

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

LOCK-ON* INSECTICIDE

Effective Date: 10/18/00
Product Code: 08774
MSDS: 002665

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Lock-on* Insecticide

COMPANY IDENTIFICATION:

Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Chlorpyrifos: O,O-diethyl-O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate	CAS # 002921-88-2	22.9%
Inert Ingredients, Total, Including:		77.1%
Xylene	CAS # 001330-20-7	
Polyglycol P2000	CAS # 025322-69-4	

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Hazardous Chemical. Dark yellow liquid. Kerosene odor. May cause moderate eye irritation with slight corneal injury. May cause skin irritation. Excessive exposure may cause respiratory irritation and central nervous system depression. Cholinesterase inhibitor. LD₅₀ for skin absorption in rabbits is approximately 5000 mg/kg. Oral LD₅₀ is 1173 mg/kg (male rats) and 1530 mg/kg (female rats). Toxic to aquatic organisms, avian, and wildlife. Flash Point is 101°F (38°C).

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POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause moderate eye irritation and slight corneal injury. Vapors may irritate eyes.

SKIN: Prolonged exposure may cause skin irritation. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD₅₀ for skin absorption in rabbits is approximately 5000 mg/kg.

INGESTION: Single dose oral toxicity is low. The oral LD₅₀ for rats is 1173 mg/kg (males) and 1530 mg/kg (females). Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. If aspirated (liquid enters the lung) may cause lung damage or even death due to chemical pneumonia.

INHALATION: The LC₅₀ for female rats is 4.6 mg/L for 4 hours. Excessive exposure to solvent may cause respiratory irritation and central nervous system depression. Signs and symptoms of central nervous system depression are, in order of increasing exposure: headache, dizziness, drowsiness, and incoordination.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:

Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, and convulsions. Chlorpyrifos produced mild adrenal effects when fed to rats, but only at doses that greatly exceeded any exposures that would be received during use of this product. For xylene, effects have been reported on the following organs: blood, kidney, and liver. Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans.

CANCER INFORMATION: Chlorpyrifos did not cause cancer in laboratory animals. Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

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TERATOLOGY (BIRTH DEFECTS): Chlorpyrifos did not cause birth defects in laboratory animals. Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. Inhalation exposure to pregnant animals of xylene resulted in toxicity to the fetus but did not cause any birth defects.

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. In animal studies, xylene has been shown not to interfere with reproduction.

4. FIRST AID:

EYES: Flush eyes with plenty of water. Get medical attention if irritation persists.

SKIN: Wash thoroughly with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes and other contaminated leather articles such as belts and watchbands.

INGESTION: Do not induce vomiting. Contains aromatic petroleum solvent. Call a physician or Poison Control Center immediately.

INHALATION: Remove to fresh air if effects occur. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

NOTE TO PHYSICIAN: The decision of whether to induce vomiting or not should be made by an attending physician. If lavage is performed, endotracheal and/or esophageal control is suggested. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). 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. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 101°F (38°C)
METHOD USED: TCC

FLAMMABLE LIMITS

LFL: Not determined
UFL: Not determined

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to sulfur oxides, phosphorus compounds, nitrogen oxides, hydrogen chloride, carbon monoxide, and carbon dioxide.

OTHER FLAMMABILITY INFORMATION: Dense smoke is emitted when burned with out sufficient oxygen. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapors are heavier than air and may travel a long distance and accumulate in low-lying areas. Ignition and/or flash back may occur. Container may rupture from gas generation in a fire situation.

EXTINGUISHING MEDIA: Water fog or fine spray, carbon dioxide, dry chemical or foam. Alcohol resistant foams (ATC type) are preferred if available. General-purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively.

MEDIA TO BE AVOIDED: Do not use direct water stream.

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FIREFIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environmental damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water. Do not use direct water stream, it may spread the fire. Eliminate ignition sources. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Fight fire from protected location or safe distance. Consider use of unmanned hose holder or monitor nozzles. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Immediately withdraw all personnel from area in case of rising sound from venting safety device or discoloration of container. Move container from fire area if this is possible without hazard. Contain firewater run-off if possible. Fire water run-off, if not contained may cause environmental damage. Review the "Accidental Release Measures" and "Ecological Information" sections of this MSDS.

PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Vapor explosion hazard, keep out of sewers. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Absorb small spills with materials such as sand, ZORBALL, or dirt. Wash exposed body thoroughly after handling. Report large spills to Dow AgroSciences at 800-992-5994.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. May cause eye injury. Harmful if swallowed or absorbed through the skin. Do not get in eyes, on skin, or on clothing. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion proof equipment may be necessary, depending upon the type of operation. No smoking, open flames or sources of ignition in handling and storage area. Minimize sources of ignition, such as static buildup, heat, spark or flame. Store in original container with the lid tightly closed. Do not store at temperatures above 122°F (50°C)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINE(S):

Chlorpyrifos: ACGIH TLV and OSHA PEL are 0.2 mg/M³, Skin. ACGIH classification is A4.
Polyglycol P2000: AIHA WEEL for polypropylene glycols is 10 mg/M³.
Xylene: ACGIH TLV and OSHA PEL are 100 ppm TWA, 150 ppm STEL. ACGIH classification is A4.
PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying or positive-pressure supplied-air respirator depending on the potential for airborne concentration.

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SKIN PROTECTION: Use gloves impervious to this material when prolonged or frequently repeated contact could occur.

EYE/FACE PROTECTION: Use chemical goggles. If vapor exposure causes discomfort, use a NIOSH approved full-face respirator.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: 279-284°F (137-140°C)(xylene)

VAPOR PRESSURE: <10 mmHg @ 20°C

VAPOR DENSITY: Not determined

SOLUBILITY IN WATER: Emulsifiable

SPECIFIC GRAVITY: 1.0467 @ 19.0°C

APPEARANCE: Dark yellow liquid

ODOR: Kerosene odor

pH: 5.25 (9.7% solution in water)

10. STABILITY AND REACTIVITY:

STABILITY: Unstable at elevated temperatures.

CONDITIONS TO AVOID: Avoid temperatures above 122°F (50°C). Chlorpyrifos decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

HAZARDOUS DECOMPOSITION: Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Hazardous decomposition products may include and are not limited to hydrogen chloride, organic sulfides, and sulfur dioxide. Toxic gases are released during decomposition.

INCOMPATIBLE MATERIALS: Avoid contact with oxidizing materials, bases strong acids.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY: Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential. Results of in-vitro ('test tube') and in-vivo mutagenicity tests on xylene have been negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

Based largely or completely on component information. Bioconcentration potential is moderate (BCF is between 100 and 3000 or Log Pow between 3 and 5).

DEGRADATION & PERSISTENCE:

Based on information for chlorpyrifos. The photolysis half-life in water is 3-4 weeks. Tropospheric half-life is estimated to be 1.4 hours. Degradation is expected in the soil environment within days to weeks.

Under aerobic soil conditions the half-life is generally 30-60 days.

Based on information for xylene. Biodegradation under aerobic static laboratory conditions is high (BOD₂₀ or BOD₂₈/ThOD is >40%). Degradation is expected in the atmospheric environment within days to weeks.

ECOTOXICOLOGY:

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

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

Material is moderately toxic to birds on an acute basis (LD₅₀ is between 51 and 500 mg/kg).

Based on information for xylene.

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

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13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate food, feed, or water by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by using according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA Regional Office for guidance.

14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product-shipping papers, or contact your Dow AgroSciences representative.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented 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 from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Chemical Name	CAS Number	Concentration
Xylene (mixed isomers)	001330-20-7	18%

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard
A fire hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
Xylene (mixed isomers)	001330-20-7	NJ1 NJ2 NJ3 PA1 PA3
Chlorpyrifos	002921-88-2	NJ3 PA1 PA3
Proprietary Ingredient	Proprietary	NJ3 PA1

NJ1=New Jersey Special Health Hazard Substance (present at greater than or equal to 0.1%).
NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).
NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).
PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).
PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

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

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NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Category	Rating
Health	2
Flammability	2
Reactivity	1

**COMPREHENSIVE ENVIRONMENTAL RESPONSE
COMPENSATION AND LIABILITY ACT (CERCLA, or
SUPERFUND):** This product contains the following
substance(s) listed as "Hazardous Substances" under
CERCLA, which may require reporting of releases:

Chemical Name CAS Number RQ % in Product

Chlorpyrifos	002921-88-2	1	22.9%
Xylene	001330-20-7	100	18.0%

16. OTHER INFORMATION:

MSDS STATUS: Revised Section 15
Reference: DR-0215-4327
Replaces MSDS Dated: 7/14/00
Document Code: D03-060-004
Replaces Document Code: D03-060-003

The Information Herein Is Given In Good Faith, But No
Warranty, Express or Implied, Is Made. Consult Dow
AgroSciences for Further Information.