

Product name: LORSBAN® 500 EC Insecticide**Issue Date: 6.01.2021**

CORTEVA AGRISCIENCE AUSTRALIA LIMITED encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container.

SECTION 1: IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

Product name: Lorsban® 500 EC Insecticide**Recommended use of the chemical and restrictions on use****Identified uses:** End use insecticide product**COMPANY IDENTIFICATION**

CORTEVA AGRISCIENCE AUSTRALIA LIMITED
LEVEL 9, 67 ALBERT AVENUE
CHATSWOOD NSW 2067
AUSTRALIA

Customer Information Number:

1800-700-096
aucustomerservice@corteva.com

EMERGENCY TELEPHONE NUMBER**24-Hour Emergency Contact:** +61 2 9474 7350**Local Emergency Contact:** 1800-370-754**For advice, contact a doctor (at once) or the Australian Poisons Information Centre: 131 126**
Transport Emergency Only Dial 000

SECTION 2: HAZARD(S) IDENTIFICATION

GHS Classification

Flammable liquids - Category 4

Acute toxicity - Category 4 - Oral

Serious eye damage/eye irritation - Category 1

Carcinogenicity - Category 2

Aspiration hazard - Category 1

Acute aquatic toxicity - Category 1

Chronic aquatic toxicity - Category 1

GHS label elements**Hazard pictograms**



Signal word: **DANGER!**

Hazard statements

Combustible liquid.
 Harmful if swallowed.
 May be fatal if swallowed and enters airways.
 Causes serious eye damage.
 Suspected of causing cancer.
 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

Obtain special instructions before use.
 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
 Avoid release to the environment.
 Wear protective gloves/ eye protection/ face protection.
 Use personal protective equipment as required.

Response

IF SWALLOWED: Immediately call a POISON CENTER/doctor.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
 IF exposed or concerned: Get medical advice/ attention.
 Do NOT induce vomiting.
 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Other hazards

No data available

SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

This product is a mixture.

Component	CASRN	Concentration
Chlorpyrifos	2921-88-2	45.87 %
Heavy aromatic naphtha	64742-94-5	> 40.0 - < 50.0 %
Naphthalene	91-20-3	< 5.0 %
Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	68953-96-8	< 5.0 %
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	< 5.0 %
1,2,4-Trimethylbenzene	95-63-6	< 5.0 %

SECTION 4: FIRST AID MEASURES

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 centre or doctor for treatment advice. Wash clothing before re-use. 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: 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 centre or doctor for treatment advice. 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 centre 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: This material is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). 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). Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Maintain adequate ventilation and oxygenation of the patient. If hemolysis is suspected, monitor hemoglobin, hematocrit, plasma free hemoglobin, and urinalysis. Whole blood or packed RBC transfusion may be required in severe cases. Alkalinization of urine with bicarbonate may prevent renal damage. 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. If burn is present, treat as any thermal burn, after decontamination. 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. Excessive exposure may aggravate preexisting asthma and other respiratory

disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Skin contact may aggravate pre-existing dermatitis.

SECTION 5: FIREFIGHTING MEASURES

Hazchem Code: •2X

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.

Unsuitable extinguishing media: No data available

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 re-ignition 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 fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting 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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

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 upwind of spill. Ventilate area of leak or spill. No smoking in area. 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 Corteva Agriscience for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

SECTION 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling: Keep away from heat, sparks and flame. Containers, even those that have been emptied, can contain vapours. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Keep out of reach of children. Avoid contact with eyes, skin, and clothing. Do not swallow. Avoid breathing vapour or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

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.

SECTION 8: EXPOSURE CONTROLS AND 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 ³ SKIN, BEI
Heavy aromatic naphtha	AU OEL	TWA	0.2 mg/m ³ SKIN
	Dow IHG	TWA	100 mg/m ³
Naphthalene	Dow IHG	STEL	300 mg/m ³
	ACGIH	TWA	10 ppm SKIN
	Dow IHG	TWA	10 ppm SKIN
	Dow IHG	STEL	15 ppm SKIN
	AU OEL	TWA	52 mg/m ³ 10 ppm
Solvent naphtha (petroleum), heavy aromatic	AU OEL	STEL	79 mg/m ³ 15 ppm
	Dow IHG	TWA	100 mg/m ³
1,2,4-Trimethylbenzene	Dow IHG	STEL	300 mg/m ³
	ACGIH	TWA	25 ppm
	AU OEL	TWA	123 mg/m ³ 25 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.

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. If exposure causes eye discomfort, use a full-face respirator.

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 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.

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 vapour 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 Set

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid.
Colour	Yellow
Odour	Solvent
Odour Threshold	No data available
pH	No test data available
Melting point/range	No test data available
Freezing point	No test data available

Boiling point (760 mmHg)	183 °C <i>Vendor Solvent</i>
Flash point - closed cup	67 °C <i>Pensky-Martens Closed Cup ASTM D 93</i>
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	0.6 % vol <i>Vendor Solvent</i>
Upper explosion limit	7.0 % vol <i>Vendor Solvent</i>
Vapour Pressure	26 mmHg at 38 °C <i>Vendor Solvent</i>
Relative Vapour Density (air = 1)	No test data available
Relative Density (water = 1)	1.075 at 20 °C
Water solubility	Emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Liquid density	1.090 g/cm ³ <i>CIPAC MT 3</i>
Molecular weight	No data available

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

SECTION 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.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

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 serious injury, even death.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s): LD50, Rat, 450 mg/kg Estimated.

Acute dermal toxicity

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

As product: The dermal LD50 has not been determined.

Based on information for component(s): LD50, Rabbit, > 5,000 mg/kg Estimated.

Acute inhalation toxicity

Prolonged excessive exposure to mist may cause adverse effects. May cause central nervous system effects. Symptoms of excessive exposure may be anaesthetic or narcotic effects; dizziness and drowsiness may be observed. Signs and symptoms of excessive exposure may include:

Nausea and/or vomiting.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Serious eye damage/eye irritation

May cause moderate eye irritation which may be slow to heal.

May cause corneal injury.

Vapour may cause eye irritation experienced as mild discomfort and redness.

Sensitization

For the active ingredient(s): Did not cause allergic skin reactions when tested in guinea pigs.

For the solvent(s): Did not cause allergic skin reactions when tested in humans.

For the minor component(s): Skin contact may cause an allergic skin reaction in a small proportion of individuals.

For respiratory sensitization: No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

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, diarrhoea, 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.

For the solvent(s): In animals, effects have been reported on the following organs: Gastrointestinal tract. Thyroid. Urinary tract. Lung.
Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

For the minor component(s): Excessive exposure may cause haemolysis, thereby impairing the blood's ability to transport oxygen.
Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapour or dust.
Ingestion of naphthalene by humans has caused haemolytic anaemia.
In animals, effects have been reported on the following organs: Respiratory tract.

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.

Teratogenicity

For the active ingredient(s): Has been toxic to the foetus 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 foetal effects in laboratory animals.

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.

Mutagenicity

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

Aspiration Hazard

May be fatal if swallowed and enters airways.

COMPONENTS INFLUENCING TOXICOLOGY:

Chlorpyrifos

Acute inhalation toxicity

At room temperature, exposure to vapour is minimal due to low volatility; single exposure is not likely to be hazardous. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

LC50, Rat, 4 Hour, vapour, > 0.2 mg/l. Maximum attainable concentration. No deaths occurred at this concentration.

Heavy aromatic naphtha

Acute inhalation toxicity

LC50, Rat, 4 Hour, dust/mist, > 4.8 mg/l

LC50, Rat, 4 Hour, vapour, > 0.2 mg/l. No deaths occurred following exposure to a saturated atmosphere.

Naphthalene**Acute inhalation toxicity**

Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Excessive exposure may cause lung injury. Signs and symptoms of excessive exposure may include: Headache. Confusion. Sweating. Nausea and/or vomiting.

LC50, Rat, 4 Hour, vapour, > 0.41 mg/l. The LC50 value is greater than the Maximum Attainable Concentration.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts**Acute inhalation toxicity**

The LC50 has not been determined.

Solvent naphtha (petroleum), heavy aromatic**Acute inhalation toxicity**

For similar material(s): LC50, Rat, 4 Hour, dust/mist, > 4.778 mg/l

1,2,4-Trimethylbenzene**Acute inhalation toxicity**

Prolonged excessive exposure may cause serious adverse effects, even death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects. Symptoms of excessive exposure may be anaesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, Rat, 4 Hour, vapour, 18 mg/l

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity**Chlorpyrifos****Acute toxicity to fish**

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

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.003 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 0.00068 mg/l

Acute toxicity to algae/aquatic plants

EC50, Skeletonema costatum (marine diatom), 96 Hour, Growth inhibition (cell density reduction), 0.255 - 0.328 mg/l

Toxicity to bacteria

EC50, activated sludge, > 100 mg/l

Chronic toxicity to fish

NOEC, Pimephales promelas (fathead minnow), 216 d, 0.000568 mg/l

MATC (Maximum Acceptable Toxicant Level), Pimephales promelas (fathead minnow), 216 d, 0.00226 - 0.00325 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), number of offspring, 0.000056 mg/l

MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), number of offspring, 0.000075 mg/l

Toxicity to Above Ground Organisms

Material is highly toxic to birds on a dietary basis (LC50 between 50 and 500 ppm).

Oral LD50, Other, 122mg/kg bodyweight.

Dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, 423 mg/kg diet.

Oral LD50, Apis mellifera (bees), 48 Hour, 0.36 micrograms/bee

Contact LD50, Apis mellifera (bees), 48 Hour, 0.070 micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, 129 mg/kg

Heavy aromatic naphtha**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Gambusia affinis (Mosquito fish), 96 Hour, 811 mg/l

Acute toxicity to algae/aquatic plants

EC50, Algae, 72 Hour, 21 - 165 mg/l

Naphthalene**Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.11 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 1.6 - 24.1 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Skeletonema costatum (marine diatom), Growth rate inhibition, 72 Hour, 0.4 mg/l

Chronic toxicity to fish

NOEC, Other, flow-through, 40 d, mortality, 0.37 mg/l

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

For similar material(s):

LC50, zebra fish (Brachydanio rerio), 96 Hour, 31.6 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 62 mg/l

Acute toxicity to algae/aquatic plants

For similar material(s): ErC50, Selenastrum capricornutum (green algae), 96 Hour, Growth rate inhibition, 29 mg/l

Toxicity to bacteria

For similar material(s): EC50, activated sludge, 3 Hour, Respiration rates., 550 mg/l

Chronic toxicity to fish

For similar material(s): NOEC, Rainbow trout (*Salmo gairdneri*), 72 d, survival, 0.23 mg/l

Chronic toxicity to aquatic invertebrates

For similar material(s): NOEC, *Daphnia magna* (Water flea), 21 d, number of offspring, 1.18 mg/l

Solvent naphtha (petroleum), heavy aromatic**Acute toxicity to fish**

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

EC50, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, 3.6 mg/l

Acute toxicity to aquatic invertebrates

For similar material(s): EC50, *Daphnia magna* (Water flea), semi-static test, 48 Hour, 1.1 mg/l

Acute toxicity to algae/aquatic plants

For similar material(s): EC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, 7.9 mg/l

1,2,4-Trimethylbenzene**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

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

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), 48 Hour, 3.6 mg/l

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

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	0.000 %

Stability in Water (1/2-life): Hydrolysis, half-life, 72 d

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 1.4 Hour

Method: Estimated.

Heavy aromatic naphtha

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

Naphthalene

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Theoretical Oxygen Demand: 3.00 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	57.0 %
10 d	71.0 %
20 d	71.0 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 5.9 Hour

Method: Estimated.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

Biodegradability: 10-day Window: Fail

Biodegradation: 2.9 %

Exposure time: 28 d

Method: OECD Test Guideline 301E or Equivalent

Solvent naphtha (petroleum), heavy aromatic

Biodegradability: For similar material(s): Biodegradation may occur under aerobic conditions (in the presence of oxygen). 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.

1,2,4-Trimethylbenzene

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

10-day Window: Not applicable

Biodegradation: 4 - 18 %

Exposure time: 28 d

Method: OECD Test Guideline 301C or Equivalent

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.

Bioaccumulative potential**Chlorpyrifos**

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

Partition coefficient: n-octanol/water (log Pow): 4.7 at 20 °C Estimated.

Heavy aromatic naphtha

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

Naphthalene

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

Partition coefficient: n-octanol/water (log Pow): 3.3 Measured

Bioconcentration factor (BCF): 40 - 300 Fish 28 d Measured

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

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

Partition coefficient: n-octanol/water (log Pow): 4.6 OECD Test Guideline 107 or Equivalent

Solvent naphtha (petroleum), heavy aromatic

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

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) 56 d Measured

Mobility in Soil**Chlorpyrifos**

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient (Koc): 8151

Heavy aromatic naphtha

No relevant data found.

Naphthalene

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

Partition coefficient (Koc): 240 - 1300 Measured

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

No relevant data found.

Solvent naphtha (petroleum), heavy aromatic

No data available.

1,2,4-Trimethylbenzene

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

Partition coefficient (Koc): 720 Estimated.

Results of PBT and vPvB assessment**Chlorpyrifos**

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

Heavy aromatic naphtha

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

Naphthalene

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

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

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

Solvent naphtha (petroleum), heavy aromatic

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

1,2,4-Trimethylbenzene

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

Other adverse effects

Chlorpyrifos

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Heavy aromatic naphtha

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Naphthalene

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Solvent naphtha (petroleum), heavy aromatic

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

1,2,4-Trimethylbenzene

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

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.

SECTION 14: TRANSPORT INFORMATION

ADG

Proper shipping name	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC (Chlorpyrifos)
UN number	UN 3018
Class	6.1
Packing group	III
Marine pollutant	Chlorpyrifos

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC (Chlorpyrifos)
UN number	UN 3018
Class	6.1
Packing group	III
Marine pollutant	Chlorpyrifos
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC (Chlorpyrifos)
UN number	UN 3018
Class	6.1
Packing group	III

Hazchem Code: •2X**Further information:**

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.

SECTION 15: REGULATORY INFORMATION

Poison Schedule: S6**APVMA Approval Number:** 32887

SECTION 16: ANY OTHER RELEVANT INFORMATION

Revision

Identification Number: 101194912 / A143 / Issue Date: 6.01.2021 / Replaces: 03.04.2020

DAS Code: GF-176

Sections amended: 1, 15, 16

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
AU OEL	Australia. Workplace Exposure Standards for Airborne Contaminants.
Dow IHG	Dow Industrial Hygiene Guideline
SKIN	Absorbed via skin
SKIN, BEI	Absorbed via Skin, Biological Exposure Indice
STEL	Short term exposure limit
TWA	Exposure standard - time weighted average

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; 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; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; 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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