

SAFETY DATA SHEET



1. Identification

Product identifier	Stronghold Plus; Revolution Plus
Other means of identification	
Synonyms	Selamectin / Sarolaner * TopCat
Recommended use	Veterinary product used as antiparasitic; endectocide
Recommended restrictions	Not for human use
Manufacturer/Importer/Supplier/Distributor information	
Company Name (USA)	Zoetis Inc. 10 Sylvan Way Parsippany, New Jersey 07054 (USA)
Rocky Mountain Poison and Drug Center	1-866-531-8896
Product Support/Technical Services	1-800-366-5288
Emergency telephone numbers	CHEMTREC (24 hours): 1-800-424-9300 International CHEMTREC (24 hours): +1-703-527-3887
Company Name (CA)	Zoetis Canada Inc. 16740 Trans-Canada Highway Kirkland, Quebec, H9H 4M7
Emergency telephone number	International CHEMTREC (24 hours): +1-703-527-3887
Contact E-Mail	productsupport@zoetis.com
Product Support	1-800-461-0917

All Safety Data Sheets are available via our Zoetis Canada website at <https://www.zoetis.ca/sds/sds.aspx>

Supplier Not available.

2. Hazard identification

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



Signal word

Danger

Hazard statement

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

Prevention

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

Response

IF exposed or concerned: Get medical advice/attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE/doctor if you feel unwell. 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. In case of fire: Use appropriate media to extinguish. 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

None known.

Supplemental information

Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
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	##

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments

Trace

The exact percentage composition of this mixture has been withheld as a trade secret.

4. 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.

Most important symptoms/effects, acute and delayed

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.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

General information

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.

5. Fire-fighting measures

Suitable extinguishing media

Water fog. Alcohol resistant foam. Carbon dioxide (CO₂). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

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 firefighters	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.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Highly flammable liquid and vapour.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures 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 breathing mist or vapour. Avoid contact with eyes, skin, and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use appropriate containment to avoid environmental contamination. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

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.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. 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. Use appropriate containment to avoid environmental contamination.

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/personal protection

Occupational exposure limits

Zoetis

Components	Type	Value
Sarolaner (CAS 1398609-39-6)	TWA	110 µg/m ³
Selamectin (CAS 220119-17-5)	TWA	200 µg/m ³

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Butylated Hydroxytoluene (Bht) (CAS 128-37-0)	TWA	2 mg/m ³	Inhalable fraction and vapor.
Dipropylene Glycol Methyl Ether (CAS 34590-94-8)	STEL	150 ppm	
Isopropanol (CAS 67-63-0)	TWA	100 ppm	
	STEL	400 ppm	
	TWA	200 ppm	

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Butylated Hydroxytoluene (Bht) (CAS 128-37-0)	TWA	10 mg/m ³
Dipropylene Glycol Methyl Ether (CAS 34590-94-8)	STEL	909 mg/m ³
		150 ppm
	TWA	606 mg/m ³
Isopropanol (CAS 67-63-0)		100 ppm
	STEL	984 mg/m ³
	TWA	492 mg/m ³
		200 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Butylated Hydroxytoluene (Bht) (CAS 128-37-0)	TWA	2 mg/m ³	Vapor and aerosol, inhalable.
Dipropylene Glycol Methyl Ether (CAS 34590-94-8)	STEL	150 ppm	
Isopropanol (CAS 67-63-0)	TWA	100 ppm	
	STEL	400 ppm	
	TWA	200 ppm	

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value	Form
Butylated Hydroxytoluene (Bht) (CAS 128-37-0)	TWA	2 mg/m ³	Inhalable fraction and vapor.
Dipropylene Glycol Methyl Ether (CAS 34590-94-8)	STEL	150 ppm	
Isopropanol (CAS 67-63-0)	TWA	100 ppm	
	STEL	400 ppm	
	TWA	200 ppm	

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Butylated Hydroxytoluene (Bht) (CAS 128-37-0)	TWA	2 mg/m3	Inhalable fraction and vapor.
Dipropylene Glycol Methyl Ether (CAS 34590-94-8)	STEL	150 ppm	
	TWA	100 ppm	
Isopropanol (CAS 67-63-0)	STEL	400 ppm	
	TWA	200 ppm	

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Components	Type	Value
Butylated Hydroxytoluene (Bht) (CAS 128-37-0)	TWA	10 mg/m3
Dipropylene Glycol Methyl Ether (CAS 34590-94-8)	STEL	909 mg/m3
		150 ppm
	TWA	606 mg/m3
		100 ppm
Isopropanol (CAS 67-63-0)	STEL	1230 mg/m3
		500 ppm
	TWA	983 mg/m3
		400 ppm

Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)

Components	Type	Value	Form
Butylated Hydroxytoluene (Bht) (CAS 128-37-0)	15 minute	4 mg/m3	Inhalable fraction and vapor.
	8 hour	2 mg/m3	Inhalable fraction and vapor.
Dipropylene Glycol Methyl Ether (CAS 34590-94-8)	15 minute	150 ppm	
	8 hour	100 ppm	
Isopropanol (CAS 67-63-0)	15 minute	400 ppm	
	8 hour	200 ppm	

Biological limit values**ACGIH Biological Exposure Indices**

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

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

Exposure guidelines**Canada - Alberta OELs: Skin designation**

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

Canada - British Columbia OELs: Skin designation

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

Canada - Manitoba OELs: Skin designation

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

Canada - Ontario OELs: Skin designation

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

Canada - Quebec OELs: Skin designation

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

Canada - Saskatchewan OELs: Skin designationDIPROPYLENE GLYCOL METHYL ETHER (CAS
34590-94-8)

Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designationDIPROPYLENE GLYCOL METHYL ETHER (CAS
34590-94-8)

Can be absorbed through the skin.

Control banding approach

Not available.

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, such as personal protective equipment**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.

General hygiene considerations

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

194 °C (381.2 °F) estimated

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 information	
Explosive properties	Not explosive.
Flammability class	Flammable IB estimated
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	Hazardous polymerisation does not occur.
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 likely 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
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

Eye contact

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 the physical, chemical and toxicological characteristics

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.

Information on toxicological 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

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

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

Components	Species	Test Results
<u>Chronic</u>		
Inhalation		
NOAEL	Rat	4000 ppm, 20 weeks (Liver, Central nervous system)
Sarolaner (CAS 1398609-39-6)		
<u>Acute</u>		
Dermal		
LD50	Rat	> 2020 mg/kg
Oral		
LD50	Rat	783 mg/kg
<u>Subacute</u>		
Oral		
NOAEL	Rat	2.5 mg/kg/day, 14 days (Adrenal gland) 2.2 mg/kg/day, 30 days (Adrenal gland, Ovary, Liver)
<u>Subchronic</u>		
Oral		
NOAEL	Rat	25 mg/kg/day, 90 days (Adrenal gland, Ovary, Pancreas)
Selamectin (CAS 220119-17-5)		
<u>Acute</u>		
Oral		
LD50	Mouse	> 1600 mg/kg
	Rat	> 1600 mg/kg
<u>Subchronic</u>		
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
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/eye irritation	Causes serious eye irritation.	
Eye contact		
Isopropyl alcohol		Result: Irritation Species: Rabbit Severity: Severe
DIPROPYLENE GLYCOL METHYL ETHER		Species: Rabbit Severity: Mild

Eye contact

Selamectin

Species: Rabbit
Severity: Mild

Sarolaner

Species: Rabbit
Severity: Minimal

Butylated hydroxytoluene

Species: Rabbit
Severity: Moderate**Respiratory or skin sensitisation****Canada - Alberta OELs: Irritant**

Butylated hydroxytoluene (CAS 128-37-0)

Irritant

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

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

Mutagenicity

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

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

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.

Canada - Manitoba OELs: carcinogenicity

Butylated hydroxytoluene (CAS 128-37-0)

Not classifiable as a human carcinogen.

Isopropyl alcohol (CAS 67-63-0)

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

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 (<i>Lepomis macrochirus</i>)
		> 1400 mg/l, 96 hours
Sarolaner (CAS 1398609-39-6)		
Aquatic		
Algae	EC50	<i>Pseudokirchneriella subcapitata</i> (Green Alga)
		> 0.27 mg/l, 72 Hours (ErC50)
Crustacea	EC50	<i>Daphnia magna</i> (Water Flea)
		0.27 mg/l, 48 Hours
Fish	LC50	Fish
		> 0.54 mg/l, 96 Hours
Selamectin (CAS 220119-17-5)		
	EC50	<i>Selenastrum capricornutum</i> (Green Alga)
		> 763 ug/l, 72 Hours
Aquatic		
Crustacea	EC50	<i>Daphnia magna</i> (Water Flea)
		26 ng/L, 48 Hours
	LC50	<i>Mysidopsis bahia</i> (Mysid Shrimp)
		28 ng/L, 96 Hours
Fish	LC50	<i>Cyprinodon variegatus</i> (Sheepshead Minnow)
		> 28 ug/l, 48 Hours
		<i>Oncorhynchus mykiss</i> (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 instructions	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.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	Industrial use: The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	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

TDG

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.

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	Read safety instructions, SDS and emergency procedures before handling. 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.
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IATA; IMDG; TDG



Marine pollutant



General information

For French translation, refer to shipping description in French (above) on the Canadian French SDS. 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

Canadian regulations

This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

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

Country(s) or region	Inventory name	On inventory (yes/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 10-January-2019

Revision date 11-March-2019

Version No. 02

Disclaimer Zoetis Inc. believes that the information contained in this Safety Data Sheet is accurate, and while it is provided in good faith, it is without warranty of any kind, expressed or implied. If data for a hazard are not included in this document there is no known information at this time. The information in the sheet was written based on the best knowledge and experience currently available.

Revision information Transport Information: Material Transportation Information
Transport information: General information