

Nitric Acid

Safety data sheet in the 16-section GHS format · CAS 7697-37-2

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1. Identification of the substance and of the supplier

Product name	Nitric Acid
Synonyms	aqua fortis, HNO ₃ , weak nitric acid, CNA
C.A.S. number	7697-37-2
Molecular formula	HNO ₃
Grade supplied	60% / 68% technical / 98% CNA
Product group	Mineral & Organic Acids
Identified uses	Dyes & intermediates, Stainless fabrication, Fertiliser, Metal finishing, Chemicals & pharma, Electronics
Supplier	Velora Chemicals Private Limited
Emergency contact	Medical, fire or spill emergency — call the emergency services first: 112 (all-India), 101 fire, 108 ambulance. Velora Chemicals Private Limited does not at present operate a 24-hour chemical emergency advice line, and this sheet does not pretend otherwise. Every consignment despatched by road carries an emergency information panel under rule 134 of the Central Motor Vehicles Rules 1989 bearing a number from which expert advice on this material can be obtained, and the producer's safety data sheet issued with the consignment carries the producer's own 24-hour number where one is operated. For product, grade and documentation queries in business hours: +91 99255 22674.

2. Hazards identification

GHS signal word	Danger
Hazard classification	Ox. Liq. 3 — H272; Skin Corr. 1A — H314; EUH071 (corrosive to the respiratory tract) (EU harmonised, CLP Annex VI index 007-030-00-3, which is the entry for nitric acid at 70% or below — confirmed on the BASF SDS for 68% acid). Producer SDSs additionally self-classify Acute Tox. 3 inhalation — H331, Met. Corr. 1 — H290 and Eye Dam. 1 — H318; these are not part of the harmonised entry. Nitric acid above 70% falls under a different Annex VI entry (index 007-004-00-1) with a higher oxidising-liquid category, so do not carry this classification across to a stronger grade

3. Composition / information on ingredients

Substance	Nitric Acid
C.A.S. number	7697-37-2
Molecular weight	63.01 g/mol
Composition	60% / 68% technical / 98% CNA

4. First-aid measures

Eye contact	Immediately wash the affected eye for at least 15 minutes under gently running water with the eyelids held open (BASF SDS); remove contact lenses if easy to do and continue rinsing. Do not use any neutralising agent. Refer immediately to an eye specialist and continue irrigation during transport.
Skin contact	Immediately wash thoroughly with plenty of water for at least 15 minutes, removing contaminated clothing and footwear under the running water, then apply sterile dressings and refer to a skin specialist or burns unit (BASF SDS). Do not apply neutralising agents or ointments. Nitric acid burns stain the skin bright yellow (xanthoproteic reaction) — the stain marks the injury and the burn is typically deeper than it first appears.
Inhalation	Remove the casualty to fresh air at once, keep calm and at rest in a half-upright position, and give oxygen if breathing is difficult. Seek medical attention immediately. This is the critical point for nitric acid: the nitrogen dioxide fume causes DELAYED pulmonary oedema that can develop up to 24-48 hours after an apparently mild exposure, so anyone who has inhaled the fume must be kept under medical observation and at rest even if they feel completely well, and must not be allowed to exert themselves.
Ingestion	Rinse the mouth immediately, then give 200-300 mL of water to drink (BASF SDS). Do NOT induce vomiting and do NOT attempt neutralisation with bicarbonate or other alkalis. Give nothing by mouth to an unconscious person. Seek medical attention immediately.

5. Fire-fighting measures

Flash point	Not flammable — but it is an oxidiser (Ox. Liq. 3, H272) and can ignite combustible material such as wood, paper, rags and sawdust on contact
Suitable extinguishing media	Water fog, foam, dry chemical powder or carbon dioxide, chosen to suit the surrounding fire. The substance itself does not contribute fuel.
Unsuitable extinguishing media	Do not use a high-pressure water jet: it will spread the material and the fire.
Special hazards arising from the substance	Hazardous gases and decomposition products may be formed in a fire, from this substance or from its packaging and the materials stored with it. Packaging and pallets are themselves a substantial fire load. That is true even though the contents do not contribute fuel.
Advice for fire-fighters	Fire-fighters must wear self-contained breathing apparatus and full protective clothing. Keep unnecessary personnel away and upwind. Prevent firefighting run-off from entering drains, surface water or groundwater.

6. Accidental release measures

Keep unnecessary personnel away and upwind, and ventilate. Wear the protective equipment in section 8 before approaching. Stop the leak if it is safe to do so, then bund or dike the spill and prevent entry to drains, surface water and groundwater. Absorb with an inert absorbent and collect into labelled, closable containers for disposal under section 13. Do not return spilled material to the original container.

7. Handling and storage

- Nitric acid is a strong oxidiser as well as a strong acid. Keep it well away from organics, solvents, rags and wood — contact can ignite. This is the property that distinguishes it from hydrochloric and sulphuric in a store, and the segregation is not optional.
- Stainless steel is the usual material of construction for concentrated acid; weak acid is handled in stainless or suitable lined equipment. Never use ordinary mild steel.
- The transport class depends on strength. Under UN 2031, nitric acid below 65% is Class 8 corrosive only; at 65% and above it also carries the Class 5.1 oxidiser subsidiary risk, and 98% CNA is Class 8 / 5.1 Packing Group I. Get this right on the placards and shipping papers — the 60% and 68% grades are not documented the same way.

- Nitrogen oxide fumes from a spill are seriously hazardous whatever the transport class, so the unloading point needs ventilation and a considered emergency plan.

Storage: Store in a cool (BASF/Teco SDS indicate roughly 5-30 C), dark, well-ventilated place out of direct sunlight and away from heat; nitric acid decomposes in light, evolving NO₂ and building pressure in closed containers, so use vented closures. Storage class 5.1B (oxidising substances). Use 316L stainless steel, PTFE-lined or glass containment; avoid ordinary carbon steel, copper, brass and aluminium. Keep strictly segregated in a separate bund from combustibles, organic chemicals, reducing agents, bases, cyanides and metal powders — do not store on wooden pallets or shelving. Keep only in the original or an approved container. Provide eyewash, safety shower and an inert absorbent (never sawdust or other combustible absorbent) for spills.

8. Exposure controls / personal protection

Engineering controls. Enclose every transfer, tipping, bag-slitting and sampling point and fit local exhaust extraction at each, and keep airborne concentrations below the limit in force at the place of use. Provide an eyewash within reach of the working position, and a safety shower wherever the material is classified corrosive or irritant or is handled in quantity. Do not eat, drink or smoke in the handling area; wash before breaks. Where no limit is stated above, occupational exposure limits vary by jurisdiction: check the limit in force at the place of use and the producer's sheet for the grade supplied, and record which value your assessment adopted. Select eye, skin and respiratory protection on the strength of a measured or modelled exposure assessment, not on this sheet alone.

9. Physical and chemical properties

Appearance	Colourless to pale yellow liquid with a pungent, suffocating odour; yellows progressively on storage or exposure to light as nitrogen dioxide forms, and fumes in moist air
Physical state	Liquid
Melting / freezing point	-38 C (68% acid, BASF SDS); -35.9 C (68% acid, RCI Labscan SDS)
Boiling point	121 C (68% acid — BASF SDS and ILO ICSC 0183)
Relative density	1.405 g/cm ³ at 20 C (68% acid, BASF SDS)
Solubility in water	Miscible with water in all proportions (>500 g/L); mixing evolves heat
pH	<1 (as supplied, 68%)
Flash point	Not flammable — but it is an oxidiser (Ox. Liq. 3, H272) and can ignite combustible material such as wood, paper, rags and sawdust on contact
Auto-ignition / ignition temperature	Not available
Explosive / dust-explosion properties	Not available
Vapour pressure	Not available
Vapour density	Not available
Partition coefficient (log Pow)	Not available
Particle characteristics	Not available
Molecular weight	63.01 g/mol

10. Stability and reactivity

Incompatible materials Combustible and organic materials — wood, paper, cotton, rags, sawdust, oils, greases (ignition risk); reducing agents; alcohols, ketones and acetone; acetic acid and acetic anhydride (violent, potentially explosive); amines and ammonia; bases and alkalis; metals, especially copper, brass, aluminium and metal powders (evolves nitrogen oxides and hydrogen); hydrogen sulphide; turpentine; cyanides; chlorates; carbides; hydrazine; and any nitratable organic compound (nitration and explosion hazard)

Conditions to avoid Store in a cool (BASF/Teco SDS indicate roughly 5-30 C), dark, well-ventilated place out of direct sunlight and away from heat; nitric acid decomposes in light, evolving NO₂ and building pressure in closed containers, so use vented closures. Storage class 5.1B (oxidising substances). Use 316L stainless steel, PTFE-lined or glass containment; avoid ordinary carbon steel, copper, brass and aluminium. Keep strictly segregated in a separate bund from combustibles, organic chemicals, reducing agents, bases, cyanides and metal powders — do not store on wooden pallets or shelving. Keep only in the original or an approved container. Provide eyewash, safety shower and an inert absorbent (never sawdust or other combustible absorbent) for spills.

11. Toxicological information

The health hazards classified for this substance are listed in section 2, and the corresponding first-aid measures in section 4. Numerical toxicological endpoints are not reproduced here: refer to the producer's safety data sheet for the grade supplied, and to the ECHA and PubChem entries for the substance.

12. Ecological information

Where section 2 or section 14 classifies this substance as hazardous to the aquatic environment, prevent any release to drains, surface water or groundwater and treat aqueous effluent before discharge. Otherwise, refer to the producer's sheet.

13. Disposal considerations

Dispose of the substance and its container through an authorised facility under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 where the waste is scheduled under those Rules, and otherwise as non-hazardous industrial waste, in each case under the conditions of the State Pollution Control Board consent in force at the site. Whether a particular waste stream is scheduled depends on the substance and on what it has been mixed with, so classify the waste before consigning it. Do not reuse empty containers for any other purpose.

14. Transport information

UN number	UN 2031
Class	8 (5.1) — Class 8 corrosive with a Class 5.1 oxidiser subsidiary hazard; ADR classification code CO1; labels 8 + 5.1
Packing group	II
Proper shipping name	NITRIC ACID, other than red fuming, with at least 65% but not more than 70% nitric acid

15. Regulatory information

Supply in India is subject to the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 where the substance is scheduled, and to any product-specific licensing named on the product page. Classification and labelling follow the GHS as adopted in the jurisdiction of use.

Note: This is the single most concentration-sensitive entry of the eight. At 68% the material is UN 2031, Class 8 with a 5.1 oxidiser subsidiary hazard, Packing Group II. Change the strength and the entry changes: above 70% (other than red fuming) it is still UN 2031 with 8 + 5.1 but Packing Group I; BELOW 65% it is UN 2031 Class 8, Packing Group II with NO 5.1 subsidiary hazard and no oxidiser label. Red fuming nitric acid is a different UN number entirely — UN 2032, Class 8 with 5.1 and 6.1 subsidiary hazards, Packing Group I. Nitrating acid mixtures of nitric and sulphuric acid are UN 1796 (or UN 1826 for spent mixed acid). The 65% and 70% thresholds sit either side of the common commercial grades, so the declared strength on the CoA must drive the shipping documents. The same 65%/70% boundary matters for classification: the Annex VI oxidising-liquid category and index number differ above and below 70%. Do not use the physical data from ILO ICSC 0183 for this product — that card covers nitric acid above 70% and gives Packing Group I. Never use sawdust or any combustible absorbent on a nitric acid spill.

16. Other information

Version	1.0
Date of issue	07 October 2026
Supersedes	No previous version
Regulatory basis as at the date of issue	EU CLP Regulation 1272/2008 as amended, including Annex VI harmonised classifications; UN Model Regulations and the IMDG Code Amendment 42-24, mandatory from 1 January 2026; ADR 2025; and, in India, the Manufacture, Storage and Import of Hazardous Chemical Rules 1989 and the Central Motor Vehicles Rules 1989.

How this sheet was compiled and what governs. This sheet was prepared by Velora Chemicals Private Limited as the supplier, from PubChem, the ECHA CLP inventory including Annex VI harmonised classifications, ILO International Chemical Safety Cards and published producer safety data sheets. Values that could not be confirmed from those sources are shown as "Not available" rather than estimated. **The producer's safety data sheet for the specific grade and lot supplied is the governing document** and is issued with the consignment; where the two differ, the producer's sheet prevails. This sheet carries no warranty of the properties of any particular batch. Velora Chemicals Private Limited is a bulk supplier and trader, not a manufacturer.

Sources consulted:

https://download.basf.com/p1/000000000030233372_SDS_GEN_DE/en_DE/HNO3_68%25_Lu_30233372_SDS_GEN_DE_en_6-0.pdf; <https://adrdangerousgoods.com/eng/substances/0001393/un2031-nitric-acid-other-than-red-fuming-with-at-least-65-but-not-more-than-70-nitric-acid/>; <https://nextsds.com/adr/en/UN2031/nitric-acid-other-than-red-fuming-with-at-least-65-but-not-more-than-70-nitric-acid/>; [https://chemicalsafety.ilo.org/dyn/icsc/showcard.display?p_card_id=0183&p_version=2&p_lang=en](https://chemicalsafety.ilo.org/dyn/icsc/showcard.display?p_card_id=0183&p_version=2&p_lang=en;); <https://www.rcilabscan.com/wp-content/uploads/2019/11/nitric-acid-68-e-customer-rv01-010718.pdf>; <https://www.tecochemicals.com/wp-content/uploads/2025/09/SDS-Nitric-Acid-68.pdf>