SAFETY DATA SHEET

1. Identification

Product identifier **Strike 80 Soil Fumigant**

Other means of identification

SDS number 180-AUS-TCA

Recommended use of chemical Soil fumigant

NOTE TO PESTICIDE HANDLERS: If the pesticide product end-use labeling contains hazard information, specific instructions, or requirements that conflict with this Safety Data Sheet (SDS), follow the hazard information, instructions, or requirements on the labeling.

Restrictions on use Use of this product requires user to be authorised.

Details of manufacturer or importer TriCal Australia Pty Ltd
Address 4 Gidgie Court, Edinburgh, SA 5111, Australia
Telephone 08 8347 3838

E-mail info@trical.com.au

Emergency phone number		
	CHEMTREC (Australia)	02 9037 2994 (24/7)
	POISONS INFORMATION CENTRE	13 11 26

2. Hazard(s) Identification

GHS Classification of Mixture

Physical hazards Not classified.

Health hazards		
	Acute toxicity, inhalation	Category 1
	Acute toxicity, oral	Category 3
	Acute toxicity, dermal	Category 3
	Skin corrosion/irritation	Category 1C
	Serious eye damage/irritation	Category 1
	Eye irritation [vapor contact]	Category 2A
	Carcinogenicity	Category 2
	Aspiration hazard	Category 1
	Specific target organ toxicity, single exposure	Category 1 (respiratory/hemal system damage)
	Specific target organ toxicity, single exposure	Category 3 (respiratory tract irritation)
	Specific target organ toxicity, Repeated exposure	Category 1 (respiratory/hemal/liver system damage)

Environmental hazards		
	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1

Label elements

Skull Corrosion Health Environment

Signal word **DANGER**

Hazard statements

H330+H300	Fatal if inhaled.
H301+H311	Toxic if swallowed or in contact with skin.
H314+H318	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation. [vapour contact]
H351	Suspected of causing cancer by the oral route.
H370	Causes damage to the respiratory system and hemal system by inhalation.
H372	Causes damage to respiratory system, hemal system, and liver through prolonged or repeated exposure.
H304	May be fatal if swallowed and enters airways.
H400+H410	Very toxic to aquatic life and with long lasting effects.

Precautionary statements

Prevention

Wear protective gloves/protective clothing/eye protection/face protection.

In case of inadequate ventilation wear respiratory protection.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Do not get in eyes, on skin, or on clothing.

Do not breathe gas or vapours.

Do not touch eyes.

Use only outdoors or in a well-ventilated area.

Avoid release to the environment [except for authorized use].

Response

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

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTRE or doctor.

IF ON SKIN: Take off immediately all contaminated clothing. Wash with plenty of soap and water. If you feel unwell, call a POISON Centre or doctor.

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 CENTRE or doctor.

If eye irritation persists: Get medical help.

IF exposed or concerned: Get medical advice/attention or call a POISON CENTRE or doctor.

Wash contaminated clothing before reuse.

Collect spillage.

Storage

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

Disposal

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

Hazard(s) not otherwise classified (HNOC)

Lachrymator - Vapour extremely irritating to the eyes and respiratory tract. Closed cylinders may rupture or burst if heated by fire. [Cylinders are not equipped with relief valves or fusible overpressure devices per transport regulations].

3. Composition and Information on Ingredients

Mixtures

Ingredient name	CAS number	Generic Names	Concentration by weight %
Chloropicrin	76-06-2	Trichloronitromethane	80.0 *
1,3-Dichloropropene (1,3-D)	542-75-6	1,3-D	20.0 *

Composition comments * Product label will reflect nominal active ingredient percentages.

4. First Aid Measures

Description of necessary first aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Provide oxygen, if available, or artificial respiration, if needed. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or POISON CENTRE for further treatment advice.
Skin contact	Remove contaminated clothing immediately and wash skin for 15-20 minutes with water, and if available, use soap. Call a physician or POISON CENTRE for treatment advice. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse. Refer to Section 4 - General information (below), for more information on contaminated clothing.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or POISON CENTRE immediately.
Ingestion	Call a physician or POISON CENTRE immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Symptoms caused by exposure	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Causes respiratory distress and irritation. Early symptoms may include throat and nose irritation, nausea or vomiting. May cause an allergic skin reaction: dermatitis, rash. Prolonged exposure may cause chronic effects.
Medical attention and special treatment	Material, if aspirated into the lungs, may cause rapid absorption through the lungs which may result in systemic effects. If the product is ingested, probable mucosal damage may contraindicate the use of gastric lavage. Treat the affected person appropriately. In case of ingestion, the decision of whether or not to induce vomiting should be made by the attending physician. Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Note to Physician: If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung toxicity must be weighed against toxicity when considering emptying the stomach.
General information	If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 131126; New Zealand 0800 764 766. Take off immediately all contaminated clothing. Aerate contaminated clothing in a secure area downwind and away from people. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse. Discard any shoes or clothing items that cannot be decontaminated, after aerating.

5. Fire Fighting Measures

Suitable extinguishing equipment	All conventional fire extinguishing media are suitable: Water spray, dry chemical powder, carbon dioxide (CO_2), alcohol-resistant foam.
Unsuitable extinguishers	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapours are heavier than air. They can spread along the ground and collect in low or confined areas. During fire, gases may be formed that produce corrosive, toxic, and/or irritating gases or vapours. Closed cylinders may rupture or burst if heated by fire. Per transport regulations, cylinders containing Chloropicrin are not equipped with relief valves or fusible overpressure devices.
Hazardous combustion products	Combustion products may include and are not limited to: carbon monoxide, carbon dioxide, chlorine, hydrogen chloride, phosgene, nitrosyl chloride, nitrogen oxides.
Special protective equipment and precautions for fire fighters	Self-contained breathing apparatus and full turnout gear must be worn in case of fire. Do not breathe smoke, gas or vapours. Stay upwind. Move containers from fire area if you can do so without risk. DO NOT approach cylinders suspected to be hot. Cool containers with flooding quantities of water until well after fire is out. Use standard firefighting procedures and consider the hazards of other involved materials.
Hazchem Code	2XE

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Move leaking or damaged containers outdoors or to an isolated location, observing strict safety precautions. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Small spills: Consider initial isolation for at least 30 metres (100 feet).
Large spills: Consider initial isolation for at least 60 metres (200 ft.).

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Work upwind, if possible.

Small spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Large spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Use water spray to reduce vapours or divert vapour cloud drift. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment (except for authorised use). Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses, or onto the ground.

7. Handling and Storage

This product is a highly hazardous material and must be handled with care only by those individuals experienced with its proper use. If this product is being used in the field, and the information in this SDS differs from that on the end-use labeling for this product, the applicator/handler must follow the directions on the Product's end-use labeling.

Precautions for safe handling

Obtain special instructions before use. Do not subject containers to rough handling or to abnormal mechanical shock. Use a suitable hand truck or forklift to move heavier cylinders. Do not heat container by any means to increase the discharge rate of product from the container.

Do not handle until all safety precautions have been read and understood. Vapours may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Do not breathe vapour. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid prolonged exposure. Do not get this material on clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Store at temperatures not exceeding 55 °C.

8. Exposure Controls and Personal Protection

Occupational exposure limits

Components	Type	Value
Workplace Exposure Standards for Airborne Contaminants (Australia Work Health and Safety Act)		
Chloropicrin (CAS 76-06-2)	TWA	0.1 ppm (0.67 mg/m^3)
US. ACGIH Threshold Limit Values		
Chloropicrin (CAS 76-06-2)	TLV-TWA	0.1 ppm (0.7 mg/m^3)
1,3-Dichloropropene (CAS 542-75-6)	TLV-TWA	
US. NIOSH: Pocket Guide to Chemical Hazards		
Chloropicrin (CAS 76-06-2)	IDLH	2.0 ppm

Biological monitoring

No biological exposure index (BEI) value noted for the ingredient(s).

Control Banding Not assigned.

Exposure guidelines

US. ACGIH Threshold Limit Values: Skin designation*

1,3-Dichloropropene (CAS 542-75-6)	Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

1,3-Dichloropropene (CAS 542-75-6)	Can be absorbed through the skin.

***** A skin designation refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapours or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimise dermal exposures should be considered.

Engineering controls Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Water flushing facilities must be available when handling this product.

Individual protection measures, such as personal protective equipment

Label directions When opening the container and using the product and when uncovering the treated area wear chemical-resistant clothing buttoned to the neck and wrist, a washable hat, elbow-length chemical-resistant gloves, chemical-resistant footwear (rubber boots or overboots, not steel capped), full-facepiece respirator with organic vapour cartridge or canister.

What follows below provides PPE type details and includes non-agricultural occupational work situations:

Eye/face protection Wear safety glasses with side shields and a face shield. Wear goggles when using a half-mask respirator. Wear a full-face respirator, if needed.

Skin protection

Hand protection Wear appropriate chemical-resistant gloves. For help in selecting suitable equipment, consult AS 2161: Occupational protective gloves, Protection against thermal risks (heat and fire).

Incidental contact (< 10 minutes): Nitrile, butyl rubber or neoprene gloves are recommended.

More than incidental contact: Viton or Silver Shield® gloves are recommended.

Other Avoid contact with the skin. When performing tasks with potential for contact with liquid, wear appropriate chemical-resistant clothing to prevent skin contact. To avoid prolonged or repeated contact where spills and splashes are likely, wear appropriate chemical-resistant face shield, boots, apron, whole body suits or other protective clothing. The protection suit must be able to provide reliable protection against a broad range of industrial chemicals. Examples include: Tychem and Saranex.

Respiratory protection For non-handlers and non-applicators:

- If working in an environment where the eyes are stinging and watery due to exposure to this product, wear an approved full-face-respirator with an organic vapour cartridge.

For all pesticide handlers (including applicators):

- Must wear a half-face air-purifying respirator (in conjunction with goggles) equipped with an organic vapour cartridge and a particulate pre-filter.
- If sensory irritation (tearing, burning of the eyes or nose) is experienced and handlers remain in the application block or buffer zone, handlers must wear at a minimum either: an approved full-face air-purifying respirator equipped with an organic vapour cartridge and a particulate pre-filter, or a gas mask with a Type A or AX canister approved for organic vapour.

Emergency or planned entry into unknown concentrations or IDLH conditions:

- Any self-contained breathing apparatus that has a full-face piece and is operated in a pressure-demand or other positive-pressure mode.

Escape:

- Full-face air-purifying respirator equipped with Type A or AX organic vapour cartridge.
- Air-purifying respirator with canisters that include the escape gas mask (canister) respirator, gas mask (canister) respirator, and filter self-rescuer.
- Any self-contained breathing apparatus with hood or full-face mask.

Respirators certified “escape only” can only be used for escape purposes and

	CANNOT be used for responding to emergencies.
	Select approved respirators in accordance with AS/NZS 1715 Standard - Selection, use and maintenance of respiratory protective equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	NOTE: Handlers and applicators must follow the end-use pesticide label instructions for each of the task situations that require personal protective equipment.
	When using, do not eat, drink or smoke. Do not get this material on clothing. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and Chemical Properties

Appearance	Transparent liquid.
Physical state	Liquid.
Colour	Colourless to pale yellow. Brown if in prolonged contact with metal packaging.
Odour	Chloropicrin has a strong, sharp, intensely irritating odour. 1,3-Dichloropropene has a pungent, sweet, penetrating odour.
Odour threshold	700 ppb in 2-5 seconds (Chloropicrin)
pH	4.8 @ 20 °C (68 °F) in 1% (v/v) dispersion mixture in deionized water
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	94.4 °C (201.9 °F) Setaflash Closed Cup
Auto-ignition temperature	480 °C (896 °F) (1,3-Dichloropropene)
Evaporation rate	Fast.
Flammability	Will burn in a fire.
Upper/lower flammability or explosive limits	No data available.
Vapour pressure	Not data available.
Vapour density, relative	Not data available.
Relative density	1.556 @ 20 °C (68 °F) (H_2O = 1)
Density	1.553 kg/L or 1553 g/L @ 20 °C (68 °F)
Solubility	No data available.
Partition coefficient (n-octanol/water)	No data available.
Decomposition temperature	No data available.
Viscosity, kinematic	5.64 cP @ 17 °C
Particle characteristics	Not relevant for liquid product.
Explodability	Not expected to be explosive based on testing of similar formulation.
Heat of Combustion	1.761 kJ/g (estimated)

10. Stability and Reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use. Chemical reaction may occur if mixed with or allowed to contact oxidizing agents.
Conditions to avoid	Heat may cause the containers to rupture or burst. Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Avoid contact with incompatible materials.

Incompatible materials	Strong oxidizing agents, copper, aluminum, zinc, cadmium, magnesium, acids, bases, amines.
Hazardous decomposition products	During combustion, the product will decompose to produce the following: carbon monoxide, carbon dioxide, chlorine, hydrogen chloride, phosgene, nitrosyl chloride, nitrogen oxides.

11. Toxicological Information

Information on toxicological effects

Acute toxicity Fatal if inhaled. Toxic if swallowed. Toxic in contact with skin.

Product	Route of Entry	Animal	Test Results or ATE	GHS Classification
Product Test Results or ATE (Acute Toxicity Estimate) [1,2]				
Acute	Inhalation, LC_{50}	Rat	0.14 mg/L, 4 hours, (21.2 ppm)	1
	Oral, LD_{50}	Rat	97.8 mg/kg	3
	Dermal, LD50	Rabbit	933 mg/kg (ATE)	3

1 - Inhalation and Oral values based on results of study of mixture containing Chloropicrin 80% and 1,3-Dichloropropene 20%
2 - Dermal value based on ATE calculation using study results for substances Chloropicrin and 1,3-Dichloropropene

Components	Route of Entry	Animal	Test Result	
Chloropicrin (CAS 76-06-2)				
Acute	Inhalation, LC_{50}	Rat, 4-hr	0.127 mg/L (18.9 ppm)	
	Oral, LD_{50}	Rat, 14-day observation	37.5 mg/kg	
	Dermal, LD_{50}	Rabbit, 4-hr, 14-day	926 mg/kg	
1,3-Dichloropropene (CAS 542-75-6)				
Acute	Inhalation, LC_{50}	Rat, 4-hr	> 595 ppm	OECD 403 (1981)
	Oral, LD_{50}	Rat	> 150 mg/kg	OECD 401 (1981)
	Dermal, LD_{50}	Rabbit	> 333 mg/kg	OECD 402 (1981)

Skin corrosion/irritation Brief contact may cause moderate skin irritation with local redness. May cause drying and flaking of the skin. Direct contact with liquid can cause irritation, blistering, or burns.

Serious eye damage/eye irritation Direct contact with liquid can cause serious eye damage such as burns and can result in permanent damage, such as blindness.

Vapour may cause severe lacrimation (tears), eye irritation, redness, slight corneal injury, blurred vision experienced as mild discomfort that stops following termination of exposure.

Respiratory or skin sensitization

Respiratory sensitization Based on available data; the classification criteria are not met.

Skin sensitization Based on available data; the classification criteria are not met.

No sensitivity observed when product tested on guinea pigs (OECD method 406).

Carcinogenicity Suspected of causing cancer (1,3-Dichloropropene).

1,3-Dichloropropene has been shown to cause cancer in laboratory animals by the oral route. Inhalation exposure resulted in an increase in the normal occurrence of benign lung tumors in male mice.

Work Health and Safety Regulations (Schedule 10) - Australia

Chloropicrin (CAS 76-06-2): Not listed.
1,3-Dichloropropene (CAS 542-75-6): Not listed.

IARC Monographs. Overall Evaluation of Carcinogenicity

Chloropicrin (CAS 76-06-2): Not listed.
1,3-Dichloropropene (CAS 542-75-6): 2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Chloropicrin (CAS 76-06-2): Not listed.
1,3-Dichloropropene (CAS 542-75-6): Reasonably Anticipated to be a Human Carcinogen.

Germ cell mutagenicity	Based on available data; the classification criteria are not met. Chloropicrin: *In vitro* studies produced mixed and contradictory results for genetic toxicity and mutation. *In vivo* studies are negative for mutation, DNA damage and chromosome damage. 1,3-Dichloropropene: *In vitro* genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.
Reproductive toxicity	Based on available data; the classification criteria are not met. Chloropicrin: Inhalation exposure to Chloropicrin of male and female rats in a 2-generation reproductive function study produced a NOAEL of 1.0 ppm for systemic toxicity and greater than 1.5 ppm for developmental toxicity and reproductive parameters. These data indicate that reproduction fitness is not adversely affected by Chloropicrin inhalation even at systemically toxic levels. 1,3-Dichloropropene: In animal studies, did not interfere with reproduction.
Developmental toxicity	Based on available data; the classification criteria are not met. Chloropicrin: Developmental toxicity studies in rats and rabbits conducted by the inhalation route of exposure showed that the NOAEL for maternal toxicity in rats was 0.4 ppm and 1.2 ppm for fetal toxicity. In rabbits NOAEL for maternal toxicity was 0.4 ppm and 1.2 ppm for fetal toxicity, indicating that the developing fetus is not a target tissue for Chloropicrin toxicity. 1,3-Dichloropropene: Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.
Effects on or via lactation	Based on available data; the classification criteria are not met.
Specific target organ toxicity – single exposure	Respiratory tract irritation, lungs. Single exposure to high concentration can cause pulmonary edema and damage to bronchial epithelium.
Specific target organ toxicity – repeated exposure	Chloropicrin: Repeated-Dose Toxicity: Subchronic inhalation studies in mice and rats established that respiratory tissue is the target for Chloropicrin inhalation toxicity and that portal-of-entry effects occur in the upper respiratory tissue of animals inhaling Chloropicrin vapour for 90 days at concentrations at or above 0.1 ppm (0.67 mg/m^3). Chloropicrin: Long-term Toxicity: Chronic inhalation studies in mice and rats established that the respiratory tissue is the target for Chloropicrin inhalation toxicity and that tissue of the entire respiratory is subject to inflammatory damage. The NOAEL for respiratory system changes in chronic inhalation bioassays is 0.1 ppm for rats and mice. 1,3-Dichloropropene: In animals, effects have been reported on the following organs: Bladder, nasal tissue, liver, lung, gastrointestinal tract, respiratory tract, blood-forming organs (bone marrow & spleen).
Aspiration hazard	May be fatal if swallowed and enters airways.

Information on possible routes of exposure

Inhalation	Respiratory tract (by inhalation of vapours).
Eye contact	Causes serious eye damage. Lachrymation (eye tearing).
Skin contact	Causes severe skin burns, primarily by liquid contact.
Ingestion	Causes digestive tract burns.

Early onset symptoms related to exposure

Early symptoms of low exposure are stinging/tearing of the eyes and irritation of the throat. Nausea or vomiting may occur.

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause an allergic skin reaction: dermatitis, rash.

Delayed health effects from exposure

Persons exposed to very high levels of Chloropicrin have reported to have experienced nausea, vomiting, and diarrhea lasting for weeks.

Exposure levels and health effects (for Chloropicrin)

> 2000 ppb (10 minutes)	Human response - life-threatening effects including pulmonary edema can occur.
> 580 ppb (8 hours)	Human response - life-threatening effects including pulmonary edema can occur.
> 300 ppb	Human response - respiratory symptoms may increase in severity and include difficulty in breathing.
> 150 ppb	Human response - headache, nausea, and vomiting may occur. These symptoms are temporary and reversible following termination of exposure.
73 - 150 ppb	Human response - mild irritant to eyes and throat.
73 ppb	Human sensory irritation threshold (eye irritation).

Interactive effects No data available.

Other information None.

12. Ecological Information

NOTE: There is no ecological toxicity information for the product. Information below is presented for the main components.

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Components	Study Results	Duration	Species
For Chloropicrin (CAS 76-06-2)			
Aquatic, acute			
LC_{50}	0.0048 mg/L	96-hr	Fish: Rainbow trout (*Oncorhynchus mykiss*), semi-static
EC_{50}	0.15 mg/L	48-hr	Crustacean: (*Daphnia magna*), static
ErC_{50}	0.00016 mg/L	72-hr	Algae: (*Selenastrum capricornutum*), static, Growth rate
EbC_{50}	0.00011 mg/L	72-hr	Algae: (*Selenastrum capricornutum*), static, Biomass
Aquatic, chronic			
NOEC	0.0025 mg/L	90-day	Fish: Rainbow trout (*Oncorhynchus mykiss*), ELS flow through, growth
NOEC	0.00427 mg/L	21-day	Crustacean: (*Daphnia magna*), static, reproduction
NOEC	0.011 mg/L	7-day	Plant: Duckweed (*Lemna minor*)
For 1,3-Dichloropropene (CAS 542-75-6)			
Aquatic, acute			
LC_{50}	2.78-4.63 mg/L	96-hr	Fish: Rainbow trout (*Oncorhynchus mykiss*)
LC_{50}	0.91 mg/L	96-hr	Fish: Sheepshead minnow (*Cyprinodon variegatus*)
EC_{50}	0.67 mg/L	96-hr	Crustacea: Oyster (*Crassostrea cucullata*), growth inhibition
Aquatic, chronic			
LOEC	0.204 mg/L	33-day	Fish
NOEC	0.117 mg/L	33-day	Fish
LOEC	0.109 mg/L	21-day	Crustacea: (*Daphnia magna*)
NOEC	0.073 mg/L	21-day	Crustacea: (*Daphnia magna*)

Persistence and degradability

Based on information for a similar material:

Degradation is expected in the atmospheric environment within minutes to weeks.

Degradation is expected in the soil environment within days to weeks.

Based on information for Chloropicrin:

Chloropicrin degrades to carbon dioxide in soil with a half-life between 8 hours and 4.5 days.

In water, Chloropicrin degrades to carbon dioxide, bicarbonate, chloride, nitrate and nitrite within 32 hours when exposed to light.

Half-life in air, when exposed to simulated sunlight, was 20 days with the end products being phosgene, nitric oxide, chlorine, nitrogen dioxide and dinitrogen tetroxide.

Based on information for 1,3-Dichloropropene:

Biodegradation may occur under aerobic conditions (oxygen present). 10-day Window: Fail

Bioaccumulative potential	No data available for this product. Chloropicrin: Due to low log Kow (<5.0), not expected to bioaccumulate in mammalian cells.
Partition coefficient n-octanol / water (log Kow)	
	Chloropicrin log Kow = 2.38
Partition coefficient soil organic carbon/water (Koc)	
	Chloropicrin Koc = 5.29 (silt loam) Chloropicrin Koc = 93.59 (agricultural sand soils) This indicates that chloropicrin is more likely to remain in the soil solution than to bind to soil particles.
Mobility in soil	Data not available for product. Chloropicrin: Exhibits high mobility in soil, meaning it can readily move through soil particles due to its low adsorption to soil and high volatility, primarily dispersing through the soil air space as a gas rather than leaching through water; this makes volatilization (evaporation) the primary dissipation pathway in most soil conditions.
PBT/vPBT assessment	This product contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Other adverse effects	This product is toxic to mammals, birds, fish, and aquatic invertebrates. It does not contain components considered to have endocrine disrupting properties. It does not contain components that are listed in the Montreal Protocol for ozone depleting properties.

13. Disposal Considerations

Disposal methods	Follow APVMA approved label for Pesticide disposal directions. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents in accordance with local/regional/national/international regulations. Do not discharge this product or its effluent into lakes, rivers, streams, ponds, estuaries, oceans or other waters. See Section 8 – Exposure Controls and Personal Protection for additional information.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Waste from residues / unused products	If wastes cannot be disposed of according to the product label directions, disposal of this material must be in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal methods). Avoid discharge into water courses or onto the ground.
Contaminated packaging	Empty containers should have the micromatic fitting removed and be triple rinsed and then taken to your nearest drumMUSTER collection point. Do not use containers to store any other material.

14. Transport Information

Road and Rail Transport (ADG Code)

UN number	UN3390
Proper shipping name	Toxic by inhalation liquid, corrosive, n.o.s. (Chloropicrin, 1,3-Dichloropropene)
Transport hazard class	6.1 (8)
Packing group number	I
Environmental hazards for transport purposes	
Marine pollutant	Yes (Chloropicrin; 1,3-Dichloropropene)
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Additional information	None
Hazchem Code	2XE

IATA (Air Transport) UN3390 is **FORBIDDEN** to transport by air

IMDG (Sea Transport)

UN number	UN3390
Proper shipping name	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. (Chloropicrin, 1,3-Dichloropropene)
Transport hazard class	6.1 (8)
Packing group number	I
Environmental hazards for transport purposes	
Marine pollutant	Yes (Chloropicrin; 1,3-Dichloropropene)
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
EmS	F-A, S-B
Transport in bulk according to IMO instruments	This product is not transported by this method.

15. Regulatory Information

Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) established under the Therapeutic Goods Act 1989 (as amended).	Poisons Schedule – 7 and Appendix J, Part 2
AIIC	Chloropicrin (CAS 76-06-2) is not listed, exempt as an Agrochemical 1,3-Dichloropropene (CAS 542-75-6) is listed as 1-Propene, 1,3-dichloro-
NICNAS assessment	Not required for agricultural-only material.
Montreal Protocol (Ozone depleting substances)	No component is listed.
The Stockholm Convention (Persistent Organic Pollutants)	No component is listed.
The Rotterdam Convention (Prior Informed Consent)	No component is listed.
Chemical Weapons Convention	Chloropicrin is listed as a Schedule 3 substance subject to declaration and reporting. Australia requires a permit to import and a permit or license to export this product due to containing ≥ 10% Chloropicrin.
National Code of Practice for Chemicals of Security Concern	Chloropicrin is listed.
Workplace Exposure Standards for Airborne Contaminants (Australia Work Health and Safety Act) 2024	Chloropicrin is assigned TWA value (see Section 8)

16. Any Other Relevant Information

This SDS prepared in accordance with SWA Code of Practice: Preparation of Safety Data Sheets for Hazardous Chemicals, June 2023, amended to reflect United Nations GHS 7.

Version 4 date January 12, 2025

Revision history

dd/mm/yyyy	Date format	
25/11/2019	Initial version	
02/12/2022	Updated formatting to reflect the adoption of the 7th revised edition of the GHS	
24/05/2024	Section 1:	Updated Manufacturer address
	Section 2:	Removed Exclamation pictogram
03/12/2024	Section 14:	Corrected transport class information (removed reference to Class 3)
	Section 15:	Removed reference to international inventories
12/01/2025	SDS	Made formatting changes throughout SDS
	Section 2:	Revised hazard classification from ATE to product study results

Abbreviations and Acronyms

10 Day Window Fail	Endpoints - Test items that reach 60 % biodegradation within the 10-day window (the 10 days after passing 10% biodegradation of the test item), can be classified as ready biodegradable. Test items that reach 60% after the 10-day window are classified as ready biodegradable, but failing 10-day window.
ACGIH	American Conference of Governmental Industrial Hygienists
ADG Code	Australian Dangerous Goods Code (requirements for land transport of dangerous goods)
AIIC	Australian Inventory of Industrial Chemicals
APVMA	Australian Pesticides and Veterinary Medicines Authority

BEI	Biological Exposure Index
CAS	Chemical Abstracts Service
CHEMTREC	Chemical Transportation Emergency Center
EC_{50}	Half Maximal Effective Concentration - concentration of a material in water, a single dose which is expected to cause a biological effect on 50% of a group of test species.
EL_{50}	Effective loading on 50% of the tested subjects
GHS 7	Globally Harmonized System of Classification and Labeling of Chemicals, 7th edition
IDLH	Immediately Dangerous to Life and Health (USA NIOSH)
IMDG	International Maritime Dangerous Goods
LC_{50}	Lethal Concentration - median dose at which 50% of test animals die from inhalation
LD_{50}	Lethal Dose - median dose at which 50% test animals die from oral or dermal exposure
LL_{50}	Lethal Load 50 (used in place of LC50 when material is not completely soluble in water at test treatment dose).
LOEC	Lowest Observed Effect Concentration
NIOSH	National Institute of Occupational Safety and Health (USA)
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
NTP	National Toxicology Program (USA)
OSHA	Occupational Health and Safety Administration (USA)
ppb	part(s) per billion
ppm	part(s) per million
TLV	Threshold Limit Value (ACGIH)
TWA	Time Weighted Average airborne concentration for a worker in an 8-hour day
USA	United States of America

Key literature references and sources of data

- Hazardous Chemical Information System (HCIS) - Australia
- Australian Dangerous Goods Code International Maritime Dangerous Goods Code
- AS/NZS 1715-2009 Selection, Use, and Maintenance of Respiratory Protective Devices
- AS/NZS 1716-2012 Respiratory Protective Devices
- WorkSafe Australia Hazardous Substance Information System
- Toxnet - Hazardous Substance Data Base (United States Center for Disease Control)
- The International Uniform Chemical Information Database (**IUCLID**) – Organization for Economic Cooperation and Development (OECD)
- European Chemicals Agency website (ECHA)
- Manufacturer pesticide registration data for US EPA and for State of California
- Manufacturer studies on human response

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 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. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release. The information in the sheet was written based on the best knowledge and experience currently available.