

Revision date: 26-Aug-2024

Revision Number 8

Section 1: Identification

Product identifier

Product Name FORMIC ACID 78.5% TO <=85%
Product Code(s) 000034369301

Other means of identification

Synonyms Methanoic acid 85%; Hydrogen carboxylic acid 85%; Formic acid 85%; Methanoic acid 84%; Hydrogen carboxylic acid 84%; Formic acid 84%.

Recommended use of the chemical and restrictions on use

Recommended use Descaler, preservative, dyeing and finishing of textiles, leather treatment, chemical synthesis, fumigant manufacture, lacquers, electroplating, brewing, silvering glass, natural latex coagulant, ore flotation, vinyl resin plasticiser, intermediate.

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier

IXOM Operations Pty Ltd (Incorporated in Australia)
 NZBN: 9429041465226
 Street Address: 166 Totara Street
 Mt Maunganui South
 New Zealand

Telephone Number: +64 9 368 2700
 Facsimile: +64 9 368 2710

Emergency telephone number

Emergency Telephone 0 800 734 607 (ALL HOURS)

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

Section 2: Hazard identification

Classified as a Dangerous Good according to NZS 5433 Transport of Dangerous Goods on Land; DANGEROUS GOODS.

Classified as hazardous according to criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

GHS Classification

Corrosive to metals	Category 1
Flammable liquids	Category 4
Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Vapors)	Category 3
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Label elements



Signal word
Danger

Hazard statements H227 - Combustible liquid
H290 - May be corrosive to metals
H302 - Harmful if swallowed
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

Keep only in original packaging.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not breathe dust/fume/gas/mist/vapors/spray.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wash face, hands and any exposed skin thoroughly after handling.
Wash eyes thoroughly after handling.
Wear protective gloves/clothing and eye/face protection.

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention.
Specific treatment (see First aid on this SDS).

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.

Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF SWALLOWED: Immediately call a POISON CENTER or doctor.

Fire

In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish..

Spill

Absorb spillage to prevent material damage.

Precautionary Statements - Storage

Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store in corrosion resistant container with a resistant inner liner.

Precautionary Statements - Disposal

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable.

Other hazards which do not result in classification

Corrosive to the respiratory tract.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Formic acid	64-18-6	78.5-85%
Water	7732-18-5	to 100%

Section 4: First-aid measures

Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

Emergency telephone number

Inhalation Get medical attention immediately if symptoms occur. If breathing is difficult, (trained personnel should) give oxygen. Give artificial respiration if victim is not breathing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Remove to fresh air and keep at rest in a position comfortable for breathing.

Eye contact In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Skin contact Wash off immediately with plenty of water for at least 15 minutes. Remove and isolate contaminated clothing and shoes. Seek immediate medical attention/advice. Wash contaminated clothing before reuse.

Ingestion Clean mouth with water. Do NOT induce vomiting. Drink 1 or 2 glasses of water. Immediate medical attention is required.

Most important symptoms and effects, both acute and delayed

Symptoms Erythema (skin redness). May cause redness and tearing of the eyes. Coughing and/ or wheezing. Difficulty in breathing. Irritation/Corrosion.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Can cause corneal burns. Treat symptomatically.

Section 5: Fire-fighting measures

Hazchem code •2X

Suitable Extinguishing Media

Suitable Extinguishing Media CO₂, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Specific hazards arising from the chemical Sealed containers may rupture when heated. Contact with metals may evolve flammable hydrogen gas. Combustible liquid. Most vapors are heavier than air. Vapors may spread along ground and collect in low or confined areas (sewers, basements, tanks). Pay attention to flashback.

Hazardous combustion products Carbon oxides.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Personal precautions Ensure adequate ventilation. Remove all sources of ignition. All equipment used when handling the product must be grounded. Avoid contact with skin, eyes and inhalation of vapors. Wear protective gloves/clothing and eye/face protection. Wear appropriate respirator when ventilation is inadequate.

For emergency responders Clear area of all unprotected personnel. Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Keep out of waterways. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13).

Methods for cleaning up Dike to collect large liquid spills. Soak up with inert absorbent material. Prevent product from entering drains. Use clean non-sparking tools to collect absorbed material. Sweep up and shovel into suitable containers for disposal. Work up wind or increase ventilation. Wash area down with excess water.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage**Precautions for safe handling**

Advice on safe handling Avoid contact with skin, eyes or clothing. Do not breathe vapor or mist. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not eat, drink or smoke when using this product. Use personal protection equipment. In case of insufficient ventilation, wear suitable respiratory equipment. Wear suitable protective clothing, gloves, footwear, and/or eye protection. Wash thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice. Take precautionary measures against static discharges. Ground and bond all lines and equipment associated with product

system. All equipment should be non-sparking. All equipment may need to be explosion-proof based on a risk assessment.

General hygiene considerations Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands and face before breaks and immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Store locked up. Keep out of the reach of children. Keep container closed when not in use.

Incompatible materials Oxidizing agent. Iron. Steel. Alkalis. Aluminium.

Section 8: Exposure controls/personal protection

Control parameters

Exposure Limits No value assigned for this specific material by the New Zealand Workplace Health & Safety Authority. However, Workplace Exposure Standard(s) for constituents:.

Chemical name	New Zealand	Australia	ACGIH TLV	United Kingdom
Formic acid 64-18-6	TWA: 5 ppm TWA: 9.4 mg/m ³ STEL: 10 ppm STEL: 19 mg/m ³	TWA: 5 ppm TWA: 9.4 mg/m ³ STEL: 10 ppm STEL: 19 mg/m ³	TWA: 5 ppm STEL: 10 ppm	TWA: 5 ppm TWA: 9.6 mg/m ³ STEL: 15 ppm STEL: 28.8 mg/m ³

Formic acid: WES-TWA 5 ppm, 9.4 mg/m³; WES-STEL 10 ppm, 19 mg/m³

As published by the New Zealand Workplace Health & Safety Authority.

WES - TWA (Workplace Exposure Standard - Time Weighted Average) - The eight-hour, time-weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.

WES - STEL (Workplace Exposure Standard - Short Term Exposure Limits) - 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 short-term and eight-hour, time-weighted average exposures should be determined.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls

Engineering controls Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as personal protective equipment

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, CHEMICAL GOGGLES, RUBBER BOOTS, AIR MASK , GLOVES (Long), APRON.

NOTE: Chemical goggles and face shield are not required if wearing an air-supplied mask.



Eye/face protection

Tight sealing safety goggles.

Hand protection

Elbow-length impervious gloves.

Skin and body protection

Wear suitable protective clothing. Chemical resistant apron. Rubber boots. Overalls.

Respiratory protection

If determined by a risk assessment an inhalation risk exists, wear a suitable mist respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. If determined by a risk assessment an inhalation risk exists, wear an air supplied respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

Environmental exposure controls

No information available.

Section 9: Physical and chemical properties**Information on basic physical and chemical properties**

Physical state	Liquid
Appearance	Clear
Color	Colourless to Yellow
Odor	Pungent
Odor threshold	No information available

Property	Values	Remarks • Method
pH	2.2 (10 g/L soln)	None known
Melting point / freezing point	-13°C (for 85% formic acid)	None known
Boiling point / boiling range	101 - 107°C	None known
Flash point	65°C (for 85% formic acid)	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	47.6% (for 85% formic acid)	
Lower flammability or explosive limits	14.9% (for 85% formic acid)	
Vapor pressure	24.2 hPa (for 85% formic acid)	None known
Vapor density	1.6	None known
Relative density	1.195 @20°C (for 85% formic acid)	None known
Water solubility	No data available	None known
Solubility(ies)	Miscible in water	None known
Partition coefficient	No data available	None known
Autoignition temperature	500°C (for 85% formic acid)	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information
Particle characteristics**Section 10: Stability and reactivity****Reactivity****Reactivity** Corrosive to metals. Reacts with alkalis.**Chemical stability****Stability** Stable under normal conditions.**Explosion data****Sensitivity to mechanical impact** None.**Sensitivity to static discharge** May be ignited by heat, sparks or flames.**Possibility of hazardous reactions****Hazardous polymerization** Hazardous polymerization does not occur.**Possibility of hazardous reactions** None under normal processing.**Conditions to avoid****Conditions to avoid** Heat, flames and sparks. Static discharge (electrostatic discharge).**Incompatible materials****Incompatible materials** Oxidizing agent. Iron. Steel. Alkalis. Aluminium.**Hazardous decomposition products****Hazardous decomposition products** Carbon oxides.**Section 11: Toxicological information****Acute toxicity****Information on likely routes of exposure****Product Information** No adverse health effects expected if the chemical is handled in accordance with this Safety Data Sheet and the chemical label. Symptoms or effects that may arise if the chemical is mishandled and overexposure occurs are:**Inhalation** Corrosive to the respiratory tract.**Eye contact** Causes serious eye irritation. Corrosive to the eyes and may cause severe damage including blindness.**Skin contact** Causes severe burns.**Ingestion** Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Can burn mouth, throat, and stomach.**Symptoms** May cause redness and tearing of the eyes. Erythema (skin redness). Burning. Coughing and/ or wheezing. Difficulty in breathing. Irritation/Corrosion.

Acute toxicity**Numerical measures of toxicity**

No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Formic acid	= 1100 mg/kg (Rat)	-	= 7.85 mg/L (Rat) 4 h
Water	> 90 mL/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Causes severe burns.
Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory or skin sensitization	Not a skin sensitizer. (guinea pig).
Germ cell mutagenicity	No information available.
Carcinogenicity	Not listed as carcinogenic according to IARC. (IARC - International Agency for Research on Cancer).
Reproductive toxicity	No information available.
STOT - single exposure	May cause respiratory irritation. Severe corrosion to the respiratory tract at high concentrations.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.
Data used to identify the health effects	Refer to Section 16 for Key literature references and sources for data used to compile the SDS.

Section 12: Ecological information**Ecotoxicity****Aquatic ecotoxicity** Keep out of waterways.

Chemical name	Algae/aquatic plants	Fish	Crustacea
Formic acid	EC50: =25mg/L (96h, Desmodesmus subspicatus) EC50: =26.9mg/L (72h, Desmodesmus subspicatus)	-	EC50: =120mg/L (48h, Daphnia magna) EC50: 138 - 165.6mg/L (48h, Daphnia magna)

Terrestrial ecotoxicity There is no data for this product.

Persistence and degradability Readily biodegradable.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
Formic acid	-1.9

Mobility in soil

Mobility No information available.

Other adverse effects

No information available.

Section 13: Disposal considerations

Waste treatment methods

Waste from residues/unused products Dispose of product in packaging in a way that is consistent with the EPA Consolidation 30 April 2021 of the Hazardous Substances (Disposal) Notice 2017 and the Act. Treat the substance using a method that changes the characteristics or composition of the substance so that the substance is no longer a hazardous substance; or export the substance from New Zealand as waste.

Contaminated packaging For packages that have been in direct contact with hazardous substances, the person must ensure that the package is rendered incapable of containing any substance. It must be disposed of in a manner that is consistent with the requirements for disposal of the substance that it contained, taking into account the material the package is manufactured from.
Packages may only be reused or recycled if:
- the substance has a physical hazard other than corrosive to metal, and has been treated to remove any residual contents of the hazardous substance;
- or for substances that have a health or environmental hazard, or corrosive to metal, the contents of the residue in the package are below the threshold for the substance to be classified as hazardous in the Hazardous Substances (Hazard Classification) Notice 2020.

Section 14: Transport information

ROAD AND RAIL TRANSPORT Classified as a Dangerous Good according to NZS 5433 Transport of Dangerous Goods on Land; DANGEROUS GOODS.

UN number or ID number 3412
Proper shipping name FORMIC ACID
Transport hazard class(es) 8
Packing group II
Hazchem code •2X
IATA Classified as Dangerous Goods by the criteria of the International Air Transport Association

(IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN number 3412
UN proper shipping name FORMIC ACID
Transport hazard class(es) 8
Packing group II

IMDG Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN number 3412
UN proper shipping name FORMIC ACID
Transport hazard class(es) 8
Packing group II
IMDG EMS Fire F-A
IMDG EMS Spill S-B
Marine pollutant Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No information available

Special precautions for user

Please refer to the applicable dangerous goods regulations for additional information

Section 15: Regulatory information

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

EPA New Zealand HSNO approval code or group standard HSR002511 - Additives, Process Chemicals and Raw Materials (Combustible, Acutely Toxic, Corrosive)

National regulations There are no applicable tolerable exposure limits or environmental exposure limits according to the EPA Controls for Hazardous Substances

Certified handlers, tracking and controlled substance license requirements Certified handlers are required for some substances. This includes substances requiring a controlled substance license, and most explosives, vertebrates toxic agents, and certain fumigants. Acutely toxic substances which are a Category 1 or 2, such as pesticides also require Certified handlers. Please check the Health and Safety at Work Act 2015 for further information
 Tracking is required for some highly hazardous substances. These substances need to be under the control of an appropriately trained person or appropriately secured. Please check the Health and Safety at Work Act 2015 for further information
 Controlled substance licenses are required to possess certain explosives, vertebrate toxic agents and fumigants. See Part 7 of the Health and Safety at Work Regulation 2017 for more information

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

NZIoC All the constituents of this material are listed on the New Zealand Inventory of Chemicals.
TSCA Contact supplier for inventory compliance status.
DSL/NDSL Contact supplier for inventory compliance status.
EINECS/ELINCS Contact supplier for inventory compliance status.

ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AIIC	All the constituents of this material are listed on the Australian Inventory of Industrial Chemicals.
TCSI	Contact supplier for inventory compliance status.

Legend:**NZIoC** - New Zealand Inventory of Chemicals**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCS** - Japan Existing and New Chemical Substances**IECSC** - China Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**AIIC- Australian Inventory of Industrial Chemicals****TCSI** - Taiwan Chemical Substance Inventory**Section 16: Other information**

Supplier Safety Data Sheet 05/ 2023

Prepared By	This Safety Data Sheet has been prepared by IXOM Operations Pty Ltd (Toxicology and SDS Services).
Revision date:	26-Aug-2024
Reason(s) For Issue:	5 Yearly Revised Primary SDS

Revision Note:

***Indicates updated data since last publication.

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend**

SVHC: Substances of Very High Concern for Authorization:

PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances

vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances

STOT: Specific Target Organ Toxicity

ATE: Acute Toxicity Estimate

LC50: 50% Lethal Concentration

LD50: 50% Lethal Dose

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
**	Hazard Designation	+	Sensitizers
C	Carcinogen		

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

Environmental Protection Agency

Acute Exposure Guideline Level(s) (AEGl(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

National Institute of Technology and Evaluation (NITE)

Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Disclaimer

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since IXOM Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their IXOM representative or IXOM Operations Pty Ltd at the contact details on page 1.

IXOM Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

End of Safety Data Sheet