



(Material) Safety Data Sheet
Dow AgroSciences (Australia) Ltd.

Product Name: Reldan™ Grain Protector

Issue Date: 01.08.2013

Dow AgroSciences (Australia) Ltd. 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

Reldan™ Grain Protector

Identified uses

Grain Protectant Product

COMPANY IDENTIFICATION

Dow AgroSciences (Australia) Ltd.
A Subsidiary of The Dow Chemical Company
ABN 24 003 771 659
Level 5
20 Rodborough Rd
Frenchs Forest, NSW 2086
Australia

Customer Information Number:

1800-700-096

auscustomerservice@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact:

61 3 9663 2130

Local Emergency Contact:

1800 033 882

For advice, contact a doctor (at once) or the Australian Poisons Information Centre: 131 126

Transport Emergency Only Dial 000

2. Hazards Identification

HAZARDOUS SUBSTANCES CLASSIFICATION: Classified as hazardous to health according to the criteria of the National Occupational Health and Safety Commission, Australia

May cause sensitization by skin contact.

Harmful: may cause lung damage if swallowed.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition Information

Component	Amount	Classification:	CAS #
chlorpyrifos-methyl	44.25 %	R43; N: R50, R53	5598-13-0
Aromatic hydrocarbon solvent	> 40.0 - < 50.0 %	Xn: R65;	64742-94-5
1,2,4-Trimethylbenzene	< 5.0 %	R10; R51, R53	95-63-6
Mesitylene; 1,3,5-trimethylbenzene	< 1.0 %	R10; R51, R53	108-67-8
2,3,5,6-Tetrachloropyridine	< 1.0 %		2402-79-1

4. First Aid Procedures

Consult the Poisons Information Centre (Australia 131126) 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. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye Contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: 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), no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. Chlorpyrifos-methyl is a cholinesterase inhibitor. 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). Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. 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. Skin contact may aggravate preexisting dermatitis.

5. Fire Fighting Measures

Suitable extinguishing media

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. 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: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

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 reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. 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 firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

See Section 9 for related Physical Properties

HAZCHEM: 2X•

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind 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. Refer to Section 7, Handling, for additional precautionary measures. 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.

7. Handling and Storage

Handling

General Handling: Keep out of reach of children. Keep away from heat, sparks and flame. Do not get in eyes. Do not swallow. Avoid breathing vapor or mist. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. 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.

Other Precautions: 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. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

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.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
chlorpyrifos-methyl	Dow IHG	TWA	0.1 mg/m ³ SKIN, D-SEN
1,2,4-Trimethylbenzene	EU IOELV	TWA	100 mg/m ³ 20 ppm
	ACGIH	TWA	25 ppm
	AU OEL	TWA	123 mg/m ³ 25 ppm
Mesitylene; 1,3,5-trimethylbenzene	EU IOELV	TWA	100 mg/m ³ 20 ppm
	ACGIH	TWA	25 ppm
	AU OEL	TWA	123 mg/m ³ 25 ppm
2,3,5,6-Tetrachloropyridine	Dow IHG	TWA	2 mg/m ³
	AIHA WEEL	TWA	5 mg/m ³
Naphthalene	ACGIH	TWA	10 ppm SKIN
	ACGIH	STEL	15 ppm SKIN
	AU OEL	TWA	52 mg/m ³ 10 ppm
	AU OEL	STEL	79 mg/m ³ 15 ppm
	EU IOELV	TWA	50 mg/m ³ 10 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.

A “skin” notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

A D-SEN notation following the exposure guideline refers to the potential to produce dermal sensitization, as confirmed by human or animal data.

Personal Protection

Eye/Face Protection: Use chemical goggles.

Skin 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.

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: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate (“EVAL”). Styrene/butadiene rubber. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber (“latex”). Neoprene. Nitrile/butadiene rubber (“nitrile” or “NBR”). Polyvinyl chloride (“PVC” or “vinyl”). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to AS/NZS 2161.10) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 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.

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.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: 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.

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: Recommended practices for eye protection in the industrial environment.

AS/NZS 1337: Eye protectors for industrial applications.

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

AS/NZS 2161: Occupational protective gloves.

AS/NZS 2210: Occupational protective footwear.

AS 2919: Industrial clothing.

9. Physical and Chemical Properties

Appearance

Physical State	Liquid.
Color	Yellow
Odor	Aromatic
Odor Threshold	No test data available

pH	4.58 (@ 1 %) <i>pH Electrode</i> (1% aqueous suspension)
Melting Point	Not applicable
Freezing Point	No test data available
Boiling Point (760 mmHg)	No test data available.
Flash Point - Closed Cup	> 60.5 °C
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not available
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Vapor Pressure	No test data available
Vapor Density (air = 1)	No test data available
Specific Gravity (H₂O = 1)	No test data available
Solubility in water (by weight)	emulsifiable
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Autoignition Temperature	102.7 kPa 446 °C <i>92/69/EEC A15</i> Ramped Temperature
Decomposition Temperature	No test data available
Kinematic Viscosity	5.29 mm ² /s @ 20 °C
Explosive properties	No
Oxidizing properties	no data available
Liquid Density	1.13 g/ml @ 20 °C <i>Pyknometer</i>

10. Stability and Reactivity

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: Exposure to elevated temperatures can cause product to decompose.

Generation of gas during decomposition can cause pressure in closed systems. Avoid static discharge. Avoid direct sunlight.

Incompatible Materials: Avoid contact with: Bases. Oxidizers.

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: Carbon monoxide. Carbon dioxide.

Hydrogen chloride. Organic sulfides. Sulfur dioxide. Toxic gases are released during decomposition.

11. Toxicological Information

Acute Toxicity

Ingestion

Low 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.

As product: LD₅₀, rat, male > 2,000 mg/kg

As product: LD₅₀, rat, female 3,162 mg/kg

Aspiration hazard

Aspiration into the lungs may occur during ingestion or vomiting, resulting in rapid absorption and injury to other body systems.

Dermal

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

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

Inhalation

Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). May cause central nervous system effects.

As product: LC50, 4 h, rat, male and female > 6.654 mg/l

Eye damage/eye irritation

May cause moderate eye irritation which may be slow to heal. May cause slight corneal injury. May cause permanent impairment of vision, even blindness.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness. May cause drying and flaking of the skin. Effects may be slow to heal.

Sensitization

Skin

Has caused allergic skin reactions when tested in guinea pigs.

Respiratory

No relevant data found.

Repeated Dose Toxicity

For the active ingredient(s): 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. Liver. For the solvent(s): Excessive exposure to solvent(s) may cause respiratory irritation and central nervous system depression. In animals, effects have been reported on the following organs: Lung. Gastrointestinal tract. Thyroid. Urinary tract. Respiratory tract. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Chronic Toxicity and Carcinogenicity

Active ingredient did not cause cancer in laboratory animals. Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

Developmental Toxicity

For the active ingredient(s): High doses fed to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. No abnormalities have been observed in other species under similar test conditions. For the minor component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals. For the solvent(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive Toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction.

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were negative. For the solvent(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. For the component(s) tested: Animal genetic toxicity studies were negative.

12. Ecological Information

Toxicity

Data for Component: chlorpyrifos-methyl

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species). Material is slightly toxic to birds on a dietary basis (LC50 between 1001 and 5000 ppm). Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Fish Acute & Prolonged Toxicity

LC50, *Oncorhynchus mykiss* (rainbow trout), 96 h: 0.41 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, *Daphnia magna* (Water flea), 48 h: 0.00062 mg/l

Aquatic Plant Toxicity

EbC50, Pseudokirchneriella subcapitata (green algae), 96 h: 0.54 mg/l

Fish Chronic Toxicity Value (ChV)

rainbow trout (Oncorhynchus mykiss), 21 d: 0.0047 mg/l, NOEC: 0.0047 mg/l

Aquatic Invertebrates Chronic Toxicity Value

water flea Daphnia magna, 21 d, Immobilization: 0.00001 mg/l, NOEC: 0.00001 mg/l

Toxicity to Above Ground Organisms

oral LD50, Colinus virginianus (Bobwhite quail): 923 mg/kg bodyweight.

dietary LC50, Colinus virginianus (Bobwhite quail): 2010 mg/kg diet.

oral LD50, Apis mellifera (bees): 0.11 ug/bee

contact LD50, Apis mellifera (bees): 0.152 ug/bee

Toxicity to Soil Dwelling Organisms

LC50, Eisenia fetida (earthworms), 14 d: 182 mg/kg

Data for Component: Solvent naphtha (petroleum), heavy arom.: Kerosine - unspecified

For similar material(s): Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

Fish Acute & Prolonged Toxicity

For similar material(s): LC50, Oncorhynchus mykiss (rainbow trout), 96 h: 2 - 5 mg/l

Aquatic Invertebrate Acute Toxicity

For similar material(s): EC50, Daphnia magna (Water flea), 48 h: 3 - 10 mg/l

Aquatic Plant Toxicity

For similar material(s): EC50, Pseudokirchneriella subcapitata (green algae), 72 h: 11 mg/l

Data for Component: 1,2,4-Trimethylbenzene

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

Fish Acute & Prolonged Toxicity

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 h: 7.7 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, Daphnia magna (Water flea), 48 h: 3.6 mg/l

Data for Component: Mesitylene; 1,3,5-trimethylbenzene

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

Fish Acute & Prolonged Toxicity

LC50, Carassius auratus (goldfish), flow-through test, 96 h: 12.5 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, Daphnia magna (Water flea), static test, 48 h, mortality: 6 mg/l

Aquatic Plant Toxicity

EbC50, alga Scenedesmus sp., biomass growth inhibition, 48 h: 25 mg/l

Aquatic Invertebrates Chronic Toxicity Value

Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, NOEC: 0.4 mg/l

Data for Component: 2,3,5,6-Tetrachloropyridine

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

Fish Acute & Prolonged Toxicity

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 h: 1.5 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, Daphnia magna (Water flea), 48 h, immobilization: 1.93 mg/l

Aquatic Plant Toxicity

ErC50, Pseudokirchneriella subcapitata (green algae), Growth rate inhibition, 72 h: 11.7 mg/l

Persistence and Degradability**Data for Component: chlorpyrifos-methyl**

Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%). 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.

Stability in Water (1/2-life):

2.2 - 3.6 d

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
25 %	28 d	OECD 301D Test	fail

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
6.1E-11 cm ³ /s	2.11 h	Estimated.

Theoretical Oxygen Demand: 2.08 mg/mg**Data for Component: Solvent naphtha (petroleum), heavy arom.; Kerosine - unspecified**

Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

Data for Component: 1,2,4-Trimethylbenzene

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
4 - 18 %	28 d	OECD 301C Test	Not applicable

Data for Component: Mesitylene; 1,3,5-trimethylbenzene

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.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
0 %	28 d	OECD 301C Test	Not applicable
50 %	4.4 d	Calculated	Not applicable

Data for Component: 2,3,5,6-Tetrachloropyridine

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
	685 d	Estimated.

Theoretical Oxygen Demand: 0.81 mg/mg**Bioaccumulative potential****Data for Component: chlorpyrifos-methyl**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient, n-octanol/water (log Pow): 4**Bioconcentration Factor (BCF):** 1,800; Oncorhynchus mykiss (rainbow trout)**Data for Component: Solvent naphtha (petroleum), heavy arom.; Kerosine - unspecified**

Bioaccumulation: For similar material(s): Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Partition coefficient, n-octanol/water (log Pow): 2.9 - 6.1 Measured**Data for Component: 1,2,4-Trimethylbenzene**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 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); Measured

Data for Component: **Mesitylene; 1,3,5-trimethylbenzene**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 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

Data for Component: **2,3,5,6-Tetrachloropyridine**

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

Partition coefficient, n-octanol/water (log Pow): 3.32 Measured

Mobility in soil

Data for Component: **chlorpyrifos-methyl**

Mobility in soil: Potential for mobility in soil is slight (Koc between 2000 and 5000).

Partition coefficient, soil organic carbon/water (Koc): 1,189 - 8,100 **Henry's Law Constant (H):** 2.35E-01 Pa*m³/mole.; 20 °C

Data for Component: **Solvent naphtha (petroleum), heavy arom.; Kerosine - unspecified**

Mobility in soil: No relevant data found.

Data for Component: **1,2,4-Trimethylbenzene**

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000).

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

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

Data for Component: **Mesitylene; 1,3,5-trimethylbenzene**

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000).

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

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

Data for Component: **2,3,5,6-Tetrachloropyridine**

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

Partition coefficient, soil organic carbon/water (Koc): 240 Estimated.

Henry's Law Constant (H): 2.34E-04 - 3.31E-03 atm*m³/mole; 25 °C Estimated.

13. Disposal Considerations

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.

14. Transport Information

ROAD AND RAIL TRANSPORT:

Not dangerous goods under the ADG code when being transported in IBCs or other receptacles < 500 L (kg), (Special Provision AU01).

IMDG

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: Chlorpyrifos-Methyl

Hazard Class: 9 **ID Number:** UN3082 **Packing Group:** PG III

EMS Number: F-A,S-F

Marine pollutant.: Yes

ICAO/IATA

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: Chlorpyrifos-Methyl**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III**Cargo Packing Instruction:** 964**Environmental Hazard:** Yes

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. 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.

15. Regulatory Information

APVMA Approval Number: 56177**Poison Schedule:** S6

16. Other Information

Risk-phrases in the Composition section

R10	Flammable.
R43	May cause sensitization by skin contact.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.

Revision

Identification Number: 66888 / 4069

Version: Replaces 20.09.11

DAS Code: EF-1531

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation

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