SAFETY DATA SHEET

Zoetis New Zealand Limited

Section 1: Identification of the Substance and Supplier

Trade Name:	**REVOLUTION® for Puppies & Kittens**
ACVM Registration No.:	A007813
Classification:	Unrestricted
Recommended Use:	Topical endoparasiticide / ectoparasiticide for treatment, control and prevention of flea (*Ctenocephalides* spp.) infestations, control of flea allergy dermatitis and the treatment and control of ear mites (*Otodectes cynotis*) and biting lice in puppies and kittens. Treatment and control sarcoptic mange (*Sarcoptes scabiei*) in puppies, and roundworms in cats (*Toxocara cati*).
Company Details:	Zoetis New Zealand Limited
Address:	Level 4, 8 Mahuhu Crescent Auckland Central Auckland 1010 New Zealand
Telephone No.:	0800 963 847 (Business Hours)
Emergency Telephone No.:	National Poisons Centre: 0800 POISON (0800 764 766) Emergency Services: In an emergency dial 111
Date of Preparation:	1 July 2019

Section 2: Hazards Identification

Hazard Classification:	3.1B, 6.1E, 6.3B, 6.4A, 6.8B, 6.9B, 9.1A, 9.2B, 9.4A
Priority Identifier(s):	DANGER – HIGHLY FLAMMABLE LIQUID AND VAPOUR WARNING – KEEP OUT OF REACH OF CHILDREN ECOTOXIC
Secondary Identifier(s):	3.1B Highly flammable liquid and vapour. Keep away from sources of ignition. 6.1E May be harmful if swallowed, inhaled or absorbed through the skin. 6.3B May cause mild skin irritation. Avoid skin contact. 6.4A May cause eye irritation. Avoid contact with the eyes. 6.8B Suspected of damaging fertility or the unborn child from repeated oral exposure. 6.9B May cause target organ damage from repeated oral exposure at high doses. 9.1A Very toxic to aquatic organisms. Avoid contamination of any water supply with product or empty container. 9.2B Toxic to the soil environment. 9.4A Very toxic to terrestrial invertebrates.

Section 3: Composition / Information on Ingredients

Chemical Identity of Ingredients

Ingredient	CAS No.	Concentration
Selamectin	220119-17-5	60 g/L
Dipropylene Glycol Methyl Ether	34590-94-8	Proprietary
Isopropyl alcohol	67-63-0	Proprietary
Butylated Hydroxytoluene	128-37-0	Proprietary
Other ingredients determined not to be hazardous.	-	-

This is a commercial product whose exact ratio of components may vary.
Trace quantities of impurities are also likely.

Section 4: First Aid Measures

Necessary First Aid Measures: **For advice contact the National Poisons Centre at 0800 POISON (0800 764 766) or a doctor immediately.** If the patient is not breathing begin artificial respiration and seek medical advice immediately. Never give fluids or induce vomiting if a patient is unconscious or convulsing, regardless of injury.

Ingestion: DO NOT induce vomiting. If the patient is conscious wash mouth out with water. Do not give anything by mouth to an unconscious person. Seek medical advice immediately.

Eye Contact: Flush the eye(s) out with running water for at least 15 minutes. Removal of contact lenses should be done with caution within 5 minutes of exposure. If symptoms develop seek medical advice immediately.

Skin Contact: Remove any contaminated clothing and wash the affected area immediately with soap and water. If symptoms develop seek medical advice immediately.

Inhalation: Move the patient to fresh air. If symptoms develop seek medical advice immediately.

Poisoning Symptoms: Signs and symptoms of isopropanol overexposure may include headache, dizziness, drowsiness, and loss of consciousness.

Workplace Facilities: No specific facilities required. Standard emergency equipment must be available.

Hygiene Practices: Avoid ingestion, contact with skin and eyes, and inhalation of dusts, mists or vapours. Do not eat, drink or smoke while using this product. Wash hands and exposed skin before eating, drinking or smoking and after work. Wash any protective clothing after use.

Notes for Medical Personnel: Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Note the nature of this product.

Section 5: Fire-Fighting Measures

Type of hazard:	Flammable liquid. Vapours may form explosive mixture with air.
Fire Hazard Properties:	Toxic gases may be emitted in fires of this material. Fine particles (such as dust and mists) may fuel fires/explosions.
Regulatory Requirements:	Not applicable
Extinguishing Media & Methods:	Use dry chemical, foam, or carbon dioxide to extinguish fires involving this product.
Hazchem Code:	3[Y]E
Recommended Protective Clothing:	During large-scale fire fighting operations wear approved positive pressure, self-contained breathing apparatus and full protective turn-out gear.

Section 6: Accidental Release Measures

Personal Precautions:	Personnel involved in clean-up should wear appropriate personal protective equipment to minimise exposure. This may include eye protection, chemically resistant gloves, boots and overalls.
Environmental Precautions:	Prevent material from entering surface water drains or waterways. If a significant quantity of material enters drains, advise emergency services.
Procedure for Spills:	1. Non-essential personnel should be evacuated from the affected area. 2. Stop leak and contain the source of spill if it is safe to do so. Reposition any leaking containers to minimise further leakage. 3. Absorb the spill with an absorbent material (e.g. sand). 4. Collect the spilled material into labelled containers for disposal, minimising dust generation. 5. Decontaminate the spill area thoroughly with detergent and water, preventing runoff from entering drains.
Procedure for Disposal:	Contaminated material must be disposed of at an approved landfill or other approved facility in accordance with local, regional and national requirements. Avoid contamination of any water supply with product or empty container.

Section 7: Handling and Storage

Handling

Precautions for Safe Handling:	Keep exposure to this product to a minimum and minimise the quantities kept in work areas. Ensure the personal protective measures outlined in Section 8 are followed, and avoid contact or contamination with incompatible materials listed in Section 10. The measures detailed under “Storage” below should be followed during handling to minimise risks to persons using the product in the workplace.
Regulatory Requirements:	Not required.
Handling Practices:	Avoid ingestion, contact with skin and eyes, and inhalation of dusts, mists or vapours. Do not eat, drink or smoke while handling this product. Wash hands and exposed skin before eating, drinking or smoking and after work. Wash any protective clothing after use.
Approved Handlers:	Approved handlers are not required for this product.

Storage	
Conditions for Safe Storage:	Store below 30°C (Room Temperature). Protect from light. Keep out of reach of children. Store in a well ventilated area in the original container, tightly closed, away from foodstuffs.
Store Site Requirements:	A requirement for an emergency management plan, secondary containment and signage is applicable when quantities of 100 L or more are stored.
Packaging:	Packaging Schedule 3 (UN Packing Group III) for quantities > 5 L (Hazardous Substances Packaging Regulations 2001). Store in the original container, away from foodstuffs.

Section 8: Exposure Control / Personal Protection

Always Read and Follow the Label Instructions and Warnings

Workplace Exposure Guidelines	
Workplace Exposure Standards:	A time weighted average (TWA) concentration for an 8-hour day and a 5-day week has not been established for the active ingredient in this product. According to the OSH Workplace Exposure Standards 2002 document, and WorkSafe Australia's Exposure Standards for Atmospheric Contaminants in the Occupational Environment document (May 1995), the following exposure limits have been set for the other hazardous ingredients: • Dipropylene Glycol Methyl Ether: TWA of 606 mg/m^3 • Isopropyl Alcohol: TWA of 983 mg/m^3 • Butylated Hydroxytoluene: TWA of 10 mg/m^3
Application in the Workplace:	The nature of this product makes it unlikely that this level will be approached during normal handling.
Exposure Standards Outside the Workplace:	None set.
Engineering Controls:	Engineering controls should be used as the primary means to control exposures. Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.
Personal Protection:	The following instructions are for those coming into frequent and / or lengthy contact with this product. For occasional handling employ precautions suitable for the conditions under which the product is being handled. **Hands:** Impervious protective gloves should be worn when handling this product to prevent irritation. Consult AS/NZS 2161 for guidance. **Eyes:** Protective eyewear should be worn when handling this product as eye contact may prove painful and dangerous, and should be avoided. Consult AS/NZS 1336 and 1337 for guidance. **Skin:** Clean overalls or protective clothing, including safety boots, should be worn. Consult AS/NZS 2919 and 2210 for guidance. **Respiratory:** Respiratory protection is not normally required; however, if the product is being handled in dusty or confined conditions, use of a mask or respirator may be preferred. Consult AS/NZS 1715 for guidance.
General Hygiene:	Change work clothes regularly. Avoid ingestion, contact with skin and eyes, and inhalation of dusts, mists or vapours. Do not eat, drink or smoke while handling this product. Wash hands and exposed skin before eating, drinking or smoking and after work. Wash any protective clothing after use.

Section 9: Physical and Chemical Properties

Appearance:	Colourless to pale yellow solution
Odour:	Characteristic alcohol odour
Specific Gravity / Density:	0.82 – 0.85 kPa @ 25°C
Freezing / Melting Point:	Not applicable.
Boiling Point:	84°C
pH:	Not data available.
Solubility in Water:	Miscible
Flashpoint:	19°C
Oxidising Properties:	Not applicable. This product is not an oxidiser
Corrosive Properties:	Not applicable. This product is not corrosive
Vapour Pressure:	No data available

Section 10: Stability and Reactivity

Stability of the Substance:	This product is stable under normal conditions of use.
Conditions to Avoid:	Avoid direct sunlight, and keep away from heat, sparks, open flames and other sources of ignition.
Material to Avoid:	None known
Hazardous Decomposition Products:	Toxic gases may be emitted in fires of this material. Fine particles (such as dust and mists) may fuel fires/explosions.
Hazardous Polymerisation:	This product is unlikely to spontaneously polymerise.
Specific Data:	No specific data available.

Section 11: Toxicological Information

HSNO Classifications

6.1E	May be harmful if swallowed, inhaled or absorbed through the skin.
6.3B	May cause mild skin irritation. Avoid skin contact.
6.4A	May cause eye irritation. Avoid contact with the eyes.
6.8B	Suspected of damaging fertility or the unborn child from repeated oral exposure.
6.9B	May cause target organ damage from repeated oral exposure at high doses.

Acute Effects	
Acute Toxicity:	(Species, Route, End Point, Dose) Selamectin: • Rat Oral LD50 >1600 mg/kg • Mouse Oral LD50 >1600 mg/kg Butylated hydroxytoluene: • Rat Oral LD50 1700 mg/kg • Mouse Oral LD50 650 mg/kg • Rat Oral LD50 890 mg/kg • Mouse Intraperitoneal LD50 138 mg/kg Isopropyl alcohol: • Rat Oral LD50 >2000 mg/kg • Mouse Oral LD50 3600 mg/kg • Rat Inhalation LC50-8h 16,000 ppm • Rabbit Dermal LD50 12800 mg/kg • Rat Inhalation LC50 30 mg/L Dipropylene glycol methyl ether: • Dog Oral LD50 7500 mg/kg • Rat Oral LD 50 5400 µL/kg • Rabbit Dermal LD 50 10 mL/kg A greater than symbol (>) indicates that the toxicity endpoint being tested was not achievable at the highest dose used in the test.
Sensitisation:	(Study Type, Species, Severity) Selamectin: • Eye Irritation Rabbit Mild • Skin Irritation Rabbit Minimal • Skin Sensitization - GPMT Guinea Pig Negative Butylated hydroxytoluene: • Eye Irritation Rabbit Moderate • Skin Irritation Rabbit Moderate Isopropyl alcohol: • Eye Irritation Rabbit Severe • Skin Irritation Rabbit Mild Dipropylene glycol methyl ether: • Skin Irritation Rabbit Mild • Eye Irritation Rabbit Mild

Chronic / Long Term Effects	
Repeated Dose Toxicity:	(Duration, Species, Route, Dose, End Point, Target Organ) Selamectin: • 3 Month(s) Rat Oral 5 mg/kg/day NOAEL Liver • 3 Month(s) Dog Oral 40 mg/kg/day NOAEL None identified Butylated hydroxytoluene: • 4 Week(s) Rat Oral 5185 mg/kg LOAEL Liver • 4 Day(s) Mouse Oral 2000 mg/kg LOAEL Liver, Kidney, Ureter, Bladder Isopropyl alcohol: • 20 Week(s) Rat Inhalation 4000 ppm NOAEL Liver, Central nervous system • 104 Week(s) Rat Inhalation 5000 ppm Kidney

Reproduction & Developmental Toxicity:	(Study Type, Species, Route, Dose, End Point, Effect(s)) Selamectin: • Reproductive & Fertility Rat 10 mg/kg/day NOAEL Fetotoxicity • Prenatal / Postnatal Development Rat 10 mg/kg/day NOAEL Developmental Tox • Prenatal / Postnatal Development Rat Oral 40 mg/kg/day NOAEL Maternal Tox Butylated hydroxytoluene: • Embryo / Foetal Development Rat Oral =6 g/kg LOEL Teratogenic Isopropyl alcohol: • Prenatal / Postnatal Development Rat Inhalation 7,000 ppm LOAEL Maternal toxicity, Fetotoxicity, Embryotoxicity • 2 Generation Reproductive Toxicity Rat Oral 1000 mg/kg/day LOAEL Maternal Toxicity, Foetal mortality • Prenatal / Postnatal Development Rat Oral 1200 mg/kg/day NOAEL No effects at maximum dose
Genetic Toxicity:	(Study Type, Cell Type/Organism, Result) Selamectin: • Bacterial Mutagenicity (Ames) *Salmonella* Negative • *In Vitro* Cytogenetics Human Lymphocytes Negative • *In Vivo* Micronucleus Mouse Negative • Mammalian Cell Mutagenicity Chinese Hamster Ovary (CHO) cells HGPRT Negative Isopropyl alcohol: • Bacterial Mutagenicity (Ames) *Salmonella* Negative • Mammalian Cell Mutagenicity HGPRT Chinese Hamster Ovary (CHO) cells Negative • *In Vitro* Sister Chromatid Exchange Negative
Carcinogenicity:	None of the components of this formulation are listed as a carcinogen by IARC, NTP or OSHA.

Section 12: Ecotoxicity Information

HSNO Classifications

9.1A	Very toxic to aquatic organisms. Avoid contamination of any water supply with product or empty container.
9.2B	Toxic to the soil environment.
9.4A	Very toxic to terrestrial invertebrates.

The environmental characteristics of this material have not been fully evaluated.
Avoid contamination of any water supply with product or empty container.

Ecotoxicity Effects	
Bioaccumulation & Toxicity:	High acute toxicity to aquatic organisms is expected. The active ingredient in this formulation has the potential to bioconcentrate and long term effects are possible. No toxicity to wastewater treatment micro-organisms is expected.
Aquatic Toxicity:	A greater than (>) symbol indicates that acute ecotoxicity was not observed at the maximum solubility. Since the substance is insoluble in aqueous solutions above this concentration, an acute ecotoxicity value (i.e. LC/EC50) is not achievable. (Species, Method, End Point, Duration, Result) • Daphnia magna LC50 48 Hours 26 ng/L • Mysid Shrimp LC50 96 Hours 28 ng/L • Sheepshead Minnow LC50 48 Hours > 500 mcg/L • Selenastrum capricornutum NOEC > 763 mcg//L • Rainbow Trout LC50 96 Hours 266 mcg/L
Bacterial Inhibition:	(Species, Method, End Point, Duration, Result) • Red algae EC-50 28 mcg/L

Environmental Fate
The active ingredient in this formulation is poorly water soluble and binds tightly to soil. It is expected to partition to soil, sediment, and to solids in a wastewater treatment facility and persist.

Section 13: Disposal Considerations

Product Disposal:	Preferably dispose of product by use in accordance with label directions. Otherwise dispose of product at an approved landfill, or other approved facility in accordance with local, regional and national regulations. Avoid contamination of any water supply with product.
Container Disposal:	Dispose of empty containers by wrapping in paper and putting in garbage for disposal at an approved landfill, or other approved facility in accordance with local, regional and national regulations. Avoid contamination of any water supply with empty container.

Section 14: Transport Information

Dangerous Goods Classification	
UN No.:	1993
Class:	3
Packing Group:	III
Proper Shipping Name:	FLAMMABLE LIQUID, N.O.S (contains isopropanol)

The maximum volume permitted to be transported in a passenger service vehicle: 1 L

Section 15: Regulatory Information

HSNO Approval No.:	HSR001851
HSNO Controls:	See www.epa.govt.nz for controls
ACVM Registration No.:	A007813
ACVM Controls:	See www.foodsafety.govt.nz for registration conditions

Section 16: Other Information

Note: This product is a veterinary medicine and must therefore be used in accordance with the container label directions. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the Government health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

CONTACT POINT:	**Zoetis New Zealand Limited:**	0800 963 847 (Business Hours)
	National Poisons Centre:	0800 POISON (0800 764 766)
	Emergency Services:	Dial 111

This Safety Data Sheet 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.

PLEASE READ ALL LABELS CAREFULLY BEFORE USING PRODUCT.

If clarification of further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.