SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Trade name	Perigen® Defence Residual Insecticide
Product code (UVP)	06069142

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use	Insecticide

1.3 Details of the supplier of the safety data sheet

Supplier	Bayer Cropscience Pty Ltd ABN 87 000 226 022 Level 1, 8 Redfern Road 3123 Hawthorn East Victoria Australia
Telephone	(03) 9248 6888
Telefax	(03) 9248 6800
Responsible Department	1800 804 479 Technical Information Service
Website	www.es.bayer.com.au

1.4 Emergency telephone no.

Emergency telephone no.	1800 033 111 IXOM Operations Pty Ltd

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Australian GHS Regulation

Acute toxicity: Category 4
H332 Harmful if inhaled.

Skin corrosion/irritation: Category 2
H315 Causes skin irritation.

Skin sensitisation: Category 1
H317 May cause an allergic skin reaction.

Reproductive toxicity: Category 2
H361d Suspected of damaging the unborn child.

Aspiration hazard: Category 1
H304 May be fatal if swallowed and enters airways.

Acute aquatic toxicity: Category 1
H400 Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1

H410 Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Hazard label for supply/use required.

Hazardous components which must be listed on the label:

Permethrin
Solvent Naphtha (petroleum), heavy aromatic

Signal word: Danger

Hazard statements

H332	Harmful if inhaled.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H361d	Suspected of damaging the unborn child.
H304	May be fatal if swallowed and enters airways.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing mist/ vapours/ spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/ physician.
P331	Do NOT induce vomiting.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/doctor/physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local regulation.

2.3 Other hazards

Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours).

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Permethrin 500 g/l
Emulsifiable concentrate (EC)

Chemical name	CAS-No.	Concentration [%]
Permethrin	52645-53-1	47.17
Calcium dodecylbenzene sulphonate	26264-06-2	> 3.00 - < 6.00
2-Ethylhexanol	104-76-7	>= 0.10 - < 4.00

Nonylphenol ethoxylate	9016-45-9	>= 1.00 - <= 3.00
Oxirane, 2-methyl-, polymer with oxirane, mono(nonylphenyl) ether	37251-69-7	>= 1.00 - <= 25.00
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	> 25.00
Other ingredients (non-hazardous) to 100%		

SECTION 4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Show this Safety Data Sheet to the doctor.

4.1 Description of first aid measures

General advice
Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely.

Inhalation
Move to fresh air. Keep patient warm and at rest. Call a physician or poison control center immediately.

Skin contact
Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water. Warm water may increase the subjective severity of the irritation/paresthesia. This is not a sign of systemic poisoning. In case of skin irritation, application of oils or lotions containing vitamin E may be considered. If symptoms persist, call a physician.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Warm water may increase the subjective severity of the irritation/paresthesia. This is not a sign of systemic poisoning. Apply soothing eye drops, if needed anaesthetic eye drops. Get medical attention if irritation develops and persists.

Ingestion
Do NOT induce vomiting. Risk of product entering the lungs on vomiting after ingestion. Call a physician or poison control center immediately. Rinse mouth. Keep patient warm and at rest.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms
Symptoms and hazards refer to effects observed after intake of significant amounts of the active ingredient(s).

Local:, Skin and eye paraesthesia which may be severe, Usually transient with resolution within 24 hours, Skin, eye and mucous membrane irritation, Cough, Sneezing

Systemic:, discomfort in the chest, tachycardia, Hypotension, Nausea, Abdominal pain, Diarrhoea, Vomiting, Blurred vision, Headache, Anorexia, Somnolence, Coma, Convulsions, Tremors, Prostration, Airway hyperreaction, Pulmonary oedema, Palpitation, Muscular fasciculation, Apathy, Dizziness

Symptoms and hazards refer to the solvent.

If large amounts are ingested, the following symptoms may occur:

Headache, Nausea, Dizziness, Somnolence

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Aspiration may cause pulmonary oedema and pneumonitis.

Inhalation may provoke the following symptoms:

Cough, Shortness of breath, Cyanosis, Fever

4.3 Indication of any immediate medical attention and special treatment needed

Risks

This product contains a pyrethroid. Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning. Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.

Treatment

Systemic treatment: Initial treatment: symptomatic. Monitor: respiratory and cardiac functions. 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. Keep respiratory tract clear. Oxygen or artificial respiration if needed. In case of convulsions, a benzodiazepine (e.g. diazepam) should be given according to standard regimens. If not effective, phenobarbital may be used. In case of aspiration intubation and bronchial lavage should be considered. Monitor: kidney, liver and pancreas function. Contraindication: atropine. Contraindication: derivatives of adrenaline. There is no specific antidote. Recovery is spontaneous and without sequelae.

In case of skin irritation, application of oils or lotions containing vitamin E may be considered.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable

Foam, Dry powder, Water spray

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable

High volume water jet

High volume water jet

5.2 Special hazards arising from the substance or mixture

In the event of fire the following may be released:, Hydrogen chloride (HCl), Carbon monoxide (CO), Carbon dioxide (CO2)

Dangerous gases are evolved in the event of a fire.

5.3 Advice for firefighters

Special protective equipment for firefighters

Wear self-contained breathing apparatus and protective suit.

In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.

Further information	Remove product from areas 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. Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.
Hazchem Code	•3Z

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Precautions	Use personal protective equipment. Avoid contact with spilled product or contaminated surfaces. Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.
6.2 Environmental precautions	Do not allow to get into surface water, drains and ground water. If the product contaminates rivers and lakes or drains inform respective authorities. Do not allow to get into surface water, drains and ground water.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up or vacuum up spillage and collect in suitable container for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.
6.4 Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling	Avoid contact with skin, eyes and clothing. Use only in area provided with appropriate exhaust ventilation.
Advice on protection against fire and explosion	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.
Hygiene measures	Avoid contact with skin, eyes and clothing. Avoid contact with skin, eyes and clothing. Keep working clothes

separately. Wash hands before breaks and immediately after handling the product. Wash hands immediately after work, if necessary take a shower. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight. Keep containers tightly closed in a cool, well-ventilated place. Store in original container. Store in a place accessible by authorized persons only. Protect from frost. Keep away from direct sunlight.

Advice on common storage Keep away from food, drink and animal feedingstuffs.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Permethrin	52645-53-1	5 mg/m3 (TWA)	12 2019	AU NOEL
Permethrin	52645-53-1	10 mg/m3 (SK-SEN)		OES BCS*

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

8.2 Exposure controls

Respiratory protection When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.
Wear respirator with a particle filter mask (protection factor 20) conforming to European Norm EN149FFP3 or EN140P3 or equivalent.
Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.

Hand protection Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.

Material	Nitrile rubber
Rate of permeability	> 480 min
Glove thickness	> 0.4 mm
Protective index	Class 6

	Directive	Protective gloves complying with EN 374.
	Chemical resistant nitrile rubber gloves	
Eye protection	Chemical resistant goggles must be worn. Wear goggles (conforming to EN166, Field of Use = 5 or equivalent) and faceshield (conforming to EN166, Field of Use = 3 or equivalent).	
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks. Wear standard coveralls and Category 3 Type 3 suit. If there is a risk of significant exposure, consider a higher protective type suit. Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently.	
General protective measures	In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the above mentioned recommendations would apply. If product is handled while not enclosed, and if contact may occur: Complete suit protecting against chemicals	

Engineering Controls

Advice on safe handling Avoid contact with skin, eyes and clothing. Use only in area provided with appropriate exhaust ventilation.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form	Liquid, clear
Colour	yellow to brown
Odour	aromatic
Odour Threshold	No data available
pH	No data available
Melting point/range	No data available
Boiling Point	No data available
Flash point	72 °C
Flammability	No data available
Auto-ignition temperature	No data available
Thermal decomposition	No data available
Minimum ignition energy	No data available
Self-accelarating decomposition temperature (SADT)	No data available
Upper explosion limit	No data available

Lower explosion limit	No data available
Vapour pressure	No data available
Evaporation rate	No data available
Relative vapour density	No data available
Relative density	No data available
Density	ca. 1.06 g/cm³ (20 °C)
Water solubility	No data available
Partition coefficient: n-octanol/water	Permethrin: log Pow: 5.95 Permethrin: log Pow: 5.95
Viscosity, dynamic	No data available
Viscosity, kinematic	No data available
Oxidizing properties	No oxidizing properties
Explosivity	No data available
9.2 Other information	Further safety related physical-chemical data are not known.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
10.4 Conditions to avoid	Extremes of temperature and direct sunlight.
10.5 Incompatible materials	Strong oxidizing agents Store only in the original container.
10.6 Hazardous decomposition products	Thermal decomposition can lead to release of: Hydrogen chloride (HCl) Carbon oxides No decomposition products expected under normal conditions of use.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity	LD50 (Rat) 1,479 mg/kg The value mentioned relates to the active ingredient permethrin. ATE (Mix) > 300 - < 2,000 mg/kg Calculation method

Acute inhalation toxicity	ATE (Mix) > 1 - < 5 mg/l Exposure time: 4 h Calculation method Determined in the form of liquid aerosol.
Acute dermal toxicity	LD50 (Rabbit) > 2,000 mg/kg The value mentioned relates to the active ingredient permethrin. ATE (Mix) (Rabbit) 2,000 mg/kg Calculation method
Skin corrosion/irritation	Mild skin irritation. (Rabbit) The value mentioned relates to the active ingredient permethrin. Slight irritant effect - does not require labelling. (Rabbit) The information is derived from the properties of the individual components.
Serious eye damage/eye irritation	Mild eye irritation. (Rabbit) The value mentioned relates to the active ingredient permethrin. Risk of serious damage to eyes. (Rabbit) The information is derived from the properties of the individual components.
Respiratory or skin sensitisation	Skin: Sensitising (Guinea pig) The value mentioned relates to the active ingredient.

Assessment mutagenicity

Permethrin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment mutagenicity

Permethrin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Permethrin caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver, Lungs. The mechanism that triggers tumours in rodents is not relevant for the low exposures encountered under normal use conditions.

Assessment carcinogenicity

Permethrin caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver, Lungs. The mechanism that triggers tumours in rodents is not relevant for the low exposures encountered under normal use conditions.

Assessment toxicity to reproduction

Permethrin did not cause reproductive toxicity in a two-generation study in rats.

Assessment toxicity to reproduction

Permethrin did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Permethrin did not cause developmental toxicity in rats and rabbits.

Assessment developmental toxicity

Permethrin did not cause developmental toxicity in rats and rabbits.

Assessment STOT Specific target organ toxicity – single exposure

Permethrin: Based on available data, the classification criteria are not met.

Permethrin: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

Permethrin did not cause specific target organ toxicity in experimental animal studies.

Assessment STOT Specific target organ toxicity – repeated exposure

Permethrin did not cause specific target organ toxicity in experimental animal studies.

Aspiration hazard

May be fatal if swallowed and enters airways.

Information on likely routes of exposure

Avoid breathing spray mist., Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Mild skin irritant., Avoid contact with skin.
May cause eye irritation.
Harmful if swallowed.

Early onset symptoms related to exposure
Refer to Section 4

Delayed health effects from exposure
Refer to Section 11

Exposure levels and health effects
Refer to Section 4

Interactive effects
Not known

When specific chemical data is not available
Not applicable

Mixture of chemicals
Refer to Section 2.1

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 (Poecilia reticulata (guppy)) 0.0076 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient permethrin.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 0.00017 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient permethrin.
Toxicity to aquatic plants	EC50 (Raphidocelis subcapitata (freshwater green alga)) 0.497 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient permethrin.

12.2 Persistence and degradability

Biodegradability	Permethrin: Not rapidly biodegradable

	Permethrin: Not rapidly biodegradable
Koc	Permethrin: Koc: 100000 Permethrin: Koc: 100000

12.3 Bioaccumulative potential

Bioaccumulation	Permethrin: Bioconcentration factor (BCF) 300 Does not bioaccumulate. Permethrin: Bioconcentration factor (BCF) 300 Does not bioaccumulate.

12.4 Mobility in soil

Mobility in soil	Permethrin: Immobile in soil Permethrin: Immobile in soil

12.5 Other adverse effects

Additional ecological information	No further ecological information is available.

SECTION 13. DISPOSAL CONSIDERATIONS

Triple-rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Do not burn empty containers or product.

SECTION 14. TRANSPORT INFORMATION

ADG

UN number	**3082**
Transport hazard class(es)	9
Subsidiary Risk	None
Packaging group	III
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERMETHRIN SOLUTION)
Hazchem Code	•3Z

AU01: Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in;
a) packagings that do not incorporate a receptacle exceeding 500 kg(L); or
b) IBCs

IMDG

UN number	**3082**
Transport hazard class(es)	9
Subsidiary Risk	None

Packaging group	III
Marine pollutant	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERMETHRIN SOLUTION)

IATA

UN number	**3082**
Transport hazard class(es)	9
Subsidiary Risk	None
Packaging group	III
Environm. Hazardous Mark	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PERMETHRIN SOLUTION)

SECTION 15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994

Australian Pesticides and Veterinary Medicines Authority approval number: 57184

SUSMP classification (Poison Schedule)

Schedule 6 (Standard for the Uniform Scheduling of Medicines and Poisons)

SECTION 16. OTHER INFORMATION

Trademark information Perigen® is a Registered Trademark of the Bayer Group.

Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
AU OEL	Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)
CAS-Nr.	Chemical Abstracts Service number
CEILING	Ceiling Limit Value
Conc.	Concentration
EC-No.	European community number
ECx	Effective concentration to x %
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
EN	European Standard
EU	European Union
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)
ICx	Inhibition concentration to x %
IMDG	International Maritime Dangerous Goods

LCx	Lethal concentration to x %
LDx	Lethal dose to x %
LOEC/LOEL	Lowest observed effect concentration/level
MARPOL	MARPOL: International Convention for the prevention of marine pollution from ships
N.O.S.	Not otherwise specified
NOEC/NOEL	No observed effect concentration/level
OECD	Organization for Economic Co-operation and Development
OES BCS	OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"
PEAK	PEAK: Exposure Standard - Peak means a maximum or peak airborne concentration of a particular substance determined over the shortest analytically practicable period of time which does not exceed 15 minutes.
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SK-SEN	Skin sensitiser
SKIN_DES	SKIN_DES: Skin notation: Absorption through the skin may be a significant source of exposure.
STEL	STEL: Exposure standard - short term exposure limit (STEL): A 15 minute TWA exposure which should not be exceeded at any time during a working day even if the eight-hour TWA average is within the TWA exposure standard. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times per day. There should be at least 60 minutes between successive exposures at the STEL.
TWA	TWA: Exposure standard - time-weighted average (TWA): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

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 should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.
If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.
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.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.