SAFETY DATA SHEETS

This SDS packet was issued with item:

078949672

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

078949668 078949670

SAFETY DATA SHEET

1. Identification

Product identifier **Stronghold Plus; Revolution Plus**

Other means of identification

Synonyms Selamectin / Sarolaner

Recommended use of the chemical and restrictions on use

Recommended use Veterinary product used as antiparasitic; endectocide

Restrictions on use Not for human use

Details of manufacturer or importer

Company Name (AU) Zoetis Australia Pty Ltd
ABN 94 156 476 425
Level 6, 5 Rider Boulevard
Rhodes NSW 2138 AUSTRALIA

Tel 1800 814 883

Fax (02) 8876 0444

Email productsupport.au@zoetis.com

Emergency Phone 1800 814 883 (all hours)

Police and Fire Brigade Dial 000

If ineffective Dial Poisons Information Centre (13 1126 from anywhere in Australia)

2. Hazard(s) identification

Classification of the hazardous chemical

Physical hazards	Flammable liquids	Category 2
Health hazards	Serious eye damage/eye irritation	Category 2A
	Reproductive toxicity	Category 2
	Specific target organ toxicity following single exposure	Category 3 narcotic effects
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1

Label elements, including precautionary statements

Hazard symbol(s)

Flame | Health hazard | Exclamation mark | Environment

Signal word Danger

Hazard statement(s) Highly flammable liquid and vapour. Causes serious eye irritation. May cause drowsiness or dizziness. Suspected of damaging fertility or the unborn child. Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid breathing mist or vapour. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves/eye protection/face protection.

Response	IF exposed or concerned: Get medical advice/attention. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. 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 INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/physician if you feel unwell. In case of fire: Use appropriate media for extinction. Collect spillage.
Storage	Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards which do not result in classification	None known.
Supplemental information	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

3. Composition/information on ingredients

Mixture

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients (%)
Isopropyl alcohol	67-63-0	60-80
DIPROPYLENE GLYCOL METHYL ETHER	34590-94-8	5-30
Selamectin	220119-17-5	6
Sarolaner	1398609-39-6	1
Butylated hydroxytoluene	128-37-0	##

Composition comments ## Trace

4. First-aid measures

Description of necessary first aid measures

Inhalation	Move to fresh air. Call a POISON CENTRE or doctor/physician if you feel unwell. For breathing difficulties, oxygen may be necessary.
Skin contact	Take off immediately all contaminated clothing. Wash off with soap and plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
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. Get medical attention immediately.
Ingestion	Rinse mouth. Call a physician or poison control centre immediately. Do not induce vomiting without advice from poison control center. Never give anything by mouth to a victim who is unconscious or is having convulsions.
Personal protection for first-aid responders	IF exposed or concerned: Get medical advice/attention. For personal protection, see section 8 of the SDS. Take off all contaminated clothing immediately. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.
Symptoms caused by exposure	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause drowsiness and dizziness. Headache. Nausea, vomiting. May cause respiratory irritation. Mild skin irritation. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Medical attention and special treatment	Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Highly flammable. Vapours may ignite. Vapours may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for fire fighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Hazchem code	2Y E
General fire hazards	Highly flammable liquid and vapour.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Local authorities should be advised if significant spillages cannot be contained.
For emergency responders	Ensure adequate ventilation. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid contact with eyes, skin, and clothing. Do not breathe mist or vapour. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use appropriate containment to avoid environmental contamination. Use personal protection recommended in Section 8 of the SDS.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up	Ensure adequate ventilation. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Prevent product from entering drains. Large Spills: Stop the flow of material, if this is without risk. Ground container and transfer equipment to eliminate static electric sparks. Take precautionary measures against static discharge. Use only non-sparking tools. Ventilate the contaminated area. Use water spray to disperse vapors and dilute spill to a nonflammable mixture. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Clean surface thoroughly to remove residual contamination. Small Spills: Absorb spillage with non-combustible, absorbent material. Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use.

7. Handling and storage

Precautions for safe handling	Highly flammable. May be ignited by open flame. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not taste or swallow. Avoid breathing mist or vapour. Avoid contact with eyes, skin, and clothing. Use only outdoors or in a well-ventilated area. Wear personal protective equipment. Observe good industrial hygiene practices. Wash thoroughly after handling. When using, do not eat, drink or smoke. Avoid release to the environment. Also, Industrial use: Take precautionary measures against static discharges. Use only non-sparking tools. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Ground and bond containers when transferring material. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations.
Conditions for safe storage, including any incompatibilities	Store locked up. Keep containers tightly closed in a cool, well-ventilated place. < 30C/86F. Protect from sunlight. Do not handle or store near an open flame, heat or other sources of ignition. Keep away from food, drink and animal feeding stuffs. Keep out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS). Also, Industrial use: Keep in an area equipped with sprinklers. This material can accumulate static charge which may cause spark and become an ignition source. Take measures to prevent the build up of electrostatic charge. Prevent electrostatic charge build-up by using common bonding and grounding techniques.

8. Exposure controls and personal protection

Control parameters	Follow standard monitoring procedures.

Occupational exposure limits

Zoetis

Components	Type	Value
Sarolaner (CAS 1398609-39-6)	TWA	110 µg/m³
Selamectin (CAS 220119-17-5)	TWA	200 µg/m³

Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Components	Type	Value
Butylated hydroxytoluene (CAS 128-37-0)	TWA	10 mg/m3
DIPROPYLENE GLYCOL METHYL ETHER (CAS 34590-94-8)	TWA	308 mg/m3
		50 ppm
Isopropyl alcohol (CAS 67-63-0)	STEL	1230 mg/m3
		500 ppm
	TWA	983 mg/m3
		400 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Butylated hydroxytoluene (CAS 128-37-0)	TWA	2 mg/m3	Inhalable fraction and vapour.
DIPROPYLENE GLYCOL METHYL ETHER (CAS 34590-94-8)	STEL	150 ppm	
	TWA	100 ppm	
Isopropyl alcohol (CAS 67-63-0)	STEL	400 ppm	
	TWA	200 ppm	

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Butylated hydroxytoluene (CAS 128-37-0)	TWA	10 mg/m3
DIPROPYLENE GLYCOL METHYL ETHER (CAS 34590-94-8)	TWA	308 mg/m3
		50 ppm
Isopropyl alcohol (CAS 67-63-0)	STEL	1250 mg/m3
		500 ppm
	TWA	999 mg/m3
		400 ppm

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Butylated hydroxytoluene (CAS 128-37-0)	TWA	10 mg/m3	Vapor and aerosol, inhalable fraction.
DIPROPYLENE GLYCOL METHYL ETHER (CAS 34590-94-8)	TWA	310 mg/m3	Vapour.
		50 ppm	Vapour.

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Isopropyl alcohol (CAS 67-63-0)	TWA	500 mg/m3	
		200 ppm	

Biological limit values

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling Time
Isopropyl alcohol (CAS 67-63-0)	25 mg/l	ACETON	Urine	*
	25 mg/l	ACETON	Blood	*

* - For sampling details, please see the source document.

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Isopropyl alcohol (CAS 67-63-0)	40 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines Dipropylene glycol (mono) methyl ether - Australia OEL additional information: Skin designation (Can be absorbed through the skin.)

US ACGIH Threshold Limit Values: Skin designation

DIPROPYLENE GLYCOL METHYL ETHER (CAS 34590-94-8) Can be absorbed through the skin.

Appropriate engineering controls General ventilation normally adequate.

Industrial use: Provide adequate 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. Provide eyewash station.

Individual protection measures, for example personal protective equipment (PPE)

Eye/face protection Not normally needed. If contact is likely, safety glasses with side shields are recommended.

Industrial use: Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves.

Industrial use: Wear appropriate chemical resistant gloves.

Other Not normally needed.

Industrial use: Wear suitable protective clothing. Impervious protective clothing is recommended if skin contact with drug product is possible and for bulk processing operations.

Respiratory protection No personal respiratory protective equipment normally required.

Industrial use: In case of insufficient ventilation, wear suitable respiratory equipment. If the applicable Occupational Exposure Limit (OEL) is exceeded, wear an appropriate respirator with a protection factor sufficient to control exposures to below the OEL. Chemical respirator with organic vapour cartridge and full facepiece.

Thermal hazards Not applicable.

Hygiene measures Observe any medical surveillance requirements. When using do not smoke. 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.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid.

Colour	Clear, colorless to pale yellow
Odour	Alcohol.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	84 °C (183.2 °F) estimated
Flash point	19.0 °C (66.2 °F) estimated
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other physical and chemical parameters	
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
Specific gravity	0.82 - 0.85

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.
Conditions to avoid	Contact with incompatible materials. Sunlight. Keep away from heat, spark, open flames and other sources of ignition.
Incompatible materials	Strong oxidising agents. Combustible material. organic materials. Acids. Isocyanates. Chlorine.
Hazardous decomposition products	Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition.

11. Toxicological information

Information on possible routes of exposure

Inhalation	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful.
Skin contact	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Isopropyl alcohol	Result: Irritation Species: Rabbit Severity: Mild

Skin contact

DIPROPYLENE GLYCOL METHYL ETHER	Species: Rabbit Severity: Mild
Selamectin	Species: Rabbit Severity: Minimal
Butylated hydroxytoluene	Species: Rabbit Severity: Moderate
Sarolaner	Species: Rabbit Severity: Non-irritating

Eye contact Causes serious eye irritation.

Isopropyl alcohol	Result: Irritation Species: Rabbit Severity: Severe
DIPROPYLENE GLYCOL METHYL ETHER	Species: Rabbit Severity: Mild
Selamectin	Species: Rabbit Severity: Mild
Sarolaner	Species: Rabbit Severity: Minimal
Butylated hydroxytoluene	Species: Rabbit Severity: Moderate

Ingestion Health injuries are not known or expected under normal use. May be harmful if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms related to exposure Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Behavioural changes. May cause respiratory irritation. Mild skin irritation. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. Prolonged exposure may cause chronic effects.

Acute toxicity May be harmful if swallowed.

Components	Species	Test Results
Butylated hydroxytoluene (CAS 128-37-0)		
Acute		
Intraperitoneal		
LD50	Mouse	138 mg/kg
Oral		
LD50	Mouse	650 mg/kg
	Rat	1700 mg/kg
		890 mg/kg
Chronic		
Oral		
LOAEL	Mouse	2000 mg/kg, 4 days Liver, Kidney, Ureter, Bladder
	Rat	5185 mg/kg, 4 weeks Liver
DIPROPYLENE GLYCOL METHYL ETHER (CAS 34590-94-8)		
Acute		
Dermal		
LD50	Rabbit	9510 mg/kg

Components	Species	Test Results
Inhalation		
Vapour		
LC50	Rat	> 3.35 mg/l, 7 hours (No deaths)
Oral		
LD50	Rat	> 5000 mg/kg
Isopropyl alcohol (CAS 67-63-0)		
Acute		
Dermal		
LD50	Rabbit	12800 mg/kg
Inhalation		
LC50	Rat	16000 ppm, 8 hours
		30 mg/l
Oral		
LD50	Mouse	3600 mg/kg
	Rat	> 2000 mg/kg
Chronic		
Inhalation		
NOAEL	Rat	4000 ppm, 20 weeks (Liver, Central nervous system)
Sarolaner (CAS 1398609-39-6)		
Acute		
Dermal		
LD50	Rat	> 2020 mg/kg
Oral		
LD50	Rat	783 mg/kg
Subacute		
Oral		
NOAEL	Rat	2.5 mg/kg/day, 14 days (Adrenal gland)
		2.2 mg/kg/day, 30 days (Adrenal gland, Ovary, Liver)
Subchronic		
Oral		
NOAEL	Rat	25 mg/kg/day, 90 days (Adrenal gland, Ovary, Pancreas)
Selamectin (CAS 220119-17-5)		
Acute		
Oral		
LD50	Mouse	> 1600 mg/kg
	Rat	> 1600 mg/kg
Subchronic		
Oral		
NOAEL	Dog	40 mg/kg/day, 3 months [Target organ(s): None identified]
	Rat	5 mg/kg/day, 3 months [Target organ(s): Liver]

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Corrosivity

Isopropyl alcohol	Result: Irritation Species: Rabbit Severity: Mild

Corrosivity

DIPROPYLENE GLYCOL METHYL ETHER	Species: Rabbit Severity: Mild
Selamectin	Species: Rabbit Severity: Minimal

Irritation Corrosion - Skin

Sarolaner	Result: Non-irritant Species: Rabbit

Serious eye damage/irritation Causes serious eye irritation.

Eye contact

Isopropyl alcohol	Result: Irritation Species: Rabbit Severity: Severe
DIPROPYLENE GLYCOL METHYL ETHER	Species: Rabbit Severity: Mild
Selamectin	Species: Rabbit Severity: Mild
Sarolaner	Species: Rabbit Severity: Minimal
Butylated hydroxytoluene	Species: Rabbit Severity: Moderate

Respiratory or skin sensitisation

Respiratory sensitisation Not a respiratory sensitizer.

Skin sensitisation This product is not expected to cause skin sensitisation.

Skin Sensitisation

Selamectin	GPMT Species: Guinea Pig Severity: Negative
Sarolaner	LLNA Species: Mouse Severity: Negative

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Mutagenicity

Sarolaner	Bacterial Mutagenicity (Ames) Result: Negative Species: Salmonella , E. coli
Isopropyl alcohol	Bacterial Mutagenicity (Ames) Result: Negative Species: Salmonella
Selamectin	Bacterial Mutagenicity (Ames) Result: Negative Species: Salmonella
Sarolaner	In Vitro Chromosome Aberration Result: Negative Species: Human lymphocytes
Selamectin	In Vitro Cytogenetics Result: Negative Species: Human lymphocytes

Mutagenicity

Sarolaner	In Vitro Micronucleus Result: Negative Species: Chinese Hamster Ovary (CHO) cells
Isopropyl alcohol	In Vitro Sister Chromatid Exchange Result: Negative
DIPROPYLENE GLYCOL METHYL ETHER	In vitro tests Result: Negative
Selamectin	In Vivo Micronucleus Result: Negative Species: Mouse
Sarolaner	In Vivo Micronucleus Result: Negative Species: Rat
Selamectin	Mammalian Cell Mutagenicity Result: Negative Species: Chinese Hamster Ovary (CHO) cells HGPRT
Isopropyl alcohol	Mammalian Cell Mutagenicity Result: Negative Species: HGPRT Chinese Hamster Ovary (CHO) cells

Carcinogenicity Due to partial or complete lack of data the classification is not possible.

ACGIH Carcinogens

Butylated hydroxytoluene (CAS 128-37-0)	A4 Not classifiable as a human carcinogen.
Isopropyl alcohol (CAS 67-63-0)	A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Butylated hydroxytoluene (CAS 128-37-0)	3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Developmental effects

Selamectin	10 mg/kg/day Prenatal & Postnatal Development, Developmental toxicity Result: NOAEL Species: Rat
Isopropyl alcohol	1200 mg/kg/day Prenatal & Postnatal Development, No effects at maximum dose Result: NOAEL Species: Rat Organ: Oral
Sarolaner	3 mg/kg/day Embryo / Fetal Development, Maternal Toxicity Not Teratogenic Result: NOAEL Species: Rabbit Organ: Oral
	3.2 mg/kg/day Embryo / Fetal Development, Maternal toxicity Not teratogenic Result: NOAEL Species: Rat Organ: Oral
Selamectin	40 mg/kg/day Prenatal & Postnatal Development, Maternal Toxicity Result: NOAEL Species: Rat Organ: Oral

Developmental effects

Butylated hydroxytoluene	6 g/kg Embryo / Fetal Development, teratogenic Result: LOEL Species: Rat Organ: Oral
Isopropyl alcohol	7000 ppm Prenatal & Postnatal Development, Maternal toxicity, Fetotoxicity, Embryotoxicity Result: LOAEL Species: Rat Organ: Inhalation
DIPROPYLENE GLYCOL METHYL ETHER	Not teratogenic

Reproductivity

Selamectin	10 mg/kg/day Reproductive & Fertility, Fetotoxicity Result: NOAEL Species: Rat
Isopropyl alcohol	1000 mg/kg/day 2 Generation Reproductive Toxicity, Maternal Toxicity, Fetal mortality Result: LOAEL Species: Rat Organ: Oral

Specific target organ toxicity - single exposure May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Avoid release to the environment.

Components		Species	Test Results
Isopropyl alcohol (CAS 67-63-0)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	> 1400 mg/l, 96 hours
Sarolaner (CAS 1398609-39-6)			
Aquatic			
Algae	EC50	Pseudokirchneriella subcapitata (Green Alga)	> 0.27 mg/l, 72 Hours (ErC50)
Crustacea	EC50	Daphnia magna (Water Flea)	0.27 mg/l, 48 Hours
Fish	LC50	Fish	> 0.54 mg/l, 96 Hours
Selamectin (CAS 220119-17-5)			
	EC50	Selenastrum capricornutum (Green Alga)	> 763 ug/l, 72 Hours
Aquatic			
Crustacea	EC50	Daphnia magna (Water Flea)	26 ng/L, 48 Hours
	LC50	Mysidopsis bahia (Mysid Shrimp)	28 ng/L, 96 Hours
Fish	LC50	Cyprinodon variegatus (Sheepshead Minnow)	> 28 ug/l, 48 Hours
		Oncorhynchus mykiss (rainbow trout)	266 ug/l, 96 Hours

Persistence and degradability No data is available on the degradability of this product. As with other members of the avermectin family, selamectin is highly toxic to fish and certain aquatic organisms. However, once in contact with soil, it is tightly bound and does not readily desorb. It is unlikely to reach groundwater and is also biodegradable by soil microflora.

Biodegradability

Percent Degradation (Aerobic Biodegradation)

DIPROPYLENE GLYCOL METHYL ETHER	Result: Readily biodegradable

Bioaccumulative potential No data available for this product. Not expected to bioaccumulate.

Partition coefficient n-octanol / water (log Kow)

Sarolaner	3.25
Selamectin	3.1, [Measured, Log P]

Mobility in soil No data available for this product.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal methods Avoid release to the environment. Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations.

Industrial use: Considering the relevant known environmental and human health hazards of the material, review and implement appropriate technical and procedural waste water and waste disposal measures to prevent occupational exposure and environmental release. It is recommended that waste minimization be practiced. The best available technology should be utilized to prevent environmental releases. This may include destructive techniques for waste and wastewater. Dispose of contents/container in accordance with local/regional/national/international regulations.

Residual waste Industrial use: Dispose of 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 instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

ADG

UN number	UN1219
UN proper shipping name	Isopropanol Solution
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No
Hazchem code	2YE

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information: See "excepted quantity" provisions if applicable.

RID

UN number	UN1219
UN proper shipping name	Isopropanol Solution
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	Yes (Selamectin, Isoxazoline)

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information: See "excepted quantity" provisions if applicable.

IATA

UN number	UN1219
UN proper shipping name	Isopropanol Solution
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II

Environmental hazards Marine pollutant (Selamectin, Isoxazoline) > 5L / 5Kg

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information: See "excepted quantity" provisions if applicable.

IMDG

UN number	UN1219
UN proper shipping name	Isopropanol Solution, MARINE POLLUTANT (Selamectin, Isoxazoline)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-D
Special precautions for user	Marine pollutant requirements apply only to quantities >5 Liters for liquids / >5 Kilograms for solids (per inner package) when shipped as per IMDG regulations.

Other information: See "excepted quantity" provisions if applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

ADG

IATA; IMDG; RID

Marine pollutant

General information For small quantities packed in combination packaging, exceptions may apply. See "excepted quantity" provisions if applicable. Please refer to the applicable dangerous goods regulations for additional information. Transport according to the requirements of the appropriate regulatory body.

15. Regulatory information

Safety, health and environmental regulations

National regulations

This Safety Data Sheet was prepared in accordance with the Australia Model Code of Practice for the preparation of safety data sheets for hazardous chemicals.

Poison Schedule (Product): Schedule 5

APVMA No. 87225 Revolution Plus (selamectin/sarolaner) monthly topical solution for small cats and kittens 1.25 – 2.5 kg

APVMA No. 87224 Revolution Plus (selamectin/sarolaner) monthly topical solution for medium cats 2.6 – 5 kg

APVMA No. 87222 Revolution Plus (selamectin/sarolaner) monthly topical solution for large cats 5.1 – 10 kg

Australia Medicines & Poisons Appendix A

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix B

DIPROPYLENE GLYCOL METHYL ETHER (CAS 34590-94-8)

Australia Medicines & Poisons Appendix D

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix E

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix F

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix G

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix H

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix I

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix J

Poisons schedule number not allocated.

Australia Medicines & Poisons Appendix K

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 10

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 2

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 3

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 4

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 5

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 6

Sarolaner (CAS 1398609-39-6)

Australia Medicines & Poisons Schedule 7

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 8

Poisons schedule number not allocated.

Australia Medicines & Poisons Schedule 9

Poisons schedule number not allocated.

High Volume Industrial Chemicals (HVIC)

Isopropyl alcohol (CAS 67-63-0)	1000 - 9999 TONNES See the regulation for additional information.

Importation of Ozone Deleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10)

Not listed.

National Pollutant Inventory (NPI) substance reporting list

Not listed.

Prohibited Carcinogenic Substances

Not regulated.

Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended)

Not listed.

Resricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9)

Not listed.

Restricted Carcinogenic Substances

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto Protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 26-November-2018

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Revision information Exposure controls and personal protection: Exposure guidelines
Regulatory information: National regulations