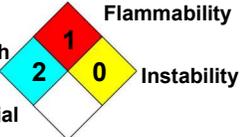


Material Safety Data Sheet

NFPA	HMIS	WHMIS	TDG	DOT								
	<table border="1"> <tr><td>Health</td><td>2</td></tr> <tr><td>Flammability</td><td>1</td></tr> <tr><td>Physical hazards</td><td>0</td></tr> <tr><td>Suggested PPE</td><td>E</td></tr> </table>	Health	2	Flammability	1	Physical hazards	0	Suggested PPE	E			
Health	2											
Flammability	1											
Physical hazards	0											
Suggested PPE	E											

1 . Product and Company Identification

Product name 5180680 3610 ULV Insecticide 4-4L	
Synonym Pyrethrin	MSDS prepared by the Environment, Health & Safety Department on: 9/17/2013.
Material uses Insecticide	Version 3.07
MSDS Number 5180680 (PCP # 11540)	<u>In Case of Emergency</u> Transportation: 1-800-792-8311 Medical: 1-877-615-0015
Manufacturer Agrium Advanced Technologies, Inc. 2915 Rocky Mountain Avenue, Suite 400 Loveland, CO. 80538	For more information on Agrium AT or our products, please go to: http://www.agriumat.com or contact us at Toll-Free:800-461-6471

2 . Hazards Identification

Physical state	Liquid.
OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	<p>Warning</p> <p>COMBUSTIBLE LIQUID AND VAPOR. MAY BE FATAL IF ABSORBED THROUGH SKIN. HARMFUL IF SWALLOWED. MAY CAUSE EYE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.</p> <p>Harmful in contact with skin. Harmful if swallowed. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Contains material that may cause target organ damage, based on animal data. Wash thoroughly after handling.</p>
<u>Potential acute health effects</u>	
Inhalation	Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	May be harmful if swallowed.
Skin	Harmful in contact with skin.
Eyes	May irritate the eyes upon contact.
<u>Potential chronic health effects</u>	
Chronic effects	Contains material that may cause target organ damage, based on animal data.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.

2 . Hazards Identification

Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Target organs	Contains material which may cause damage to the following organs: blood, kidneys, lungs, the nervous system, liver, upper respiratory tract, skin, central nervous system (CNS), testes.

Over-exposure signs/symptoms

Inhalation	No specific data.
Ingestion	No specific data.
Skin	No specific data.
Eyes	Adverse symptoms may include the following: irritation watering redness
Medical conditions aggravated by over-exposure	Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3 . Composition / Information on Ingredients

United States

<u>Name</u>	<u>CAS number</u>	<u>%</u>
N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	113-48-4	5
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6	4.8
Pyrethrins and Pyrethroids	8003-34-7	2.49
Solvent naphtha (petroleum), light arom.	64742-95-6	50 - 80

Canada

<u>Name</u>	<u>CAS number</u>	<u>%</u>
solvent naphtha (petroleum), light arom.	64742-95-6	50 - 80
N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	113-48-4	5
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6	4.8
Pyrethrins and Pyrethroids	8003-34-7	2.49

Mexico

<u>Name</u>	<u>CAS number</u>	<u>UN number</u>	<u>%</u>	<u>IDLH</u>	<u>Classification</u>			
					<u>H</u>	<u>F</u>	<u>R</u>	<u>Special</u>
N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	113-48-4	UN2810	5	-	2	0	0	
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6	UN2810	4.8	-	3	1	0	
Pyrethrins and Pyrethroids	8003-34-7	UN2811	2.49	5000 mg/m ³	2	2	0	
Solvent naphtha (petroleum), light arom.	64742-95-6	Not available.	50 - 80	-	1	0	0	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First Aid Measures

Eye contact	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention if irritation or symptoms occur. Seek additional medical advice if symptoms or conditions persist.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Seek medical advice if irritation or symptoms persist.
Inhalation	If inhalation occurs, remove individual(s) to fresh air. Loosen restrictive clothing items if necessary. If individual has irregular or difficulty breathing or is under respiratory arrest seek medical attention immediately. If other conditions or symptoms develop contact a physician.
Ingestion	If ingestion occurs, rinse mouth with copious amounts of water. Do Not induce vomiting unless directed to do so by trained medical personnel. Do Not give anything by mouth to unconscious individuals. Seek immediate medical attention.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5 . Fire-fighting Measures

Flammability of the product	Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
<u>Extinguishing media</u>	
Suitable	Use dry chemical, CO ₂ , water spray (fog) or foam.
Not suitable	Do not use water jet.
Special exposure hazards	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental Release Measures

Personal precautions	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
<u>Methods for cleaning up</u>	
Small spill	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
Large spill	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and Storage

Handling	Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
Storage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Keep out of reach of children.

8 . Exposure Controls / Personal Protection

United States

Ingredient	Exposure limits
Pyrethrins and Pyrethroids	ACGIH TLV (United States, 2/2010). TWA: 5 mg/m ³ 8 hour(s). OSHA PEL (United States, 6/2010). TWA: 5 mg/m ³ 8 hour(s). NIOSH REL (United States, 6/2009). TWA: 5 mg/m ³ 10 hour(s).

Canada

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	Notations
Pyrethrins and Pyrethroids	US ACGIH 2/2010	-	-	5	-	-	-	-	-	-	
	AB 4/2009	-	-	5	-	-	-	-	-	-	
	BC 9/2010	-	-	5	-	-	-	-	-	-	[3]
	ON 7/2010	-	-	5	-	-	-	-	-	-	
	QC 6/2008	-	-	5	-	-	-	-	-	-	

[3]Skin sensitization

Mexico

Ingredient	Exposure limits
Pyrethrins and Pyrethroids	NOM-010-STPS (Mexico, 9/2000). LMPE-PPT: 5 mg/m ³ 8 hour(s). LMPE-CT: 10 mg/m ³ 15 minute(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

8 . Exposure Controls / Personal Protection

Skin Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Personal protective equipment (Pictograms)



Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and Chemical Properties

Physical state	Liquid.
Flash point	Closed cup: >61°C (>141.8°F) [T.C.C.]
Auto-ignition temperature	227°C (440.6°F)
Flammable limits	Lower: 1.4% Upper: 9.3%
Vapor pressure	0.02 kPa (0.147 mm Hg) [20°C]
Vapor density	5.4 [Air = 1]
VOC	3.1 % (w/w)
Dispersibility properties	Very slightly dispersible in the following materials: methanol. Not dispersible in the following materials: cold water and hot water.

10 . Stability and Reactivity

Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Materials to avoid	Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	LD50 Dermal	Rat	470 mg/kg	-
	LD50 Dermal	Rabbit	470 mg/kg	-
	LD50 Oral	Rat	2800 mg/kg	-
Solvent naphtha (petroleum), light arom.	LD50 Oral	Rat	8400 mg/kg	-
	LD50 Dermal	Rabbit	200 mg/kg	-
Pyrethrins and Pyrethroids	LD50 Oral	Rat	6150 mg/kg	-
	LD50 Dermal	Rat	1350 mg/kg	-
	LD50 Dermal	Rabbit	300 mg/kg	-
	LD50	Rat	189 mg/kg	-
	Intraperitoneal LD50 Oral	Rat	200 mg/kg	-

Product/ingredient name	Result	Species	Score	Exposure	Observation
Solvent naphtha (petroleum), light arom.	Eyes - Mild irritant	Rabbit	-	-	-

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	-	3	-	-	-	-
Pyrethrins and Pyrethroids	A4	-	-	-	-	-

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	LD50 Dermal	Rat	470 mg/kg	-
	LD50 Dermal	Rabbit	470 mg/kg	-
	LD50 Oral	Rat	2800 mg/kg	-
Solvent naphtha (petroleum), light arom.	LD50 Oral	Rat	8400 mg/kg	-
	LD50 Dermal	Rabbit	200 mg/kg	-
Pyrethrins and Pyrethroids	LD50 Oral	Rat	6150 mg/kg	-
	LD50 Dermal	Rat	1350 mg/kg	-
	LD50 Dermal	Rabbit	300 mg/kg	-
	LD50	Rat	189 mg/kg	-
	Intraperitoneal LD50 Oral	Rat	200 mg/kg	-

Product/ingredient name	Result	Species	Score	Exposure	Observation
Solvent naphtha (petroleum), light arom.	Eyes - Mild irritant	Rabbit	-	-	-

11 . Toxicological Information

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	-	3	-	-	-	-
Pyrethrins and Pyrethroids	A4	-	-	-	-	-

Mexico

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	LD50 Dermal	Rat	470 mg/kg	-
	LD50 Dermal	Rabbit	470 mg/kg	-
	LD50 Oral	Rat	2800 mg/kg	-
Solvent naphtha (petroleum), light arom.	LD50 Oral	Rat	8400 mg/kg	-
	LD50 Dermal	Rabbit	200 mg/kg	-
Pyrethrins and Pyrethroids	LD50 Oral	Rat	6150 mg/kg	-
	LD50 Dermal	Rat	1350 mg/kg	-
	LD50 Dermal	Rabbit	300 mg/kg	-
	LD50	Rat	189 mg/kg	-
	Intraperitoneal LD50 Oral	Rat	200 mg/kg	-

Product/ingredient name	Result	Score	Score	Exposure	Observation
Solvent naphtha (petroleum), light arom.	Eyes - Mild irritant	Rabbit	-	-	-

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	-	3	-	-	-	-
Pyrethrins and Pyrethroids	A4	-	-	-	-	-

12 . Ecological Information

Environmental effects No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
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12 . Ecological Information

N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	-	Acute LC50 1.4 to 1.7 ppm Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	-	Acute EC50 100 ppb Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute EC50 0.51 ppm Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute LC50 4.2 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 0.7 g	96 hours
	-	Acute LC50 3.4 mg/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 0.6 g	96 hours
	-	Acute LC50 1.9 mg/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 1 g	96 hours
	-	Acute LC50 1.8 mg/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 1 g	96 hours
	-	Acute LC50 1.06 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	-	Acute LC50 4000 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	-	Acute LC50 1860 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	-	Acute LC50 13.4 to 18 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	-	Acute LC50 8.8 ppb Marine water	Fish - Sheepshead minnow - Cyprinodon variegatus - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	-	Acute LC50 2.4 to 3.2 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	-	Acute LC50 3.94	Fish -	96 hours

12 . Ecological Information

	ppm Marine water	Sheepshead minnow - Cyprinodon variegatus	
-	Acute LC50 2830 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - <=48 hours	48 hours
-	Acute LC50 1620 ug/L Fresh water	Daphnia - Water flea - Daphnia pulex - <=48 hours	48 hours
-	Acute LC50 1000 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - <=48 hours	48 hours
-	Acute LC50 650 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - Neonate	48 hours
-	Acute LC50 330 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
Pyrethrins and Pyrethroids	Acute EC50 265 ppb Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
-	Acute EC50 42 ppb Fresh water	Crustaceans - Water flea - Simocephalus serrulatus	48 hours
-	Acute EC50 25 ppb Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
-	Acute EC50 11.6 ppb Fresh water	Daphnia - Water flea - Daphnia magna - <=24 hours	48 hours
-	Acute EC50 6.7 ppb Fresh water	Daphnia - Water flea - Daphnia magna - <=24 hours	48 hours
-	Acute EC50 42 ug/L Fresh water	Crustaceans - Water flea - Simocephalus serrulatus - Larvae	48 hours
-	Acute EC50 25 ug/L Fresh water	Daphnia - Water flea - Daphnia pulex - Larvae	48 hours
-	Acute LC50 18.7 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
-	Acute LC50 16 to 17.7 ppb Marine water	Fish - Sheepshead minnow - Cyprinodon variegatus	96 hours
-	Acute LC50 10 ppb Fresh water	Fish - Bluegill - Lepomis	96 hours

12 . Ecological Information

-	Acute LC50 5.1 ppb Fresh water	macrochirus Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 3.8 ppb Marine water	Fish - Sheepshead minnow - Cyprinodon variegatus	96 hours
-	Acute LC50 3.4 to 4.6 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
-	Acute LC50 3.2 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 18 ug/L Fresh water	Crustaceans - Gammarus lacustris - 2 months	48 hours
-	Acute LC50 17 ug/L Fresh water	Fish - Northern pike - Esox lucius - 0.8 g	96 hours
-	Acute LC50 14.6 ug/L Fresh water	Fish - Smallmouth bass - Micropterus dolomieu - 0.9 g	96 hours
-	Acute LC50 8.96 ug/L Fresh water	Fish - Channel catfish - Ictalurus punctatus - 0.7 g	96 hours
-	Acute LC50 4.42 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours
-	Acute LC50 1.39 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours
-	Acute LC50 0.73 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours

Canada

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
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12 . Ecological Information

N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	-	Acute LC50 1.4 to 1.7 ppm Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss	96 hours
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	-	Acute EC50 100 ppb Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute EC50 0.51 ppm Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute LC50 4.2 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 0.7 g	96 hours
	-	Acute LC50 3.4 mg/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - 0.6 g	96 hours
	-	Acute LC50 1.9 mg/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - 1 g	96 hours
	-	Acute LC50 1.8 mg/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - 1 g	96 hours
	-	Acute LC50 1.06 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	-	Acute LC50 4000 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	-	Acute LC50 1860 ppb Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss	96 hours
	-	Acute LC50 13.4 to 18 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	-	Acute LC50 8.8 ppb Marine water	Fish - Sheepshead minnow - Cyprinodon variegatus - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	-	Acute LC50 2.4 to 3.2 ppb Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss	96 hours

12 . Ecological Information

	-	Acute LC50 3.94 ppm Marine water	Fish - Sheepshead minnow - <i>Cyprinodon variegatus</i>	96 hours
	-	Acute LC50 2830 ug/L Fresh water	Daphnia - Water flea - <i>Daphnia magna</i> - <=48 hours	48 hours
	-	Acute LC50 1620 ug/L Fresh water	Daphnia - Water flea - <i>Daphnia pulex</i> - <=48 hours	48 hours
	-	Acute LC50 1000 ug/L Fresh water	Crustaceans - Water flea - <i>Ceriodaphnia dubia</i> - <=48 hours	48 hours
	-	Acute LC50 650 ug/L Fresh water	Crustaceans - Water flea - <i>Ceriodaphnia dubia</i> - Neonate	48 hours
	-	Acute LC50 330 ug/L Fresh water	Crustaceans - Water flea - <i>Ceriodaphnia dubia</i> - Neonate - <24 hours	48 hours
Pyrethrins and Pyrethroids	-	Acute EC50 265 ppb Fresh water	Daphnia - Water flea - <i>Daphnia magna</i>	48 hours
	-	Acute EC50 42 ppb Fresh water	Crustaceans - Water flea - <i>Simocephalus serrulatus</i>	48 hours
	-	Acute EC50 25 ppb Fresh water	Daphnia - Water flea - <i>Daphnia magna</i>	48 hours
	-	Acute EC50 11.6 ppb Fresh water	Daphnia - Water flea - <i>Daphnia magna</i> - <=24 hours	48 hours
	-	Acute EC50 6.7 ppb Fresh water	Daphnia - Water flea - <i>Daphnia magna</i> - <=24 hours	48 hours
	-	Acute EC50 42 ug/L Fresh water	Crustaceans - Water flea - <i>Simocephalus serrulatus</i> - Larvae	48 hours
	-	Acute EC50 25 ug/L Fresh water	Daphnia - Water flea - <i>Daphnia pulex</i> - Larvae	48 hours
	-	Acute LC50 18.7 ppb Fresh water	Fish - Bluegill - <i>Lepomis macrochirus</i>	96 hours
	-	Acute LC50 16 to 17.7 ppb Marine water	Fish - Sheepshead minnow - <i>Cyprinodon variegatus</i>	96 hours
	-	Acute LC50 10	Fish - Bluegill -	96 hours

12 . Ecological Information

-	ppb Fresh water	Lepomis macrochirus	
-	Acute LC50 5.1 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 3.8 ppb Marine water	Fish - Sheepshead minnow - Cyprinodon variegatus	96 hours
-	Acute LC50 3.4 to 4.6 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
-	Acute LC50 3.2 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 18 ug/L Fresh water	Crustaceans - elc:o3n0:7pt - Gammarus lacustris - 2 months	48 hours
-	Acute LC50 17 ug/L Fresh water	Fish - Northern pike - Esox lucius - 0.8 g	96 hours
-	Acute LC50 14.6 ug/L Fresh water	Fish - Smallmouth bass - Micropterus dolomieui - 0.9 g	96 hours
-	Acute LC50 8.96 ug/L Fresh water	Fish - Channel catfish - Ictalurus punctatus - 0.7 g	96 hours
-	Acute LC50 4.42 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours
-	Acute LC50 1.39 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours
-	Acute LC50 0.73 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours

Mexico

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
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12 . Ecological Information

N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide	-	Acute LC50 1.4 to 1.7 ppm Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	-	Acute EC50 100 ppb Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute EC50 0.51 ppm Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute LC50 4.2 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 0.7 g	96 hours
	-	Acute LC50 3.4 mg/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 0.6 g	96 hours
	-	Acute LC50 1.9 mg/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 1 g	96 hours
	-	Acute LC50 1.8 mg/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 1 g	96 hours
	-	Acute LC50 1.06 mg/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	-	Acute LC50 4000 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	-	Acute LC50 1860 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	-	Acute LC50 13.4 to 18 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	-	Acute LC50 8.8 ppb Marine water	Fish - Sheepshead minnow - Cyprinodon variegatus - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	-	Acute LC50 2.4 to 3.2 ppb Fresh water	Fish - Rainbow trout,donaldson trout -	96 hours

12 . Ecological Information

	-	Acute LC50 3.94 ppm Marine water	Oncorhynchus mykiss Fish - Sheepshead minnow - Cyprinodon variegatus	96 hours
	-	Acute LC50 2830 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - <=48 hours	48 hours
	-	Acute LC50 1620 ug/L Fresh water	Daphnia - Water flea - Daphnia pulex - <=48 hours	48 hours
	-	Acute LC50 1000 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - <=48 hours	48 hours
	-	Acute LC50 650 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - Neonate	48 hours
	-	Acute LC50 330 ug/L Fresh water	Crustaceans - Water flea - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
Pyrethrins and Pyrethroids	-	Acute EC50 265 ppb Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	-	Acute EC50 42 ppb Fresh water	Crustaceans - Water flea - Simocephalus serrulatus	48 hours
	-	Acute EC50 25 ppb Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	-	Acute EC50 11.6 ppb Fresh water	Daphnia - Water flea - Daphnia magna - <=24 hours	48 hours
	-	Acute EC50 6.7 ppb Fresh water	Daphnia - Water flea - Daphnia magna - <=24 hours	48 hours
	-	Acute EC50 42 ug/L Fresh water	Crustaceans - Water flea - Simocephalus serrulatus - Larvae	48 hours
	-	Acute EC50 25 ug/L Fresh water	Daphnia - Water flea - Daphnia pulex - Larvae	48 hours
	-	Acute LC50 18.7 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	-	Acute LC50 16 to 17.7 ppb Marine water	Fish - Sheepshead minnow - Cyprinodon	96 hours

12 . Ecological Information

-	Acute LC50 10 ppb Fresh water	variegatus Fish - Bluegill - Lepomis macrochirus	96 hours
-	Acute LC50 5.1 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 3.8 ppb Marine water	Fish - Sheepshead minnow - Cyprinodon variegatus	96 hours
-	Acute LC50 3.4 to 4.6 ppb Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
-	Acute LC50 3.2 ppb Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
-	Acute LC50 18 ug/L Fresh water	Crustaceans - elc:o3n0:7pt - Gammarus lacustris - 2 months	48 hours
-	Acute LC50 17 ug/L Fresh water	Fish - Northern pike - Esox lucius - 0.8 g	96 hours
-	Acute LC50 14.6 ug/L Fresh water	Fish - Smallmouth bass - Micropterus dolomieu - 0.9 g	96 hours
-	Acute LC50 8.96 ug/L Fresh water	Fish - Channel catfish - Ictalurus punctatus - 0.7 g	96 hours
-	Acute LC50 4.42 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours
-	Acute LC50 1.39 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours
-	Acute LC50 0.73 ug/L Marine water	Crustaceans - American lobster - Homarus americanus - Larvae	48 hours

13 . Disposal Considerations

Waste disposal

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport Information

Regulatory information	UN number	Shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN2903	Pesticide, Liquid, Toxic, Flammable, N.O.S. Marine Pollutant	6.1(3)	III	  	-
TDG Classification	UN2903	Pesticide, Liquid, Toxic, Flammable, N.O.S. Marine Pollutant	6.1(3)	III	  	Considered 'Limited Quantity' when container is less than, or equal to 1 liter.

14 . Transport Information

Mexico Classification	UN2903	Pesticide, Liquid, Toxic, Flammable, N.O.S. Marine Pollutant	Not available.	-	  	-
PG* : Packing group						

15 . Regulatory Information

United States

HCS Classification

Combustible liquid
Highly toxic material
Target organ effects

U.S. Federal regulations

TSCA 8(a) IUR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): Not determined.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: 2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether; Pyrethrins and Pyrethroids; N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: 2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether: Immediate (acute) health hazard, Delayed (chronic) health hazard; Pyrethrins and Pyrethroids: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; N-(2-ethylhexyl)-8,9,10-trinorborn-5-ene-2,3-dicarboximide: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)

Not listed

Clean Air Act Section 602 Class I Substances

Not listed

Clean Air Act Section 602 Class II Substances

Not listed

DEA List I Chemicals (Precursor Chemicals)

Not listed

DEA List II Chemicals (Essential Chemicals)

Not listed

SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Form R - Reporting requirements	2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6	0.95 - 5
Supplier notification	2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6	0.95 - 5

15 . Regulatory Information

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: PYRETHRUM
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: PYRETHRUM; PYRETHRINS AND PYRETHROIDS; PIPERONYL BUTOXIDE; 1,3-BENZODIOXOLE, 5-[[2-(2-BUTOXYETHOXY)ETHOXY]METHYL]-6-PROPYL-
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: The following components are listed:
 Pyrethrins
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed:
 PYRETHRINS AND PYRETHROIDS
Rhode Island Hazardous Substances: None of the components are listed.

United States inventory (TSCA 8b)

Not determined.

Canada

WHMIS (Canada)

Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
 Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
 Class D-2A: Material causing other toxic effects (Very toxic).
 Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Light aromatic solvent naphtha
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Canada inventory

All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Mexico

Classification



EU regulations

15 . Regulatory Information

Hazard symbol or symbols



Risk phrases

R45- May cause cancer.
 R46- May cause heritable genetic damage.
 R21- Also harmful in contact with skin.
 R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

S53- Avoid exposure - obtain special instructions before use.
 S2- Keep out of the reach of children.
 S29- Do not empty into drains.
 S36/37- Wear suitable protective clothing and gloves.
 S46- If swallowed, seek medical advice immediately and show this container or label.
 S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

International regulations

International lists

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.

Chemical Weapons
 Convention List
 Schedule I Chemicals

Not listed

Chemical Weapons
 Convention List
 Schedule II Chemicals

Not listed

Chemical Weapons
 Convention List
 Schedule III Chemicals

Not listed

16 . Other information

Label requirements

COMBUSTIBLE LIQUID AND VAPOR. MAY BE FATAL IF ABSORBED THROUGH SKIN. HARMFUL IF SWALLOWED. MAY CAUSE EYE IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Hazardous Material
 Information System
 (U.S.A.)

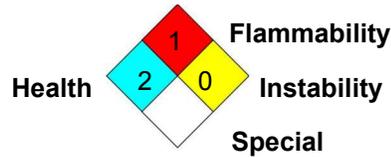
Health	2
Flammability	1
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

16 . Other information

National Fire Protection
Association (U.S.A.)



Date of issue 9/17/2013.

Version 3.07

▣ Indicates information that has changed from previously issued version.

Notice to Reader:

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