HNO₃) to determine their airway epithelial response. Three weeks after exposure, the left intrapulmonary bronchi in Alcian blue/PAS stained paraffin sections were evaluated for the amount of secretory product in the airway epithelium as a measure of secretory cell metaplasia. Compared to saline treated control animals, acid caused statistically significant secretory cell metaplasia. In addition to the bronchial lesion, acid caused similar interstitial fibrosis, bronchiolectasis, and bronchiolization of alveoli that varied in individual animals from mild to severe. In a separated experiment to study the persistence of the secretory cell metaplasia, hamsters treated with a single instillation of 0.1N HNO₃ showed significant secretory cell metaplasia 3, 7, and 17 weeks after exposure. There was a high correlation (r= 0.96) between a subjective assessment of secretory cell metaplasia and objective assessment using a digital image analysis system. Apparently, protons induce secretory cell metaplasia independently of the associated anion; the secretory cell metaplasia persists at least 17 weeks. HNO₃ may contribute to the development or maintenance of the secretory cell metaplasia seen in the conducting airways of humans with chronic obstructive pulmonary disease.

- Aspiration hazard: No data available.

Likely routes of exposure

- Skin contact with nitric acid can cause redness, pain, and severe skin burns. Nitric acid may cause severe burns to the eye and permanent eye damage. Severe and rapid corrosive burns of the mouth, gullet and gastrointestinal tract will result if nitric acid is swallowed. Symptoms include burning, choking, nausea, vomiting and severe pain.

Symptoms related to the physical, chemical and toxicological characteristics

- Nitric acid is a corrosive acid and a powerful oxidizing agent. The major hazard posed by it is chemical burns as it carries out acid hydrolysis with proteins (amide) and fats (ester) which consequently decomposes living tissue (e.g. skin and flesh). Concentrated nitric acid stains human skin yellow due to its reaction with the keratin. These yellow stains turn orange when neutralized. Systemic effects are unlikely, however, and the substance is not considered a carcinogen or mutagen.

SECTION 12: Ecological information

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12.1 Toxicity

- No data available.

12.2 Persistence and degradability

- No data available.

12.3 Bioaccumulative potential

- No data available.

12.4 Mobility in soil

- No data available.

12.5 Results of PBT and vPvB assessment

- Not available.

12.6 Endocrine disrupting properties

- No data available.

12.7 Other adverse effects

- Acidification hazard; may cause pH changes in receiving waters. No further data available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Dispose of contents/container in accordance with local/regional/national/international regulations.

- Do not discharge to drains.

- Waste is corrosive and may be oxidizing; handle with appropriate precautions.

- Contaminated packaging: dispose of as hazardous waste in accordance with regulations.

SECTION 14: Transport information

SECTION 14: Transport information

14.1 UN number

- Not available.

14.2 UN proper shipping name

- Not available.

14.3 Transport hazard class(es)

- Not available.

14.4 Packing group

- Not available.

14.5 Environmental hazards

- Not available.

14.6 Special precautions for user

- Transport in corrosion-resistant, tightly closed containers. Keep separated from incompatible materials.

14.7 Maritime transport in bulk according to IMO instruments

- Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

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

- Regulatory information not available.

15.2 Chemical safety assessment

- Not available.

SECTION 16: Other information

SECTION 16: Other information

Product identification:

- Product name: Nitric Acid
- CAS No.: 7697-37-2
- Catalog No.: CS-O-32791
- Synonyms: Aqua Fortis; Azotic Acid; Fumic Acid; Hydrogen Nitrate; NSC 147791; NSC 15203; Nital; Nitric acid (HONO₂); Nitryl hydroxide

Supplier:

- Clearsynth Labs Ltd., Mumbai, India
- Emergency phone: +91-22-245045900

Disclaimer:

- The information provided is believed to be accurate based on available data, but no warranty is expressed or implied. Users must determine suitability for their particular purpose and comply with applicable regulations.

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