SAFETY DATA SHEET

Revision date: 17-Oct-2024 **Revision Number** 7

Section 1: Identification

Product identifier

Product Name TRICHLOROETHYLENE

Product Code(s) 000031022901

Other means of identification

CAS No. 79-01-6

Synonyms Trineu; Acetylene trichloride; Trilene; Tri stabilised; TCE stabilised; Trichloroethene; Triklone; Ethylene trichloride.

Recommended use of the chemical and restrictions on use

Recommended use Industrial solvent. Metal degreasing agent.

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

Acute toxicity - Inhalation (Vapors)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2

Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Label elements

Signal word
Danger

Hazard statements
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H336 - May cause drowsiness or dizziness
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements - Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash face, hands and any exposed skin thoroughly after handling.
Wash eyes thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/clothing and eye/face protection.
Use personal protective equipment as required.
Avoid release to the environment.

Precautionary Statements - Response
Get medical advice/attention if you feel unwell.
Specific treatment (see First aid on this SDS).
IF exposed or concerned: Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Gently wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
Rinse mouth.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Collect spillage.

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

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
No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Trichloroethylene	79-01-6	>=99.3

Section 4: First-aid measures

Description of first aid measures

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

Inhalation Remove to fresh air. If breathing is difficult, (trained personnel should) give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician if irritation persists.

Skin contact Wash skin with soap and water. (Call a physician if symptoms occur).

Ingestion Rinse mouth thoroughly with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

Symptoms Irritation. Erythema (skin redness). May cause redness and tearing of the eyes. Vapors may cause drowsiness and dizziness.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically. Adrenaline and similar sympathomimetic drugs should be avoided following exposure as cardiac arrhythmia may result with possible subsequent cardiac arrest. Gastric lavage may be effective within 4 hours of ingestion. Following ingestion adsorbants such as activated carbon may be of value.

Section 5: Fire-fighting measures

Hazchem code 2Z

Suitable Extinguishing Media

Suitable Extinguishing Media Dry chemical, CO2, water spray or regular foam.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Specific hazards arising from the chemical	Thermal decomposition can lead to release of toxic and corrosive gases/vapors. In use may form flammable/explosive vapour-air mixture. Vapour concentrations of 12.5%-90% v/v between 30°C and 82°C may ignite if in contact with high temperature heat sources. Vapour may ignite above 25.5°C if mixed with pure oxygen (10.3%-64.5% v/v). Certain mixtures in air can ignite with high intensity sources of heat, such as welding arcs, sparks and flames or at high temperatures and pressures. Welding or cutting should not be carried out on any vessel likely to contain solvent. Environmentally hazardous.

Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters	Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire. Keep containers cool with water spray. 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	Avoid contact with skin, eyes or clothing. Do not breathe vapor or mist. Do not touch or walk through spilled material. Evacuate personnel to safe areas. Use personal protective equipment as required. Stop leak if you can do it without risk. Wash thoroughly after handling.
For emergency responders	Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions	Cover spillage with foam to reduce evaporation.

Methods and material for containment and cleaning up

Methods for containment	Dike to collect large liquid spills.
Methods for cleaning up	Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

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. Do not eat, drink or smoke when using this product. Use personal protection equipment. Wash thoroughly after handling. Keep out of reach of children.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from foodstuffs. Keep container closed when not in use.

Incompatible materials Active metals (Alkali metals, Na, Ca). Magnesium. Hot metals.

Section 8: Exposure controls/personal protection

Control parameters

Exposure Limits

Chemical name	New Zealand	Australia	ACGIH TLV	United Kingdom
Trichloroethylene 79-01-6	TWA: 10 ppm TWA: 55 mg/m³ STEL: 25 ppm STEL: 135 mg/m³	TWA: 10 ppm TWA: 54 mg/m³ STEL: 40 ppm STEL: 216 mg/m³	TWA: 10 ppm STEL: 25 ppm	TWA: 100 ppm TWA: 550 mg/m³ STEL: 150 ppm STEL: 820 mg/m³ Sk*

Chemical name	New Zealand	ACGIH
Trichloroethylene 79-01-6	15 mg/L urine end of shift at end of work week Trichloroacetic acid	15 mg/L 0.5 mg/L

Trichloroethylene (TCE): WES-TWA 10 ppm, 55 mg/m³; WES-STEL 25 ppm, 135 mg/m³, carcinogen category 1, (oto)

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.

Carcinogen Category 1 - established human carcinogen. There is sufficient evidence to establish a causal association between human exposure and the development of cancer.

(oto) - Toxic to the ear

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

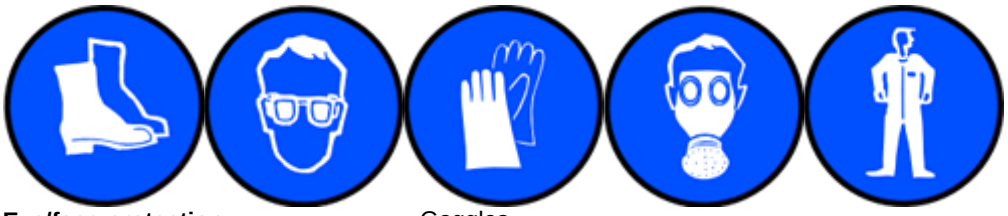
Engineering controls Ensure adequate ventilation, especially in confined areas. DO NOT enter confined spaces where vapour may have collected. Apply technical measures to comply with the occupational exposure limits.

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, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES, RESPIRATOR.



Eye/face protection	Goggles.
Hand protection	Impervious gloves.
Skin and body protection	Overalls. Boots. Wear suitable protective clothing.
Respiratory protection	If determined by a risk assessment an inhalation risk exists, wear an organic vapour 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
Odor	Chloroform -like
Odor threshold	21.4 ppm

Property	**Values**	**Remarks • Method**
pH	No data available	None known
Melting point / freezing point	-84.8°C	None known
Boiling point / boiling range	86-88°C	None known
Flash point	Not applicable	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	10.5% (V)	
Lower flammability or explosive limits	8% (V)	
Vapor pressure	81.3 hPa at 20°C	None known
Vapor density	4.54 (air=1)	None known
Relative density	1.46-1.47 at 20°C	None known
Water solubility	Slightly miscible	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	410°C	None known
Decomposition temperature	>120°C	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	0.42 mPa.s @25°C	None known

Other information

Particle characteristics

Section 10: Stability and reactivity

Reactivity

Reactivity Explosible with air in a vaporous/gaseous state when heated.

Chemical stability

Stability Sensitive to heat. Sensitive to light. May react on prolonged contact with aluminium or light alloys releasing gas and causing subsequent pressure build-up. Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. May react violently with active metals.

Conditions to avoid

Conditions to avoid Moisture. Direct sunlight. Contact with foodstuffs.

Incompatible materials

Incompatible materials Active metals (Alkali metals, Na, Ca). Magnesium. Hot metals.

Hazardous decomposition products

Hazardous decomposition products Hydrogen chloride. Phosgene.

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 May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. Inhalation of vapors in high concentration may cause irritation of respiratory system. Vapors can have a narcotic effect. High concentrations lead to unconsciousness - life threatening.

Eye contact Causes serious eye irritation.

Skin contact Causes skin irritation. Will have a degreasing action on the skin. May be absorbed through the skin in harmful amounts.

Ingestion Swallowing can result in nausea, vomiting and central nervous system depression. If the

victim is showing signs of central system depression (like those of drunkeness) there is greater likelihood of the patient breathing in vomit and causing damage to the lungs.

Symptoms Erythema (skin redness). May cause redness and tearing of the eyes. Vapors may cause drowsiness and dizziness. Irritation.

Acute toxicity .

Numerical measures of toxicity

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Trichloroethylene	= 4920 mg/kg (Rat)	= 29000 mg/kg (Rabbit)	= 26 mg/L (Rat) 4 h

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

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity Suspected of causing genetic defects.

Carcinogenicity May cause cancer. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	New Zealand	IARC
Trichloroethylene - 79-01-6	Confirmed carcinogen	Group 1

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

Reproductive toxicity No information available.

STOT - single exposure May cause drowsiness or dizziness.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

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. Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Crustacea
Trichloroethylene	EC50: =450mg/L (96h, Desmodesmus subspicatus) EC50: =175mg/L (96h, Pseudokirchneriella subcapitata)	LC50: 31.4 - 71.8mg/L (96h, Pimephales promelas) LC50: 39 - 54mg/L (96h, Lepomis macrochirus)	EC50: =2.2mg/L (48h, Daphnia magna)

Terrestrial ecotoxicity

Chemical name	Earthworm	Avian	Honeybees
Trichloroethylene	LC50 > 1000 mg/kg (Eisenia foetida 28 Days soil dry weight) LC50 = 0.105 mg/cm2 (Eisenia foetida 48 h filter paper)	-	-

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation Material does not bioaccumulate.

Component Information

Chemical name	Partition coefficient
Trichloroethylene	2.53

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.
Class 6 and 8 chemicals – may be discharged into the environment if a tolerable exposure limit has been set for the substance (or a component of that chemical); and the discharge does not, after reasonable mixing, result in the concentration of the substance in an environmental medium exceeding the tolerable exposure limit. If there is not tolerable exposure limit for the substance, then it may only be discharged into the environment if the substance is very rapidly converted to substances that are not hazardous substances..

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	1710
Proper shipping name	TRICHLOROETHYLENE
Transport hazard class(es)	6.1
Packing group	III
Hazchem code	2Z

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	1710
UN proper shipping name	TRICHLOROETHYLENE
Transport hazard class(es)	6.1
Packing group	III

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	1710
UN proper shipping name	TRICHLOROETHYLENE
Transport hazard class(es)	6.1
Packing group	III
IMDG EMS Fire	F-A
IMDG EMS Spill	S-A
Marine pollutant	P

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

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
Other Regulations	Approval Number: HSR001555.

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	This material is 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	This material is 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 03/ 2024

Prepared By	This Safety Data Sheet has been prepared by IXOM Operations Pty Ltd (Toxicology and SDS Services).
Revision date:	17-Oct-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

6.1D, 6.3A, 6.4A, 6.6B, 6.7A, 6.9B, 9.1B

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