

Product Name: LOCK-ON* Insecticide**Issue Date:** 11/02/2007**Print Date:** 04 Apr 2008

Dow AgroSciences LLC 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

LOCK-ON* Insecticide

COMPANY IDENTIFICATION

Dow AgroSciences LLC

A Subsidiary of The Dow Chemical Company

9330 Zionsville Road

Indianapolis, IN 46268-1189

USA

Customer Information Number:

800-992-5994

EMERGENCY TELEPHONE NUMBER**24-Hour Emergency Contact:**

800-992-5994

Local Emergency Contact:

800-992-5994

2. Hazards Identification

Emergency Overview**Color:** Yellow**Physical State:** Liquid**Odor:** Obnoxious**OSHA Hazard Communication Standard**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects**Eye Contact:** May cause moderate eye irritation. Corneal injury is unlikely.**Skin Contact:** Brief contact is essentially nonirritating to skin.**Skin Absorption:** Prolonged skin contact is unlikely to result in absorption of harmful amounts.**Inhalation:** Prolonged excessive exposure to mist may cause serious adverse effects, even death. Mist may cause irritation of upper respiratory tract (nose and throat) and lungs.**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. Excessive exposure may produce organophosphate type cholinesterase inhibition.

* Indicates a Trademark

* Indicates a Trademark of Dow AgroSciences LLC

Effects of 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, 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. For the major component(s): In animals, effects have been reported on the following organs: Liver. Kidney. Blood. For the minor component(s): Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

Birth Defects/Developmental Effects: For the active ingredient(s): Has been toxic to the fetus in lab animals at doses toxic to the mother. For the major component(s): Has been toxic to the fetus in lab animals at doses toxic to the mother. Has caused birth defects in lab animals only at doses producing severe toxicity in the mother.

Reproductive Effects: 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. For the major component(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

3. Composition Information

Component	CAS #	Amount
Chlorpyrifos	2921-88-2	22.9 %
Polypropylene glycol	25322-69-4	52.4 %
1,2,4-Trimethylbenzene	95-63-6	5.4 %
1,3,5-Trimethylbenzene	108-67-8	1.4 %
Solvent naphtha (petroleum), light aromatic	64742-95-6	0.7 %
Methanol	67-56-1	0.6 %
Xylene	1330-20-7	0.2 %
Heavy aromatic naphtha	64742-94-5	0.06 %
Balance		15.1 %

4. First-aid measures

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.

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.

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.

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.

Notes to Physician: 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. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). 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). In cases where several ounces (60 - 100 ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. 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.

5. Fire Fighting Measures

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.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. 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. Eliminate ignition sources. 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). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Dense smoke is produced when product burns.

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.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Pump with explosion-proof equipment. If available, use foam to smother or suppress. 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.

Personal Precautions: 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.

7. Handling and Storage

Handling

General Handling: No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Electrically ground and bond all equipment. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. 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. Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling.

Storage

Keep away from sources of ignition. Store in original container. Keep container tightly closed. Do not store near food, foodstuffs, drugs or potable water supplies.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Chlorpyrifos	ACGIH	TWA Inhalable fraction and vapor	0.1 mg/m3 SKIN, BEI
1,3,5-Trimethylbenzene	ACGIH	TWA	25 ppm
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm
Polypropylene glycol	WEEL	TWA Aerosol.	10 mg/m3
Methanol	ACGIH	TWA	200 ppm SKIN, BEI
	ACGIH	STEL	250 ppm SKIN, BEI
	OSHA Table Z-1	PEL	260 mg/m3 200 ppm
Xylene	ACGIH	TWA	100 ppm BEI
	ACGIH	STEL	150 ppm BEI
	OSHA Table Z-1	PEL	435 mg/m3 100 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 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 BEI notation following the exposure guideline refers to a guidance value for assessing biological monitoring results as an indicator of the uptake of a substance from all routes of exposures.

Personal Protection

Eye/Face Protection: Use chemical goggles.

Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. 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. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands 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.

9. Physical and Chemical Properties

Physical State	Liquid
Color	Yellow
Odor	Obnoxious
Flash Point - Closed Cup	38.6 °C (101.5 °F) <i>Tag Closed Cup ASTM D56</i>
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Autoignition Temperature	No test data available
Vapor Pressure	<= 10 mmHg @ 20 °C <i>Literature</i>
Boiling Point (760 mmHg)	137 - 140 °C (279 - 284 °F) <i>Literature</i> (xylene).
Vapor Density (air = 1)	No test data available
Specific Gravity (H ₂ O = 1)	1.0467 <i>Literature</i>
Liquid Density	1.05 g/cm ³ <i>Calculated</i>
Freezing Point	No test data available
Melting Point	No test data available
Solubility in Water (by weight)	emulsifiable
pH	5.3 <i>pH Electrode</i>

10. Stability and Reactivity

Stability/Instability

Unstable at elevated temperatures.

Conditions to Avoid: Avoid temperatures above 50 °C (122 °F). Can coagulate if frozen. Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid static discharge.

Incompatible Materials: Avoid contact with: Bases. Oxidizers. Strong acids. Addition of chemicals may cause phase separation.

Hazardous Polymerization

Will not occur.

Thermal Decomposition

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. Nitrogen oxides. Sulfur dioxide. Toxic gases are released during decomposition.

11. Toxicological Information

Acute Toxicity

Ingestion

LD50, Rat, male 1,414 mg/kg

LD50, Rat, female 803 mg/kg

Skin Absorption

LD50, Rabbit, male and female > 5,000 mg/kg

Inhalation

LC50, 4 h, Aerosol, Rat, female 2.94 mg/l

Sensitization

Skin

Did not cause allergic skin reactions when tested in guinea pigs.

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. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. For the major component(s): In animals, effects have been reported on the following organs: Liver. Kidney. Blood. For the minor component(s): Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

Chronic Toxicity and Carcinogenicity

Active ingredient did not cause cancer in laboratory animals.

Developmental Toxicity

For the active ingredient(s): Has been toxic to the fetus in lab animals at doses toxic to the mother. Active ingredient did not cause birth defects in laboratory animals. For the major component(s): Has been toxic to the fetus in lab animals at doses toxic to the mother. Has caused birth defects in lab animals only at doses producing severe toxicity in the mother.

Reproductive Toxicity

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. For the major component(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Genetic Toxicology

For the active ingredient(s): No relevant information found. For the major component(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. For the major component(s): Animal genetic toxicity studies were negative.

12. Ecological Information

CHEMICAL FATE

Data for Component: **Chlorpyrifos**

Movement & Partitioning

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Expected to be relatively immobile in soil ($K_{oc} > 5000$).

Henry's Law Constant (H): 6.6E-6 atm*m3/mole Measured

Partition coefficient, n-octanol/water (log Pow): 4.96 Measured

Partition coefficient, soil organic carbon/water (Koc): 1,259 - 12,589 Measured

Bioconcentration Factor (BCF): 180; invertebrate; Measured
100 - 1,673; fish; Measured

Persistence and Degradability

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

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
91.6678E-12 cm3/s	1.4 h	Estimated

Stability in Water (1/2-life):

7 - 14 d

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
0 %			

Data for Component: **Polypropylene glycol**

Persistence and Degradability

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

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

Movement & Partitioning

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Potential for mobility in soil is low (K_{oc} between 500 and 2000).

Persistence and Degradability

Material is not readily biodegradable according to OECD/EC guidelines. Biodegradation rate may increase in soil and/or water with acclimation.

Data for Component: **1,3,5-Trimethylbenzene**

Movement & Partitioning

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Potential for mobility in soil is low (K_{oc} between 500 and 2000).

Henry's Law Constant (H): 1.97E-2 atm*m3/mole; 25 °C Estimated

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

Partition coefficient, soil organic carbon/water (Koc): 700 Estimated

Bioconcentration Factor (BCF): 23 - 342; fish; Measured

Persistence and Degradability

Material is not readily biodegradable according to OECD/EC guidelines. Biodegradation rate may increase in soil and/or water with acclimation.

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
3.51E-11 cm3/s	3.7 h	Estimated

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
0 %	28 d	OECD 301C Test
Biological oxygen demand (BOD):		
BOD 5	BOD 10	BOD 20
3.1 %		

Theoretical Oxygen Demand: 3.19 mg/mg

Data for Component: **Solvent naphtha (petroleum), light aromatic**

Movement & Partitioning

For the major component(s): Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Potential for mobility in soil is low (Koc between 500 and 2000). For the minor component(s): Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Persistence and Degradability

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%).

Data for Component: **Methanol**

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).

Henry's Law Constant (H): 4.4E-6 - 6.945E-6 atm*m3/mole; 25 °C Measured

Partition coefficient, n-octanol/water (log Pow): -0.77 Measured

Partition coefficient, soil organic carbon/water (Koc): 0.44 Estimated

Bioconcentration Factor (BCF): < 10; fish; Measured

Persistence and Degradability

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

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
6.16E-13 cm3/s	8 - 18 d	Estimated

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
99 %	28 d	OECD 301D Test
Biological oxygen demand (BOD):		
BOD 5	BOD 10	BOD 20
72 %		79 %

Chemical Oxygen Demand: 1.49 mg/mg

Theoretical Oxygen Demand: 1.50 mg/mg

Data for Component: **Xylene**

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is medium (Koc between 150 and 500).

Henry's Law Constant (H): 7.45E-3 atm*m3/mole; 25 °C Estimated

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

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

Bioconcentration Factor (BCF): 15 - 21; fish; Measured

Persistence and Degradability

Material is expected to be readily biodegradable.

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
6.5E-12 cm3/s	19.7 h	Estimated

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
37 %	58 %	72 %	

Theoretical Oxygen Demand: 3.17 mg/mg

Data for Component: **Heavy aromatic naphtha****Movement & Partitioning**

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

Bioconcentration Factor (BCF): 61 - 159; fish

Persistence and Degradability

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.

ECOTOXICITYData for Component: **Chlorpyrifos**

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in most sensitive species). Material is highly toxic to birds on a dietary basis (LC50 between 50 and 500 ppm). Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg).

Fish Acute & Prolonged Toxicity

LC50, bluegill (*Lepomis macrochirus*): 0.0017 - 0.0042 mg/l

LC50, rainbow trout (*Oncorhynchus mykiss*), 96 h: 0.0030 - 0.0085 mg/l

LC50, fathead minnow (*Pimephales promelas*), static, 96 h: 0.1 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 48 h: 0.00068 mg/l

Aquatic Plant Toxicity

EC50, alga *Scenedesmus* sp., biomass growth inhibition, 96 h: 0.48 mg/l

EC50, diatom *Skeletonema costatum*, Growth inhibition (cell density reduction), 96 h: 0.255 - 0.328 mg/l

Toxicity to Micro-organisms

EC50; activated sludge, respiration inhibition: > 100 mg/l

Toxicity to Non-mammalian Terrestrial Species

dietary LC50, bobwhite (*Colinus virginianus*): 423 ppm

dietary LC50, mallard (*Anas platyrhynchos*): 591 ppm

oral LD50, Honey bee (*Apis mellifera*): 0.36 micrograms/bee

contact LD50, Honey bee (*Apis mellifera*): 0.07 micrograms/bee

Toxicity to Soil Dwelling Organisms

LC50, Earthworm *Eisenia foetida*, adult, 14 d: 0.214 mg/kg

Data for Component: **Polypropylene glycol**

Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).

Fish Acute & Prolonged Toxicity

LC50, bluegill (*Lepomis macrochirus*), static, 96 h: 1,700 mg/l

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

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

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (*Pimephales promelas*): 7.7 mg/l

LC50, rainbow trout (*Oncorhynchus mykiss*), static, 24 h: 5 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 48 h: 3.6 mg/l

LC50, grass shrimp (*Palaemonetes pugio*), 96 h, survival: 5.4 mg/l

Data for Component: **1,3,5-Trimethylbenzene**

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

Fish Acute & Prolonged Toxicity

LC50, Japanese medaka (*Oryzias latipes*): 8.6 mg/l

LC50, goldfish (*Carassius auratus*), flow-through, 96 h: 12.52 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, water flea *Daphnia magna*: 50 mg/l

EC50, water flea *Daphnia magna*, static, 24 h, immobilization: 50 mg/l

Aquatic Plant Toxicity

EC50, alga *Scenedesmus* sp., biomass growth inhibition, 48 h: 25 mg/l

Data for Component: **Solvent naphtha (petroleum), light aromatic**

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

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), 96 h: 9.22 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, saltwater mysid *Mysidopsis bahia*, 96 h: 2.0 mg/l

Toxicity to Non-mammalian Terrestrial Species

dietary LC50, bobwhite (*Colinus virginianus*): > 6,500 ppm

oral LD50, bobwhite (*Colinus virginianus*): > 2,250 mg/kg

Data for Component: **Methanol**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*): 17,000 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, water flea *Daphnia magna*: > 10,000 mg/l

Toxicity to Micro-organisms

IC50; activated sludge, respiration inhibition, 3 h: > 1,000 mg/l

Data for Component: **Xylene**

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

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), 96 h: 9.2 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, water flea *Daphnia magna*, 48 h: 14.3 mg/l

Aquatic Plant Toxicity

EC50, green alga *Selenastrum capricornutum*, biomass growth inhibition, 72 h: 3.2 - 4.9 mg/l

Data for Component: **Heavy aromatic naphtha**

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). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm). Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), static renewal, 96 h: 2.34 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static renewal, 48 h, immobilization: 0.95 mg/l

Toxicity to Non-mammalian Terrestrial Species

dietary LC50, bobwhite (*Colinus virginianus*): > 6,500 ppm

oral LD50, bobwhite (*Colinus virginianus*): > 2,250 mg/kg

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. If the material as supplied becomes a waste, follow all applicable regional, national and local laws. 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.

14. Transport Information

DOT Non-Bulk

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.

Technical Name: XYLENE

Hazard Class: 3 ID Number: UN1993 Packing Group: PG III

DOT Bulk

Proper Shipping Name: FLAMMABLE LIQUID, NOS

Technical Name: XYLENE

Hazard Class: 3 ID Number: UN1993 Packing Group: PG III

IMDG

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.

Technical Name: XYLENE

Hazard Class: 3 ID Number: UN1993 Packing Group: PG III

EMS Number: F-E,S-E

Marine pollutant.: No

Marine pollutant.: Yes

ICAO/IATA

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.

Technical Name: XYLENE

Hazard Class: 3 ID Number: UN1993 Packing Group: PG III

Cargo Packing Instruction: 310

Passenger Packing Instruction: 309

Additional Information

Reportable quantity: 435 lb – CHLORPYRIFOS, 5,000 lb – XYLENE

Additional Information

CHLORPYRIFOS

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

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	Yes
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Component	CAS #	Amount
Xylene	1330-20-7	0.2%
1,2,4-Trimethylbenzene	95-63-6	5.4%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Xylene	1330-20-7	0.2%
Chlorpyrifos	2921-88-2	22.9%
1,2,4-Trimethylbenzene	95-63-6	5.4%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

The following product components are cited in the Pennsylvania Special Hazardous Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Xylene	1330-20-7	0.2%
Chlorpyrifos	2921-88-2	22.9%
1,3,5-Trimethylbenzene	108-67-8	1.4%

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

Component	CAS #	Amount
Chlorpyrifos	2921-88-2	22.9%
Xylene	1330-20-7	0.2%

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Toxic Substances Control Act (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA - Domestic Substances List (DSL)**16. Other Information****Hazard Rating System**

NFPA	Health	Fire	Reactivity
	2	1	0

Revision

Identification Number: 52378 / 1016 / Issue Date 11/02/2007 / Version: 3.0

DAS Code: XRM-4656

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
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

Dow AgroSciences LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.