



Dow AgroSciences

# SAFETY DATA SHEET

## DOW AGROSCIENCES (NZ) LIMITED

**Product name:** Cobalt™ Advanced Insecticide

**Issue Date:** 22.02.2018

DOW AGROSCIENCES (NZ) LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name:** Cobalt™ Advanced Insecticide

**Identified uses:** Plant protection product

### COMPANY IDENTIFICATION

DOW AGROSCIENCES (NZ) LIMITED  
89 PARITUTU ROAD  
4342 NEW PLYMOUTH  
NEW ZEALAND

**Customer Information Number:**

0800-803-939

[fnpcust@dow.com](mailto:fnpcust@dow.com)

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 0800 844 455

**Local Emergency Contact:** +64 6 751 2407

**For medical advice, contact the New Zealand Poisons Information Centre:**

0800 POISON (0800 764 766)

**Transport Emergency Only Dial:** 111

This SDS may not provide exhaustive guidance for all the HSNO controls assigned to this substance. The NZ EPA website [www.epa.govt.nz](http://www.epa.govt.nz) should be consulted for a full list of triggered controls and cited regulations

## 2. HAZARDS IDENTIFICATION

### Hazard classification

NEW ZEALAND HAZARDOUS SUBSTANCES CLASSIFICATION: Classified as hazardous according to criteria in the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. Refer to Section 15 for HSNO Approval Number.

**HSNO Hazard Classification:** 3.1C, 6.1C, 6.3B, 6.4A, 6.8B, 6.9A, 9.1A, 9.2B, 9.3A, 9.4A

### Hazards

Flammable liquid and vapour.

Toxic if swallowed and enters airways.

Harmful if inhaled.

Causes mild skin irritation.

Causes eye irritation.

Suspected of damaging fertility or the unborn child.  
May cause damage to organs.  
Very toxic to aquatic life with long lasting effects.  
Toxic to the soil environment.  
Very toxic to terrestrial vertebrates.  
Very toxic to terrestrial invertebrates.

**Precautionary statements****Prevention**

Keep out of reach of children  
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.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Do not breathe fumes/ mist/ vapour/ spray.  
Wash skin thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
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: Call a POISON CENTER or doctor/ physician.  
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
Get medical advice/attention if you feel unwell.  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.  
Rinse mouth. Do NOT induce vomiting.  
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
If skin irritation occurs: Get medical advice/ attention.  
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.  
Specific treatment (see supplemental first aid instructions on this label).  
In case of fire: Use water fog, carbon dioxide, dry chemical or foam for extinction.  
Collect spillage.

**Storage**

Store in a well-ventilated place. Keep cool.  
Store locked up.

**Disposal**

Dispose of contents/ container to an approved waste disposal plant.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Concentration
Chlorpyrifos	2921-88-2	28.12 %
Lambda-cyhalothrin	91465-08-6	1.44 %
Solvent naphtha (petroleum), light arom.	64742-95-6	25 - 30%
1,2,4-trimethylbenzene	95-63-6	5 - 10%
Glycerol	56-81-5	2 - 3 %
Mesitylene; 1,3,5-trimethylbenzene	108-67-8	< 3.0 %
Cumene	98-82-8	1.0 %
Xylene	1330-20-7	< 1.0 %
Balance	Not available	22.4 – 33.4%

### 4. FIRST AID MEASURES

**Consult the National Poisons Information Centre (0800 POISON (0800 764 766)) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.**

#### Description of first aid measures

**General advice:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**Eye contact:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

**Ingestion:** Seek medical attention immediately. Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

#### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Atropine, only by injection, is the

preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. Attempt seizure control with diazepam 5-10 mg (adults) intravenous over 2-3 minutes. Repeat every 5-10 minutes as needed. Monitor for hypotension, respiratory depression, and need for intubation. Consider second agent if seizures persist after 30 mg. If seizures persist or recur administer Phenobarbital 600-1200 mg (adults) intravenous diluted in 60 ml 0.9% saline given at 25-50 mg/minute. Evaluate for hypoxia, dysrhythmia, electrolyte disturbance, hypoglycemia (treat adults with dextrose 100 mg intravenous). If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

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## 5. FIREFIGHTING MEASURES

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**Hazchem:** 2X

**Suitable extinguishing media:** To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

**Unsuitable extinguishing media:** No data available

### Special hazards arising from the substance or mixture

**Hazardous combustion products:** Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Sulfur oxides. Phosphorous compounds. Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn. Container may rupture from gas generation in a fire situation.

### Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7: Handling, for additional precautionary measures. Keep up-wind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. Use appropriate safety equipment. For additional information, refer to Section 8: Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12: Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13: Disposal Considerations for additional information.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Keep out of reach of children. Keep away from heat, sparks and flame. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Avoid temperatures above 50°C.

**This substance is subject to a requirement for an emergency management plan, secondary containment and signage, whenever it is held in quantities of 100 L or more, either alone or in aggregate with other hazardous substances. See Hazardous Substances Emergency Management and Identification Regulations.**

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Chlorpyrifos	ACGIH	TWA Inhalable fraction and vapor	0.1 mg/ m <sup>3</sup> SKIN, BEI
	NZ OEL	WES-TWA	0.2 mg/m <sup>3</sup> Absorbed via skin
Glycerol	NZ OEL	WES-TWA Mist	10 mg/m <sup>3</sup>
Solvent naphtha (petroleum), light arom.	ACGIH	TWA	200 mg/m <sup>3</sup> , total hydrocarbon vapor
	Dow IHG	TWA	100 mg/m <sup>3</sup>
	Dow IHG	STEL	300 mg/m <sup>3</sup>
	NZ OEL	WES-TWA	890 mg/m <sup>3</sup> 300 ppm
1,2,4-trimethylbenzene	NZ OEL	WES-STEL	1,480 mg/m <sup>3</sup> 500 ppm
	ACGIH	TWA	25 ppm
Mesitylene; 1,3,5-trimethylbenzene	NZ OEL	WES-TWA	123 mg/m <sup>3</sup> 25 ppm
	ACGIH	TWA	25 ppm
Cumene	NZ OEL	WES-TWA	123 mg/m <sup>3</sup> 25 ppm
	ACGIH	TWA	50 ppm
	NZ OEL	WES-TWA	125 mg/m <sup>3</sup> 25 ppm Absorbed via skin
Xylene	NZ OEL	WES-STEL	375 mg/m <sup>3</sup> 75 ppm Absorbed via skin
	ACGIH	TWA	100 ppm BEI
	ACGIH	STEL	150 ppm BEI
	NZ OEL	WES-TWA	217 mg/m <sup>3</sup> 50 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Chlorpyrifos	2921-88-2	Cholinesterase activity	Blood		60 % of baseline	NZ BEI
		Cholinesterase activity	Blood		80 % of baseline	NZ BEI
		Cholinesterase activity	Blood		75 % of baseline	NZ BEI
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI

**Exposure controls**

**Engineering controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use chemical goggles.

**Skin protection**

**Hand protection:** Use chemical resistant gloves classified under standard AS/NZS 2161.10: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to AS/NZS 2161.10) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to AS/NZS 2161.10) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

**Other Information:** Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including:

AS/NZS 1336: Eye and Face protection - Guidelines.

AS/NZS 1337: Personal eye protection - Eye and face protectors for occupational applications.

AS/NZS 1715: Selection, use and maintenance of respiratory protective equipment.

AS/NZS 2161: Occupational protective gloves.

AS/NZS 2210: Occupational protective footwear.

AS/NZS 4501: Occupational protective clothing.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>Appearance</b>	
<b>Physical state</b>	Liquid
<b>Colour</b>	White
<b>Odour</b>	Aromatic
<b>Odour Threshold</b>	No test data available
<b>pH</b>	4.34 1% <i>pH Electrode</i>
<b>Melting point/range</b>	Not applicable
<b>Freezing point</b>	No test data available
<b>Boiling point (760 mmHg)</b>	No test data available
<b>Flash point - closed cup</b>	55 °C
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No test data available
<b>Flammability (solid, gas)</b>	No data available
<b>Lower explosion limit</b>	No test data available
<b>Upper explosion limit</b>	No test data available
<b>Vapour Pressure</b>	Chlorpyrifos: 2.5 mPa Lambda cyhalothrin: 2 x 10 <sup>-4</sup> mPa @ 25 °C
<b>Relative Vapour Density (air = 1)</b>	No test data available
<b>Relative Density (water = 1)</b>	No test data available
<b>Water solubility</b>	Dispersible emulsion.
<b>Partition coefficient: n-octanol/water</b>	Chlorpyrifos: Log 4.7 @ 20 °C Lambda cyhalothrin: Log 5.3 – 5.6
<b>Auto-ignition temperature</b>	No test data available
<b>Decomposition temperature</b>	No test data available
<b>Kinematic Viscosity</b>	No data available
<b>Explosive properties</b>	No
<b>Oxidizing properties</b>	No significant increase (>5 <sup>0</sup> c) in temperature.
<b>Liquid Density</b>	1.06 g/cm <sup>3</sup> at 20 °C <i>Digital density meter</i>
<b>Molecular weight</b>	No product data available. Chlorpyrifos: 350.59 g/mol Lambda cyhalothrin: 449.9 g/mol

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No dangerous reaction known under conditions of normal use.

**Chemical stability:** Unstable at elevated temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Avoid temperatures above 50 °C

Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with: Bases.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen chloride. Organic sulfides. Sulfur dioxide. Toxic gases are released during decomposition.

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## 11. TOXICOLOGICAL INFORMATION

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### Acute toxicity

#### Acute oral toxicity

Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury, even death.

As product: LD50, Rat, female, 114.5 mg/kg

#### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: LD50, Rat, male and female > 5,000 mg/kg

#### Acute inhalation toxicity

Prolonged excessive exposure to mist may cause serious adverse effects, even death. May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

As product: LC50, Rat, female, 4 Hour, dust/mist, 2.07 mg/l

### Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

### Eye damage/ irritation

May cause moderate eye irritation. Corneal injury is unlikely.

### Sensitization

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization: No relevant data found.

### Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation. May cause drowsiness or dizziness.

### Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient: Chlorpyrifos. Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions.

In animals, effects have been reported on the following organs: Adrenal gland.

Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Based on information for component(s): In animals, effects have been reported on the following organs: Blood. Kidney. Liver. Respiratory tract. Cataracts were observed in rats exposed to cumene vapors. Excessive exposure to glycerine may cause increased fat levels in blood.

**Carcinogenicity**

Active ingredients did not cause cancer in laboratory animals.

For the minor component(s): Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

**Teratogenicity**

For the active ingredient: Chlorpyrifos. Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Based on information for component(s): Has caused birth defects in laboratory animals only at doses producing severe toxicity in the mother. Has been toxic to the foetus in laboratory animals at doses toxic to the mother.

**Reproductive toxicity**

For the active ingredient(s): Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

Based on information for component(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. Reproductive effects seen in female animals are believed to be due to altered nutritional states resulting from extremely high doses of glycerine given in the diet. Similar effects have been seen in animals fed synthetic diets.

**Mutagenicity**

For the active ingredient(s): In vitro genetic toxicity studies were negative. Based on a majority of negative data and some equivocal or marginally positive results, active ingredient is considered to have minimal genetic toxicity potential.

**Aspiration Hazard**

May be fatal if swallowed and enters airways.

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## 12. ECOLOGICAL INFORMATION

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### Ecotoxicity

#### Acute toxicity to aquatic invertebrates

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 < 0.1 mg/L in the most sensitive species).

EC50, *Daphnia magna* (water flea), static test, 48 Hour, 0.000319 mg/l

#### Toxicity to Above Ground Organisms

Oral LD50, *Apis mellifera* (bees), 48 Hour, 0.66 micrograms/bee

Contact LD50, *Apis mellifera* (bees), 48 Hour, 0.54 micrograms/bee

### Persistence and degradability

#### Chlorpyrifos

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

**Biodegradation:** 22 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D or Equivalent

**Stability in Water (1/2-life):** Hydrolysis, half-life in distilled water at 25°C was 62 days (pH 4.7), 35 days (pH 6.9) and 22 days (pH 8.1)

#### Photodegradation

**Test Type:** Half-life (indirect photolysis)

**Sensitizer:** OH radicals

**Atmospheric half-life:** 1.4 Hour

**Method:** Estimated.

#### Lambda-cyhalothrin

**Biodegradability:** Chemical degradation (hydrolysis) is expected in the environment within days to weeks.

#### Glycerol

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

**Biodegradation:** 63 %

**Exposure time:** 14 d

**Method:** OECD Test Guideline 301C or Equivalent

**Theoretical Oxygen Demand:** 1.22 mg/mg

#### Solvent naphtha (petroleum), light arom.

**Biodegradability:** For the major component(s): Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). For some component(s): Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

#### 1,2,4-trimethylbenzene

**Biodegradability:** Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

**Biodegradation:** 100 %  
**Exposure time:** 1 d

**Theoretical Oxygen Demand:** 3.19 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)  
**Sensitizer:** OH radicals  
**Atmospheric half-life:** 0.641 d  
**Method:** Estimated.

**Mesitylene: 1,3,5-trimethylbenzene**

**Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Not applicable

**Biodegradation:** 0 %  
**Exposure time:** 28 d  
**Method:** OECD Test Guideline 301C or Equivalent

10-day Window: Not applicable

**Biodegradation:** 50 %  
**Exposure time:** 4.4 d  
**Method:** Calculated.

**Theoretical Oxygen Demand:** 3.19 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)  
**Sensitizer:** OH radicals  
**Atmospheric half-life:** 3.7 Hour  
**Method:** Estimated.

**Cumene**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 70 %  
**Exposure time:** 20 d  
**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 3.20 mg/mg *Estimated*

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	40%
10 d	62%
20 d	70%

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)  
**Sensitizer:** OH radicals  
**Atmospheric half-life:** 1.55 d  
**Method:** Estimated.

**Xylene**

**Biodegradability:** Material is expected to be readily biodegradable.

10-day Window: Pass

**Biodegradation:** > 60 %

**Exposure time:** 10 d

**Method:** OECD Test Guideline 301F or Equivalent

**Theoretical Oxygen Demand:** 3.17 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitizer:** OH radicals

**Atmospheric half-life:** 19.7 Hour

**Method:** Estimated.

**Balance**

**Biodegradability:** No relevant data found.

**Bioaccumulative potential****Chlorpyrifos**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 4.7 *Estimated*

**Lambda-cyhalothrin**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 7 at 20 °C

**Bioconcentration Factor (BCF):** 1,660 – 2,240 Fish

**Glycerol**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient, n-octanol/water (log Pow):** -1.76 at 20 °C *Measured*

**Solvent naphtha (petroleum), light arom.**

**Bioaccumulation:** For the major components: Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

For the minor components: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**1,2,4-trimethylbenzene**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 3.63 *Measured*

**Bioconcentration Factor (BCF):** 33 - 275 *Cyprinus carpio* (Carp) 56d. *Measured*

**Mesitylene; 1,3,5-trimethylbenzene**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 3.42 *Measured*

**Bioconcentration Factor (BCF):** 161 *Pimephales promelas* (Fathead minnow). *Measured*

**Cumene**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient, n-octanol/water (log Pow):** 3.4 – 3.7 *Measured*

**Bioconcentration Factor (BCF):** 35.5 Fish. *Measured*

**Xylene**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient, n-octanol/water (log Pow):** 3.12 *Measured*

**Bioconcentration Factor (BCF):** 25.9 *Salmo gairdneri* (Rainbow trout) *Measured*

**Balance**

**Bioaccumulation:** No relevant data found.

**Mobility in Soil****Chlorpyrifos**

Expected to be relatively immobile in soil (Koc > 5,000).

**Partition coefficient (Koc):** 8,151

**Henry's Law Constant (H):** 6.6E-06 atm\*m3/mole. *Measured*

**Lambda-cyhalothrin**

Expected to be relatively immobile in soil (Koc > 5,000).

**Partition coefficient, soil organic carbon/water (Koc):** > 38,000

**Henry's Law Constant (H):** 2E-02 Pa\*m3/mole.

**Glycerol**

Potential for mobility in soil is very high (Koc between 0 and 50).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

**Partition coefficient, soil organic carbon/water (Koc):** 1 *Estimated.*

**Henry's Law Constant (H):** 1.73E-08 atm\*m3/mole 25°C. *Measured.*

**Solvent naphtha (petroleum), light arom.**

For the major component(s): Potential for mobility in soil is low (Koc between 500 and 2,000).

**1,2,4-trimethylbenzene**

Potential for mobility in soil is low (Koc between 500 and 2,000).

**Partition coefficient, soil organic carbon/water (Koc):** 720 *Estimated.*

**Henry's Law Constant (H):** 6.16E-03 atm\*m3/mole 25°C. *Measured.*

**Mesitylene; 1,3,5-trimethylbenzene**

Potential for mobility in soil is low (Koc between 500 and 2,000).

**Partition coefficient, soil organic carbon/water (Koc):** 741.65 *Estimated.*

**Henry's Law Constant (H):** 1.97E-02 atm\*m3/mole 25°C. *Measured.*

**Cumene**

Potential for mobility in soil is low (Koc between 500 and 2,000).

**Partition coefficient, soil organic carbon/water (Koc):** 800 – 2,800 *Estimated.*

**Henry's Law Constant (H):** 1.15E-02 atm\*m3/mole 25°C. *Measured.*

**Xylene**

Potential for mobility in soil is medium (Koc between 150 and 500).

**Partition coefficient, soil organic carbon/water (Koc):** 443 *Estimated.*

**Henry's Law Constant (H):** 7.45E-03 atm\*m3/mole 25°C. *Measured.*

**Balance**

No relevant data found.

**Results of PBT and vPvB assessment****Chlorpyrifos**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

**Lambda-cyhalothrin**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Glycerol**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is readily biodegradable and thus is not considered persistent or very persistent (P or vP).

**Solvent naphtha (petroleum), light arom.**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**1,2,4-trimethylbenzene**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

**Mesitylene; 1,3,5-trimethylbenzene**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

**Cumene**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Xylene**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

**Balance**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

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**13. DISPOSAL CONSIDERATIONS**

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**Disposal methods:** If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Waste handling, treatment and disposal practices must be in compliance with the New Zealand Hazardous Substances (Disposal) Regulations 2001. Additional local requirements may be applicable

in accordance with planning controls under the Resource Management Act. Regulations concerning waste management may vary in different locations.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

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## 14. TRANSPORT INFORMATION

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### **PUBLIC PASSENGER VEHICLE TRANSPORT: NOT TO BE TRANSPORTED IN A PASSENGER VEHICLE.**

#### **Classification for ROAD and Rail transport:**

<b>Proper shipping name</b>	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE (Chlorpyrifos, Solvent naphtha (petroleum), light aromatic)
<b>UN number</b>	UN 3017
<b>Class</b>	6.1 (3)
<b>Packing group</b>	III
<b>Environmental hazards</b>	Chlorpyrifos

#### **Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE (Chlorpyrifos, Solvent naphtha (petroleum), light aromatic)
<b>UN number</b>	UN 3017
<b>Class</b>	6.1 (3)
<b>Packing group</b>	III
<b>Marine pollutant</b>	Chlorpyrifos
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

#### **Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE (Chlorpyrifos, Solvent naphtha (petroleum), light aromatic)
<b>UN number</b>	UN 3017
<b>Class</b>	6.1 (3)
<b>Packing group</b>	III

#### **Hazchem code: 2X**

This information is not intended to convey all specific regulatory or operational requirements/ information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Compliance with the above land, rail, marine and air requirements is deemed to comply with the applicable requirements of the Hazardous substances Identification and Emergency Management Regulations.
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## 15. REGULATORY INFORMATION

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**ACVMG APPROVAL NUMBER: P8826**

**HSNO Approval Code: HSR100908**

ADVICE TO PRODUCT USERS REGARDING HSNO CONTROLS: Users of this product should make reference to the New Zealand Hazardous Substances and New Organisms Act and Regulations for relevant risk management controls. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Refer to Environment Protection Authority publication; User Guide to the HSNO Controls Regulations. <http://www.epa.govt.nz>

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## 16. OTHER INFORMATION

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### Revision

Identification Number: 101204466 / A157 / Issue Date: 22.02.2018 / Version: Replaces 12.08.2015  
DAS Code: GF-2595

**Sections amended: 2, 3, 8, 11, 12, 16**

### Legend

ACGIH	American Conference of Governmental Industrial Hygienists. Threshold Limit Values (TLV)
BEI	Biological Exposure Indices
Dow IHG	Dow Industrial Hygiene Guideline
NZ BEI	New Zealand. Biological Exposure Indices
NZ OEL	New Zealand. Workplace Exposure Standards for Atmospheric Contaminants
SKIN, BEI	Absorbed via Skin, Biological Exposure Indices
STEL	Short-term exposure limit
TWA	8-hour, time-weighted average
WES-STEL	Workplace Exposure Standard - Short-Term Exposure Limit
WES-TWA	Workplace Exposure Standard - Time Weighted average

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; bw - Body weight; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; N.O.S. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SDS - Safety Data Sheet; TDG - Transportation of Dangerous Goods; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System.

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