

## Section 1 - Identification of The Material and Supplier

Ensystem Australasia Pty Ltd  
Warehouse D, Building 6, The Switchyard  
161 Manchester Road, AUBURN, NSW 2144  
13 35 36 (all hours)

Ensystem New Zealand Ltd  
17C Corinthian Drive  
Albany, Auckland 0752  
0800 ENSYSTEM (0800 367 978)

**Chemical nature:** Permethrin is a pyrethroid  
**Trade Name:** PERMETHOR® SHIELD Liquid Insecticide  
**Product Use:** Insecticide for use as described on the registered product label.  
**Creation Date:** July, 2018  
**This version issued:** April, 2024 and is valid for 5 years from this date.

## Section 2 - Hazards Identification

### Statement of Hazardous Nature

**SUSMP Classification:** S6

**ADG Classification:** Not subject to the ADG Code when transported in Australia by Road or Rail in packages 500 kg(L) or less; or IBCs (refer to SP AU01).

**IATA/IMDG Classification:** Where net quantity per single or inner packaging is 5 L or less for liquids or 5 kg or less for solids, goods may be transported as non-dangerous goods as provided in special provision A197 of the IATA regulations and section 2.10.2.7 of IMDG code. This product is always packed at 5 L or less.

See details in Section 14 of this SDS.

**UN Number:** 3082

### GHS Classification:

Acute toxicity – Oral: Category 4  
Acute toxicity – Inhalation: Category 4  
Skin sensitization: Category 1  
Aspiration hazard: Category 1  
Hazardous to aquatic environment, long-term hazard: Category 1



### GHS Signal word: DANGER

#### HAZARD STATEMENT:

H302: Harmful if swallowed.  
H304: May be fatal if swallowed and enters airways.  
H317: May cause an allergic skin reaction.  
H332: Harmful if inhaled  
H410: Very Toxic to aquatic life with long lasting effects.

#### PREVENTION

P261: Avoid breathing mist and spray.  
P264: Wash contacted areas thoroughly after handling.  
P270: Do not eat, drink, or smoke when using this product.  
P271: Use only outdoors or in a well-ventilated area.  
P272: Contaminated work clothing should not be allowed out of the workplace.  
P273: Avoid release to the environment.  
P280: Wear protective gloves.

#### RESPONSE

P312: Call a POISON CENTER/doctor/physician if you feel unwell.  
P301+P310: IF SWALLOWED: Immediately call a POISON CENTRE/doctor/physician.  
P330: Rinse mouth.  
P331: Do NOT induce vomiting.

## SAFETY DATA SHEET

P302+P352: IF ON SKIN: Wash with plenty of water.

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P333+P313: If skin irritation or rash occurs: Get medical advice/attention.

P362+P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

#### STORAGE

P405: Store locked up.

#### DISPOSAL

P501: If they cannot be recycled, dispose of contents to an approved waste disposal plant and containers to landfill (see Section 13 of this SDS).

### Emergency Overview

**Physical Description & colour:** Clear amber liquid.

**Odour:** Aromatic odour.

**Major Health Hazards:** Permethrin is harmful to non-harmful via the oral route, with a reported LD<sub>50</sub> for technical permethrin in rats of over 5000 mg/kg. Via the dermal route, it is not harmful, with a reported dermal LD<sub>50</sub> in rats of over 5000 mg/kg, and in rabbits of greater 2000 mg/kg.

### Potential Health Effects

#### Inhalation:

**Short term exposure:** This product may be harmful, but symptoms are not available. In addition, product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

**Long Term exposure:** No data for health effects associated with long term inhalation.

#### Skin Contact:

**Short term exposure:** This product may be irritating to skin but is unlikely to cause anything more than mild transient discomfort.

**Long Term exposure:** No data for health effects associated with long term skin exposure.

#### Eye Contact:

**Short term exposure:** Available data indicates that this product is not harmful. However, product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

**Long Term exposure:** No data for health effects associated with long term eye exposure.

#### Ingestion:

**Short term exposure:** Significant oral exposure is considered to be unlikely. Available data shows that this product is harmful, but symptoms are not available. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.

**Long Term exposure:** No data for health effects associated with long term ingestion.

#### Carcinogen Status:

**SWA:** No significant ingredient is classified as carcinogenic by SWA.

**NTP:** No significant ingredient is classified as carcinogenic by NTP.

**IARC:** No significant ingredient is classified as carcinogenic by IARC.

### Section 3 - Composition/Information on Ingredients

Ingredients	CAS No	Conc., %	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Permethrin	52645-53-1	50.0 % (500 g/L)	not set	not set
Solvent Naphtha, heavy aromatic	64742-94-5	36.1 %	not set	not set
Other non-hazardous ingredients	various	to 100 %	not set	not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non-hazardous ingredients are also possible.

The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak" is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

### SAFETY DATA SHEET

Issued by: Ensysstex Australasia Pty Ltd

Phone: 13 35 36 (ALL HOURS)

Poisons Information Centre: 13 1126 from anywhere in Australia, (0800 764 766 in New Zealand)

## Section 4 - First Aid Measures

### General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned, or irritated by this product. The number is 13 11 26 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this SDS with you when you call.

**Inhalation:** No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice.

**Skin Contact:** Take off contaminated clothing immediately. Wash gently and thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water. In case of skin irritation, application of oils or lotions containing vitamin E may be considered. If symptom persist, contact a Poisons Information Centre, or call a doctor.

**Eye Contact:** Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 15 minutes, while holding the eyelid(s) open. Obtain medical advice immediately if irritation occurs. Take special care if exposed person is wearing contact lenses.

**Ingestion:** If swallowed, do NOT induce vomiting. Rinse mouth with water. Keep patient warm and at rest. If symptom persist, contact a Poisons Information Centre, or call a doctor.

Note: In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. Treat symptomatically. Monitor: respiratory and cardiac functions. ECG – monitoring (Electrocardiogram). There is no specific antidote. Contraindication: atropine.

## Section 5 - Fire Fighting Measures

**Fire and Explosion Hazards:** The major hazard in fires is usually inhalation of heated and toxic or oxygen deficient (or both), fire gases.

Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

**Extinguishing Media:** In case of fire, use foam, water spray, dry powder.

**Fire Fighting:** If a significant quantity of this product is involved in a fire, call the fire brigade.

Further information: Remove product from area of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Whenever possible, contain fire-fighting water by diking area with sand or earth. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Do not allow run-off from fire fighting to enter drains or water courses.

<b>Flash point:</b>	N/A
<b>Upper Flammability Limit:</b>	N/A
<b>Lower Flammability Limit:</b>	N/A
<b>Autoignition temperature:</b>	N/A
<b>Flammability Class:</b>	N/A

## Section 6 - Accidental Release Measures

**Accidental release:** In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing including eye/face protection. All skin areas should be covered. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the clean-up area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8). Otherwise, not normally necessary.

Stop leak if safe to do so and contain spill. Absorb onto sand, vermiculite, or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label. If there is any conflict between this SDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

## SAFETY DATA SHEET

## Section 7 - Handling and Storage

**Handling:** Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Keep away from heat and sources of ignition. Do not use this product in or on electrical equipment due to the possibility of shock hazard. Take measures to prevent the build up of electrostatic charge. Check Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

**Storage:** This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport, and storage of this schedule of poison. Make sure that containers of this product are kept tightly closed in a dry, cool, well-ventilated place and away from direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

## Section 8 - Exposure Controls and Personal Protection

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: AS/NZS 4501 set 2008, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

<b>SWA Exposure Limits</b>	<b>TWA (mg/m<sup>3</sup>)</b>	<b>STEL (mg/m<sup>3</sup>)</b>
----------------------------	-------------------------------	--------------------------------

Exposure limits have not been established by NOHSC for any of the significant ingredients in this product.

The ADI for permethrin is set at 0.05 mg/kg/day. The corresponding NOEL is set at 5 mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2002.

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

**Ventilation:** This product should be used in a well-ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

**Eye Protection:** Protective glasses or goggles should be worn when this product is being used.

**Skin Protection:** Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. See below for suitable material types.

**Protective Material Types:** We suggest that protective clothing be made from the following materials: rubber, PVC.

**Respirator:** Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above. Otherwise, not normally necessary.

## Section 9 - Physical and Chemical Properties

<b>Physical Description &amp; colour:</b>	Clear amber liquid.
<b>Odour:</b>	Aromatic odour.
<b>Boiling Point:</b>	No data.
<b>Freezing/Melting Point:</b>	No data.
<b>Volatiles:</b>	No data.
<b>Vapour Pressure:</b>	No data.
<b>Vapour Density:</b>	No data.
<b>Specific Gravity:</b>	1.06
<b>pH (1%):</b>	7.0
<b>Volatility:</b>	No data.
<b>Odour Threshold:</b>	No data.
<b>Evaporation Rate:</b>	No data.
<b>Coeff Oil/water distribution:</b>	No data.
<b>Autoignition temp:</b>	No data.

## SAFETY DATA SHEET

## Section 10 - Stability and Reactivity

**Reactivity:** This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf-life properties.

**Conditions to Avoid:** Extremes of temperature and direct sunlight.

**Incompatibilities:** Strong oxidizing agents.

**Fire Decomposition:** Combustion forms carbon dioxide, and if incomplete, carbon monoxide and possibly smoke. May form hydrogen chloride. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

**Polymerisation:** This product will not undergo polymerisation reactions.

## Section 11 - Toxicological Information

**Toxicity:** Acute toxicity: Permethrin is harmful to non-harmful via the oral route, with a reported LD<sub>50</sub> for technical permethrin in rats of greater than 5000 mg/kg. Via the dermal route, it is not harmful, with a reported dermal LD<sub>50</sub> in rats of over 5000 mg/kg, and in rabbits of greater than 2000 mg/kg. The toxicity of permethrin is dependent on the ratio of the isomers present; the cis-isomer being more toxic.

**Chronic toxicity:** No adverse effects were observed in dogs fed permethrin at doses of 5 mg/kg/day for 90 days. Rats fed 150 mg/kg/day for 6 months showed a slight increase in liver weights. Very low levels of permethrin in the diet of chickens (0.1 ppm for 3 to 6 weeks after hatching) have been reported to suppress immune system activity.

**Teratogenic effects:** Permethrin is reported to show no teratogenic activity.

**Mutagenic effects:** Permethrin is reported to show no mutagenic activity.

**Carcinogenic effects:** None reported.

**Reproductive effects:** Permethrin did not cause reproductive toxicity in a two-generation study in rats.

**Repeated dose toxicity:** Permethrin did not cause specific target organ toxicity in experimental animal studies.

**Fate in humans and animals:** Permethrin is efficiently metabolised by mammalian livers. Breakdown products, or "metabolites," of permethrin are quickly excreted and do not persist significantly in body tissues. When permethrin is administered orally to rats, it is rapidly metabolized and almost completely eliminated from the body in a few days. Only 3 to 6% of the original dose was excreted unchanged in the faeces of experimental animals. Permethrin may persist in fatty tissues. Permethrin does not block, or inhibit, cholinesterase enzymes.

## Classification of Hazardous Ingredients

Ingredient	Risk Phrases
Permethrin	Conc>=25%: Xn; R20/22; R43
Solvent Naphtha (petroleum), heavy aromatic	Conc>=10%: Xn; R65

There is no data to hand indicating any particular target organs.

## Section 12 - Ecological Information

**Effects on birds:** Permethrin is practically non-toxic to birds. The oral LD<sub>50</sub> for a permethrin formulation is greater than 9900 mg/kg in mallard ducks, greater than 13,500 mg/kg in pheasants, and greater than 15,500 mg/kg in quail.

**Effects on aquatic organisms:** Aquatic ecosystems are vulnerable to the impact of permethrin. The 96-hour LC<sub>50</sub> of permethrin is 0.0076 mg/L for *Poecilia reticulata* (guppy). The 48-hour EC<sub>50</sub> is 0.00017 mg/L for *Daphnia magna* (Water flea). The 96-hour EC<sub>50</sub> is 0.497 mg/L for *Raphidocelis subcapitata* (freshwater green alga).

**Effects on other organisms:** Permethrin is toxic to bees.

### ENVIRONMENTAL FATE

**Breakdown in soil and groundwater:** Permethrin is of low to moderate persistence in the soil environment, with reported half-lives of 30 to 38 days. Permethrin is readily broken down, or degraded, in most soils. Soil micro-organisms play a large role in the degradation of permethrin. Because permethrin binds very strongly to soil particles and is nearly insoluble in water, it is not expected to leach or to contaminate groundwater. K<sub>oc</sub> of Permethrin is 100000.

**Breakdown in water:** The results of one study near estuarine areas showed that permethrin had a half-life of less than 2.5 days. When exposed to sunlight, the half-life was 4.6 days. Permethrin degrades rapidly in water. There was a gradual loss of toxicity after it aged for 48 hours in sunlight at 0.05 mg/L in water.

**Breakdown in vegetation:** Permethrin is not phytotoxic, or poisonous, to most plants. No incompatibility has been observed with permethrin on cultivated plants.

## SAFETY DATA SHEET

## Section 13 - Disposal Considerations

**Disposal:** Containers should be emptied as completely as practical before disposal. If possible, recycle product and containers either in-house or send to recycle company. If this is not practical, send to a commercial waste disposal site. Empty containers and product should not be burnt. Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the collection of unwanted rural chemicals, contact ChemClear 1800 008 182 <http://www.chemclear.com.au/> and for help with the disposal of empty drums, contact DrumMuster <http://www.drummuster.com.au/> where you will find contact details.

## Section 14 - Transport Information

UN number: 3082  
 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Permethrin contained)  
 Transport class: 9  
 Packing group: III  
 Environmentally hazardous: Yes

According to AU01 of Australian Special Provision, Environmentally Hazardous Substances meeting the description of UN3082 are not subject to this Code (ADG 07) when transported by road and rail in:

- packaging that does not incorporate a receptacle exceeding 500 kg (L); or
- IBCs.

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA special provision A197, and ADR/RID special provision 375.

This material is not a hazardous material as defined by the U.S. Department of Transportation 49 CFR Parts 100 through 185, unless shipped in bulk packaging. This classification pertains only to the shipment in bulk packaging [( $>119$  gal, liquid) or (882 lb, solid)].

## Section 15 - Regulatory Information

**AICS:** All of the significant ingredients in this formulation are compliant with NICNAS regulations.

## Section 16 - Other Information

**This SDS contains only safety-related information. For other data see product literature.**

If there is any conflict between this SDS and the registered label, instructions on the label prevail.

### Acronyms:

<b>ADG Code</b>	Australian Code for the Transport of Dangerous Goods by Road and Rail (7 <sup>th</sup> edition)
<b>AICS</b>	Australian Inventory of Chemical Substances
<b>SWA</b>	Safe Work Australia, formerly ASCC and NOHSC
<b>CAS number</b>	Chemical Abstracts Service Registry Number
<b>Hazchem Code</b>	Emergency action code of numbers and letters that provide information to emergency services especially fire-fighters
<b>IARC</b>	International Agency for Research on Cancer
<b>NOS</b>	Not otherwise specified
<b>NTP</b>	National Toxicology Program (USA)
<b>R-Phrase</b>	Risk Phrase
<b>SUSMP</b>	Standard for the Uniform Scheduling of Medicines & Poisons
<b>UN Number</b>	United Nations Number

THIS SDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER MUST REVIEW THIS SDS IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE.

IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY SO WE CAN ATTEMPT TO OBTAIN ADDITIONAL INFORMATION FROM OUR SUPPLIERS

OUR RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

Please read all labels carefully before using product.

® Register trademark of Ensysyex, Inc. used under licence by Ensysyex Australasia Pty Ltd and Ensysyex New Zealand Ltd.

## SAFETY DATA SHEET

Issued by: Ensysyex Australasia Pty Ltd

Phone: 13 35 36 (ALL HOURS)

Poisons Information Centre: 13 1126 from anywhere in Australia, (0800 764 766 in New Zealand)