



M4 SOLUTIONS

CONNECTED CHEMISTRY

Version 1.0

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SAFETY DATA SHEET

In accordance with the OSHA Act 85 of 1993,
Hazardous Chemical Substances Regulations of 1995,
and SANS 10234:2019

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: IDENTIFICATION

Product Name: Nitric Acid

Chemical Formula: HNO_3

CAS Number: 7697-37-2

Recommended Use: Industrial applications, laboratory chemical, metal treatment, fertilizer manufacturing

Restrictions on Use: Consumer and food applications without proper oversight

Details of the Supplier:

Company: M4 Solutions Pty Ltd.
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Rocky Drift
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SECTION 2: HAZARD IDENTIFICATION

GHS Classification:

- Oxidizing Liquid, Category 3
- Metal Corrosion, Category 1
- Skin Corrosion, Category 1A
- Serious Eye Damage, Category 1
- Acute Toxicity (Inhalation), Category 3
- Specific Target Organ Toxicity - Single Exposure (Respiratory System), Category 3



GHS Label Elements:

Hazard Pictograms:



Signal Word: DANGER

Hazard Statements:

- H272: May intensify fire; oxidizer
- H290: May be corrosive to metals
- H314: Causes severe skin burns and eye damage
- H318: Causes serious eye damage
- H331: Toxic if inhaled
- H335: May cause respiratory irritation

Precautionary Statements:

Prevention:

- P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
- P220: Keep away from clothing and combustible materials
- P234: Keep only in original packaging
- P260: Do not breathe mist/vapours/spray
- 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

Response:

- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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
- P321: Specific treatment (see supplemental first aid instructions on this label)
- P363: Wash contaminated clothing before reuse
- P370+P378: In case of fire: Use appropriate media to extinguish



- P390: Absorb spillage to prevent material damage
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Storage:

- 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

Disposal:

- P501: Dispose of contents/container in accordance with local/regional/national/international regulations

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name CAS Number Concentration

Nitric Acid	7697-37-2	68-70%
Water	7732-18-5	30-32%

SECTION 4: FIRST AID MEASURES

General Advice: Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Remove contact lenses if present and easy to do. Continue rinsing. Get immediate medical attention.

Skin Contact: Immediately remove contaminated clothing and shoes. Wash skin with soap and plenty of water for at least 15 minutes. Get immediate medical attention. Wash contaminated clothing before reuse.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Get immediate medical attention.



Most Important Symptoms/Effects:

- Acute: Severe burns to all tissues, respiratory distress, pain, redness
- Delayed: Pulmonary oedema, chemical pneumonitis, chronic bronchitis

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific Hazards: Strong oxidizer. Contact with combustible materials may cause fire. Reacts with most metals to produce hydrogen gas, which may form explosive mixtures with air. Thermal decomposition releases toxic nitrogen oxides.

Special Protective Equipment: Wear self-contained breathing apparatus and full protective clothing.

Specific Methods: Cool containers with water spray. Water spray may be used to keep fire-exposed containers cool. Water can be used to dilute spills and to flush them away from sources of ignition.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not allow to enter drains, sewers, or watercourses.

Methods for Containment and Cleaning Up: Contain spillage, then collect with an electrically protected vacuum cleaner or by wet brushing. Place in container for disposal according to local regulations. Neutralize with sodium bicarbonate or lime.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from combustible materials. Always add acid to water, never water to acid.

Conditions for Safe Storage: Store in cool, dry, well-ventilated area away from sources of heat or ignition. Store in corrosion-resistant containers. Keep containers tightly closed. Store away from combustible materials, reducing agents, and bases.

Incompatible Materials: Alkalies, metals, reducing agents, organic materials, combustible materials.



SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

- OSHA PEL: 2 ppm (5 mg/m³) TWA
- ACGIH TLV: 2 ppm TWA; 4 ppm STEL
- NIOSH IDLH: 25 ppm

Engineering Controls: Use adequate ventilation to keep airborne concentrations low. Use process enclosures, local exhaust ventilation, or other engineering controls.

Personal Protective Equipment:

- Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate, use a full-face respirator with multi-purpose combination respirator cartridges as a backup to engineering controls.
- Eye/Face Protection: Tightly fitting safety goggles or face shield.
- Skin Protection: Handle with chemical-resistant gloves. Wear acid-resistant protective clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear to slightly yellow liquid

Odor: Sharp, pungent

pH: <1 (strong acid)

Melting Point: -42°C (-44°F) for 70% solution

Boiling Point: Approximately 122°C (252°F) for 70% solution

Flash Point: Not applicable

Evaporation Rate: No data available

Flammability: Not flammable

Upper/Lower Flammability Limits: Not applicable

Vapor Pressure: 6.4 kPa at 20°C

Vapor Density: 2-3 (Air = 1)

Relative Density: 1.4-1.5 g/cm³

Solubility: Completely miscible with water

Partition Coefficient: No data available

Auto-ignition Temperature: Not applicable

Decomposition Temperature: >200°C

Viscosity: 0.75 mPa·s at 25°C



SECTION 10: STABILITY AND REACTIVITY

Reactivity: Highly reactive. Oxidizer.

Chemical Stability: Stable under recommended storage conditions. Light sensitive.

Possibility of Hazardous Reactions: Reacts violently with reducing agents, organic materials, and bases. Reacts with most metals to produce hydrogen gas.

Conditions to Avoid: Heat, light, incompatible materials.

Incompatible Materials: Alkalis, metals, reducing agents, organic materials, combustible materials.

Hazardous Decomposition Products: Nitrogen oxides (NO_x).

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity:

- Inhalation LC50 (rat): 65 ppm (NO₂)/4h
- Oral LD50: No data available
- Dermal LD50: No data available

Skin Corrosion/Irritation: Causes severe skin burns.

Serious Eye Damage/Irritation: Causes serious eye damage.

Respiratory or Skin Sensitization: Not classified based on available data.

Germ Cell Mutagenicity: Not classified based on available data.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: Not classified based on available data.

STOT - Single Exposure: May cause respiratory irritation.

STOT - Repeated Exposure: Not classified based on available data.

Aspiration Hazard: Not classified based on available data.

Potential Health Effects:

- Inhalation: Corrosive. May cause severe irritation of respiratory tract with burning pain, coughing, wheezing, shortness of breath, and pulmonary oedema.
 - Skin: Causes severe burns with redness, pain, and blisters.
 - Eyes: Causes serious eye damage with redness, pain, and burns. May cause permanent damage or blindness.
 - Ingestion: Causes severe digestive tract burns with abdominal pain, nausea, vomiting, and diarrhoea.
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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

- Harmful to aquatic life due to low pH. Harmful to aquatic organisms.

Persistence and Degradability:

- Not applicable for inorganic substances.

Bio accumulative Potential:

- Not expected to bioaccumulate.

Mobility in Soil:

- Highly mobile in soil.

Other Adverse Effects:

- May cause acidification of soil and water systems.
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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Treatment Methods:

- Dispose of in accordance with local, state, and federal regulations.
- Neutralize with alkali under controlled conditions before disposal.
- Do not dispose of waste into sewer.

Contaminated Packaging:

- Empty containers pose a fire hazard.
 - Dispose of as unused product.
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SECTION 14: TRANSPORT INFORMATION

DOT (US)

- UN Number: UN2031
- Proper Shipping Name: Nitric acid (with >70% nitric acid) or Nitric acid (with at least 65%, but not more than 70% nitric acid)
- Hazard Class: 8 (Corrosive)
- Subsidiary Hazard: 5.1 (Oxidizer)
- Packing Group: I or II (depending on concentration)
- Marine Pollutant: No



IATA

- UN Number: UN2031
- Proper Shipping Name: Nitric acid
- Hazard Class: 8
- Subsidiary Hazard: 5.1
- Packing Group: I or II (depending on concentration)

IMDG

- UN Number: UN2031
- Proper Shipping Name: NITRIC ACID
- Hazard Class: 8
- Subsidiary Hazard: 5.1
- Packing Group: I or II (depending on concentration)
- EmS Number: F-A, S-Q
- Marine Pollutant: No

SECTION 15: REGULATORY INFORMATION

US Federal Regulations:

- TSCA: Listed on the TSCA inventory
- CERCLA Reportable Quantity: 1,000 lbs
- SARA 302/304: Listed
- SARA 311/312: Acute Health Hazard, Reactive Hazard
- SARA 313: Listed

US State Regulations:

- California Proposition 65: Not listed
- State Right-to-Know Lists: Listed in MA, NJ, PA, RI

International Regulations:

- Canada DSL: Listed
- EU EINECS: Listed
- Australia AICS: Listed
- China IECSC: Listed
- Japan ENCS: Listed



- Korea ECL: Listed
- New Zealand NZIoC: Listed
- Philippines PICCS: Listed

SECTION 16: OTHER INFORMATION

NFPA Rating:

- Health: 4
- Flammability: 0
- Instability: 0
- Special Hazard: OX (Oxidizer)

HMIS Rating:

- Health: 4
- Flammability: 0
- Physical Hazard: 2
- Personal Protection: H

Revision Date: 08/04/2025

Disclaimer: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

END OF SAFETY DATA SHEET

