

SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product: **Nitric Acid 38%**
 Item Code:
 Product Use: Use as an intermediate
 Restriction of Use: Refer to Section 15

New Zealand Supplier: Horticulture Ltd
 Address: 10 Firth Street
 Drury, 2113

Telephone: +64 9 294 8453
 Fax Number: +64 9 294 7272

Emergency Telephone: 0800 764 766 (National Poison Centre)

Date of SDS Preparation: 7 January 2020

Section 2. Hazards Identification

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2017

EPA Approval No: HSR001578

Pictograms



Toxic Chronic Corrosive

Signal Word: **DANGER**

HSNO Classification	Hazard Code	Hazard Statement	GHS Category
6.1D (inh)	H332	Harmful if inhaled.	Acute Tox. 4
6.9B (inh)	H373	May cause damage to organs through prolonged or repeated exposure.	STOT RE 2
8.1A	H290	May be corrosive to metals.	Met. Corr. 1
8.2B	H314	Causes severe skin burns and eye damage.	Skin Corr. 1B
8.3A	H318	Causes serious eye damage.	Eye Corr. 1

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
P103	Read label before use.
P234	Keep only in original container.

P260	Do not breathe fumes, vapours or spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective clothing as detailed in Section 8.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P310	Immediately call a POISON CENTER or doctor/physician.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P301 + P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position 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.

Storage Code	Storage Statement
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.

Disposal Code	Disposal Statement
P501	Dispose of according to Local Regulations or Authorities

Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
Nitric Acid	26-65	7697-37-2
Non-hazardous ingredients	To bal	

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Flush with plenty of water or Diphoterine for 15 min. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
If on Skin	Seek medical advice. Wash immediately with lots of water (15 minutes)/shower. Remove polluted clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Chemical burns must be treated promptly by a physician. Wash contaminated clothing before reuse. Thoroughly clean shoes before re-using.
If Swallowed	Seek medical advice. Rinse mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position

and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed

- Symptoms:** The product can cause methemoglobinemia. Exposure to high concentrations may be fatal. Symptoms/effects after inhalation: May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard.
- Ingestion:** May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Possible esophageal perforation. Symptoms may include: Nausea. Vomiting. Abdominal pain. Shock.
- Inhalation:** Harmful if swallowed. Irritation of the respiratory tract, dry/sore throat, coughing. Following symptoms may appear later: corrosion of the upper respiratory tract, respiratory difficulties. Possible inflammation of the respiratory tract. Risk of lung oedema. Blue/grey discolouration of the skin.
- Skin:** Causes serious burns. May cause immediate skin irritation and blistering. Slow-healing wounds. Yellow skin. May stain the skin. Caustic burns/corrosion of the skin. Danger of very serious irreversible effects.
- Eyes:** Causes serious eye damage. Symptoms may include: pain, lacrimation, redness of the eye tissue. Direct contact with the eyes can cause irreversible damage, including blindness. Risk of serious permanent damages to eyes if the product is not rapidly removed. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
- Chronic:** Causes damage to organs through repeated or prolonged exposure. On continuous/repeated exposure/contact: affection/discolouration of the teeth. risk of pneumonia.
- Treatment:** Treat symptomatically. Effects of contact or inhalation might be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. The product can cause methemoglobinemia.

Section 5. Fire Fighting Measures

Hazard Type	Non Flammable, Non-combustible material.
Hazards from decomposition products	On heating: release of toxic and corrosive gases/vapours (nitrous vapours, ammonia).
Suitable Extinguishing media	The product itself does not burn. Use fire extinguishing methods suitable to surrounding conditions.
Precautions for firefighters and special protective clothing	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Exposure to fire/heat: keep upwind, consider evacuation and have neighbourhood close doors. Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray. When cooling/extinguishing: no water in the substance. Take account of toxic fire-fighting water. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
HAZCHEM CODE	1X

Section 6.**Accidental Release Measures****Personal precautions, protective equipment and emergency procedures:**

Wear protective equipment as detailed in Section 8. Ensure adequate air ventilation. Do not get in eyes, on skin, or on clothing. Do not breathe vapor or mist. Wear suitable respiratory equipment in case of insufficient ventilation. Do not touch or walk through spilled material. No action shall be taken involving any personal risk or without suitable training. Mark the danger area. Evacuate the danger area. Keep unnecessary and unprotected personnel from entering. Keep upwind. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames. Corrosion-proof appliances. Keep containers closed. Wash contaminated clothes.

Environmental precautions:

Prevent soil and water pollution. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up:

For containment: Approach from upwind. Stop leak if safe to do so. Move containers from spill area. Any spillage should be cleaned up immediately.

Methods for cleaning up: Collect as much as possible in a suitable clean container, preferably for re-use, otherwise for disposal. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or calcium hydroxide. Neutralisation can result in heat. Work careful. Take up rest of liquid spill into absorbent material sand, earth, vermiculite. Scoop absorbed substance into closing containers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

Other information: Do not wash out with water in a sensitive environment. Use corrosion proof equipment.

Use non-corrodable disposal containers. Contaminated absorbent material may pose the same hazard as the spilled product. Dispose of according to Local Regulations in Section 13.

Section 7.**Handling and Storage****Precautions for Handling:**

- Read label before use.
- Do not breathe fumes, vapours or spray.
- Do not get in eyes, on skin, or on clothing.
- Do not ingest.
- Avoid wearing contact lenses.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Keep only in original container.
- Use only outdoors or in a well-ventilated area.
- If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Avoid splashing.
- Keep container tightly closed. To dilute the substance must be poured in water.
- Use corrosion proof equipment.
- Empty containers retain product residue and can be hazardous.
- Spillages should be cleaned up promptly to avoid damage to surrounding materials. Meet
- Remove contaminated clothing and protective equipment before entering eating areas.
- If on skin, take off contaminated clothing.
- Contaminated work clothing should not be allowed out of the workplace.
- Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
- Wear protective clothing as detailed in Section 8.

Precautions for Storage:

- Keep out of reach of children.
- Store locked up.
- Store in corrosive resistant container with a resistant inner liner.

- Store on an acid resistant underground. Ventilation at floor level.
- Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.
- Incompatible products : Reacts violently with (some) bases: release of heat.
- Incompatible materials : Monel steel, steel, aluminium, copper, nickel.
- Storage temperature : : -15 - 30 °C
- Heat and ignition sources : Keep substance away from: heat sources.
- Information on mixed storage: Keep substance away from: combustible materials, reducing agents, (strong) bases, cellulosic materials, organic materials, metal powders
- Provide for a tub to collect spills.
- Special rules on packaging: Special or additional requirements: opaque. meet the legal requirements. Secure fragile packagings in solid containers. Keep packaging closed when not in use. Do not store in unlabelled containers.
- Packaging materials : Suitable material: stainless steel 304L, stainless steel 316-L, glass, polyethylene, PVC, Polytetrafluoroethylene (PTFE)
- Material to avoid: aluminium, iron, bronze, copper, nickel, steel, polypropylene

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA		STEL	
	ppm	mg/m ³	ppm	mg/m ³
Nitric Acid [7697-37-2]	2	5.2	4	10

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2019 11th EDITION.

Engineering Controls

Ensure adequate ventilation, especially in confined areas. If user operations generate dust/fog, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal Protection Equipment



Eyes	Tightly fitting safety goggles. Face shield where there is a risk of leaks or splashes. Avoid wearing contact lenses.
Hands	Wear chemical-resistant gloves (tested to EN374). Replace damaged gloves, Non suitable materials are leather gloves, nitrile rubber, natural rubber. Reusable gloves Fluoroelastomer (FKM), Viton® II Thickness: 6 (> 480 min) Reusable gloves Chloroprene rubber (CR), Butyl rubber, Polyvinylchloride (PVC) Thickness: 4 (> 120 minutes)
Skin	Wear suitable protective clothing. Chemical resistant apron, acid-resistant boots.
Respiratory	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended. Self-contained breathing apparatus. Device Filter type Standard Full face mask Type NO P3 (blue), Type NO P3 (white)

General	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Additional advice: portable Diphoterine eyewashers.
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Section 9 Physical and Chemical Properties

Appearance	Liquid
Colour	Colourless to yellow. On exposure to light: red-brown.
Odour	Irritating/pungent odour. Asphyxiating odour.
Odour Threshold	0.25 - 0.98 ppm 0.75 - 2.5 mg/m ³
pH	<1
Boiling Point	104 - 122 °C
Boiling Point	117°C (53%), 120°C (60%)
Melting Point	-38 - -18 °C
Freezing Point	Not available
Crystallization temperature	< -20 °C
Flash Point	Not available
Flammability	Non flammable
Upper and Lower Explosive Limits	Not available
Vapour Pressure	9.4-20 hPa, 55%-70% (@20°C)
Density (kg/l)	1,24 (38%) - 1,33 (53%) - 1,36 (60%) - 1,38 (65%)
Relative Density	1.1 - 1.4 (water = 1) Relative density of saturated gas/air mixture : 1
Relative vapour density at 20 °C	2.2 (air = 1)
Solubilities Water	Exothermically soluble in water. Soluble in ether. Complete
Log Pow:	-0.21
Auto-ignition Temperature	Not available
Decomposition Temperature	>200°C
Kinematic Viscosity	Not available
Oxidising Properties	Product is not self-ignitable, but may support combustion.
Other Properties	Gas/vapour heavier than air at 20°C. Producing fumes/mist. Physical properties depending on the concentration. Substance has acid reaction.

Section 10. Stability and Reactivity

Stability of Substance	Unstable on exposure to light. Stable under recommended storage and treatment circumstances (heading 7). Reactive material.
Reactivity	Reacts violently with many compounds e.g.: with (strong) reducers, with (some) bases, with organic material and with combustible materials Reacts with (some) metals. Violent to explosive reaction with (some) metal powders: release of highly flammable gases/vapours (hydrogen).
Hazardous Reactions	Not combustible but enhances combustion of other substances. Very flammable gas (hydrogen) may be formed on contact with metals. Reacts exothermically with water (moisture). Risk of explosion in confined areas and in contact with incompatible materials.
Conditions to Avoid	Avoid high temperatures. Avoid ignition sources.
Incompatible Materials	Attacks many metals releasing highly flammable gas (hydrogen) which generates fire or explosion hazards. Reactive or incompatible with the following materials: alkalis, metals. Violent reactions possible with: combustible materials, organic

	solvents, oxidizable substances, alcohols, ketones, aldehydes, acid anhydrides, amines, anilines, nitriles, organic nitro-compounds, hydrazine, acetylidenes, metal alloys, metal oxides, alkali metals, ammonia, acids, halogens, nonmetallic oxides, polypropylene, nitrides, sulfites. carbon steel, hydrogen peroxide and many other substances. Attacks materials such as: some synthetic materials and rubber.
Hazardous Decomposition Products	Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (nitrous vapours). Decomposes slowly on exposure to light: release of toxic and corrosive gases/vapours (nitrous vapours). On contact with ordinary metals (steel, galvanized, aluminium) corrosion may occur and generate highly flammable hydrogen gas.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not applicable.
Dermal	Not applicable.
Inhalation	Harmful if inhaled. Corrosive to respiratory system Corrosive to the digestive tract
Eye	Causes severe damage to eyes. Risk of serious permanent damages to eyes if the product is not rapidly removed. pH: < 1
Skin	Causes severe skin burns. Symptoms may include: blisters, pain, red skin pH: < 1

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	Causes damage to organs through repeated or prolonged exposure.
Potential adverse human health effects and symptoms:	The product can cause methemoglobinemia. Exposure to high concentrations may be fatal.

Section 12. Ecotoxicological Information

No classified as hazardous to the environment.

Persistence and degradability	Biodegradable.
Bioaccumulation	Does not contain bioaccumulative component(s). Log Pow = -0.21
Mobility in Soil	Soluble in water.
Other adverse effects	High concentration in receiving water will injure aquatic life by pH effect.

Nitric acid, > 26% - < 65%, aqueous solution (7697-37-2)
 LC50 fish 2 72 ppm (LC50; 96 h; Gambusia affinis)
 EC50 Daphnia 1 180 mg/l (EC50; 48 h; Daphnia magna)

Section 13. Disposal Considerations

Disposal Method:

Product Name: Nitric Acid 38%
 Date of SDS: 7 January 2020

Prepared by: Technical Compliance Consultants (NZ) Ltd
 Tel: 64 9 475 5240 www.techcomp.co.nz

Spent media that has removed toxic chemicals should be examined for specific hazards. Spilled product may be recovered for use if it has not come in contact with liquids or been exposed to significant amounts of gaseous contaminants. Dispose of according to Local Regulations.

Ensure any container holding waste product or contaminated spill media is labelled "Hazardous Waste – Corrosive" and that the label also has the Corrosive Pictogram, waste type identifier, and the business name, address, and phone number.



Precautions or methods to avoid: None known.

Section 14 Transport Information

This product is classified as a Dangerous Good for transport in NZ ; NZS 5433:2012



Road, Rail, Sea and Air Transport

UN No	2031
Class - Primary	8
Packing Group	II
Proper Shipping Name	NITRIC ACID
Marine Pollutant	No
Special Provisions	If the product's individual container is below 1L, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

Section 15 Regulatory Information

EPA Approval Code: HSR002526

HSNO Classification: 6.1D(inh),6.9B, 8.1A, 8.2B, 8.3A

HSWA & EPA Controls	Trigger Quantity
Certified Handler	Not required
Location Certificate	250L (8.2B)
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	250L (8.2B)
Emergency Response Plan	1000L (8.2B)
Secondary Containment	1000L (8.2B)
Restriction of Use	None

Section 16 Other Information

Glossary

EC ₅₀	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
LC ₅₀	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD ₅₀	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

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Please contact the New Zealand distributor, if further information is required.

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