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M0000062 "Lannate" LV Insecticide Revised 26-NOV-1998 Printed 14-JUN-1999  
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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"Lannate" is a registered trademark of DuPont.

Corporate MSDS Number : DU003805

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont  
1007 Market Street  
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515  
Transport Emergency : CHEMTREC 1-800-424-9300  
Medical Emergency : 1-800-441-3637

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
METHOMYL (S-METHYL-N-[(METHYLCARBAMOYL)OXY]THIO- ACETIMIDATE)	16752-77-5	29
INERT INGREDIENTS (INCLUDES PERCENTAGES OF THE FOLLOWING:)		71
CYCLOHEXANONE	108-94-1	29-45
*METHANOL	67-56-1	<10

\* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

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HAZARDS IDENTIFICATION  
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## Potential Health Effects

DANGER! POISON! CONTAINS METHANOL. Fatal if swallowed. May cause blindness if swallowed. May be fatal if inhaled or absorbed through eyes. Causes irreversible eye damage.

## WARNING SYMPTOMS

Methomyl poisoning produces effects associated with anticholinesterase activity which may include weakness, blurred vision, headache, nausea, abdominal cramps, discomfort in the chest, constriction of pupils, sweating, slow pulse, muscle tremors.

## ANIMAL DATA

Acute Oral LD50: (29% formulation, non-fasted rats)  
160 mg/kg  
Moderately toxic by ingestion.

Acute Dermal LD50: (29% formulation, male rabbits)  
> 2,016 mg/kg (abraded skin)  
Moderately toxic by contact.

## INHALATION

1 hour LC50: 1.1 mg/L. Toxic by inhalation.

## SKIN IRRITATION AND SENSITIZATION

(Guinea pigs): Application to shaved skin as a 29% formulation resulted in minimal to no irritation and no sensitization.

## EYE IRRITATION

(Rabbits): Both unformulated Methomyl and various formulations caused pupillary constriction and other effects associated with anticholinesterase activity. In addition, 0.1 ml of undiluted 29% liquid formulation caused moderate but penetrating corneal injury which was receding after 14 days. Excessive quantities of the unformulated powder were lethal via ocular exposure. This exposure was within the equivalent range that produced mortalities via oral administration.

## CHRONIC STUDIES - Methomyl

2-year feeding in rats: Feeding levels 0, 50, 100, 200, and 400 ppm; no effect level (NOEL) of 100 ppm based on slight hemolytic anemia and/or body weight effects observed at the higher dietary concentration. No compound related neoplastic

Material Safety Data Sheet  
(HAZARDS IDENTIFICATION - Continued)

lesions were observed.

2-year feeding in mice: Feeding levels 0, 50, 75, and 200 ppm; no compound related neoplastic or non-neoplastic histologic effects were found at any level. The NOEL was considered to be 50 ppm based on transient hemolytic anemia and increased mortality at the higher dietary concentrations.

2-year feeding in dogs: Feeding levels 0, 50, 100, 400, and 1,000 ppm. The NOEL of 100 ppm was based on hemolytic anemia and non-neoplastic changes within the kidney and spleen at higher dietary concentrations. There were no neoplastic effects at any dose.

#### REPRODUCTION

Three-generation rat reproduction study at rates of 50 and 100 ppm showed no adverse effect upon fertility, and no compound related histologic effect. A 2-generation rat study conducted at 75, 600, and 1,200 ppm in the diet showed similar results.

#### TERATOGENICITY

In rats, no embryotoxic or teratogenic effects were observed at levels up to 400 ppm (highest level fed). In rabbits, the highest dietary dose level (equivalent to 100 mg/kg body wt.) did not cause any observed compound related abnormalities.

#### MUTAGENICITY

Methomyl was negative in numerous assays to evaluate mutagenicity and genotoxicity, including Ames test, Reverse Mutation Assay, Recessive Lethal Assay, three DNA damage studies, an unscheduled DNA Synthesis Assay, and in vitro and in vivo cytogenetic assays.

#### ACCEPTABLE DAILY INTAKE

Based on the 100 ppm no-observable effect level of the 2 year dog feeding study, and utilizing a 100 fold safety factor, the U.S. EPA has established an Acceptable Daily Intake of 0.025 mg per kilogram of body weight per day.

#### CYCLOHEXANONE

Health effects from overexposure by inhalation, ingestion, or skin or eye contact may initially include: skin irritation with discomfort or rash; eye irritation with discomfort, tearing, or blurring of vision; or irritation of the upper respiratory passages; otherwise no acceptable information is available to confidently predict the effects

Material Safety Data Sheet  
(HAZARDS IDENTIFICATION - Continued)

of excessive human exposure to this compound.

METHANOL

Toxic effects that may result from excessive exposure to methanol include visual disturbances or blindness, narcosis and other CNS effects, liver effects, and acidosis.

Individuals with preexisting diseases of the retina and liver may have increased susceptibility to methanol toxicity.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

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FIRST AID MEASURES  
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First Aid

This product is an N-Methyl Carbamate insecticide.

IF SWALLOWED: Call a physician or poison control center. Drink 1 or 2 glasses of water and induce vomiting by touching the back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

IF INHALED: Remove from exposure and have patient lie down and keep quiet. If patient is not breathing, start artificial respiration immediately. Never give anything by mouth to an unconscious person. Call a physician if necessary.

IF CASE OF CONTACT: Wash skin with plenty of soap and water; for eyes, flush with water for 15 minutes and get medical attention; remove and wash contaminated clothing before re-use.

Notes to Physicians

Atropine sulfate should be use for treatment. Administer repeated doses, 1.2 to 2.0 mg. intravenously every 10 to 30 minutes until full atropinization is achieved. Maintain atropinization until the patient recovers. Artificial respiration or oxygen may be necessary. Allow no further exposure to any cholinesterase inhibitor until recovery is assured.

Do not use 2-PAM for exposure to "Lannate" LV alone. However, for exposure to combinations of "Lannate" LV and organophosphorous insecticides, 2-PAM may be used as

## (FIRST AID MEASURES - Continued)

required to supplement the atropine sulfate treatment. Do not use morphine.

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FIRE FIGHTING MEASURES  
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## Flammable Properties

Flash Point : 39-43 C (102-109 F)  
Method : Closed Cup  
Flammable limits in Air, % by Volume  
LEL : 5  
UEL : 75  
Autoignition : 305 C (581 F)

Combustible. Vapor forms explosive mixture with air. Heating can release vapors which can be ignited.

## Fire and Explosion Hazards:

Hazardous gases produced in a fire under conditions that produce incomplete combustion may consist of SO<sub>2</sub>, NO<sub>2</sub>, CO<sub>2</sub>, CH<sub>3</sub>NCO, HCN, CO, CS<sub>2</sub>. When combusted at higher temperatures with sufficient oxygen, the following are greatly reduced: CS<sub>2</sub>, CO, HCN, and CH<sub>3</sub>NCO.

## Extinguishing Media

Water Spray, Foam, Dry Chemical, CO<sub>2</sub>.

## Fire Fighting Instructions

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Shut off source of fuel, if possible and without risk. Use water spray. Cool tank/container with water spray. Fight fire from maximum distance, use extreme caution as heat may decompose material and rupture containers.

If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated.

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ACCIDENTAL RELEASE MEASURES  
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## Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

## Initial Containment

Remove source of heat, sparks, flame, impact, friction or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas.

## Spill Clean Up

Soak up with sawdust, sand, oil dry or other absorbent material. Shovel or sweep up.

## Accidental Release Measures

If product enters crevices and can not be removed, treat with a sodium hydroxide solution and allow to stand 4 hours.  
NOTE: Sodium hydroxide is caustic and causes burns. Do not get in eyes, on skin or clothing.

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HANDLING AND STORAGE  
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## Handling (Personnel)

Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Wash clothing after use. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing.

## Storage

Do not subject to temperatures below 32 deg. F. Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

## Personal Protective Equipment

Applicators and other handlers must wear:

Long-sleeved shirt and long pants  
Chemical-resistant gloves, such as barrier laminate or  
butyl rubber  
Shoes plus socks  
Protective eyewear

For exposures in enclosed areas, a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

For exposures outdoors, a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C).

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

PPE required for early entry to treated area that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

Coveralls  
Chemical-resistant gloves, such as barrier laminate or  
butyl rubber  
Shoes plus socks  
Protective eyewear

## Exposure Guidelines

## Applicable Exposure Limits

## METHOMYL

PEL (OSHA)	: None Established
TLV (ACGIH)	: 2.5 mg/m <sup>3</sup> , 8 Hr. TWA, A4
AEL * (DuPont)	: None Established

## CYCLOHEXANONE

## (Applicable Exposure Limits - Continued)

PEL (OSHA) : 50 ppm, 200 mg/m<sup>3</sup>, 8 Hr. TWA  
TLV (ACGIH) : 25 ppm, 100 mg/m<sup>3</sup>, 8 Hr. TWA, Skin, A4  
AEL \* (DuPont) : 25 ppm, 8 & 12 Hr. TWA  
STEL 50 ppm, 15 minute TWA

## METHANOL

PEL (OSHA) : 200 ppm, 260 mg/m<sup>3</sup>, 8 Hr. TWA  
TLV (ACGIH) : 200 ppm, 8 Hr. TWA, Skin  
STEL 250 ppm  
Notice of Intended Changes (1998)  
200 ppm, 8 Hr. TWA, Skin, A4  
STEL 250 ppm  
AEL \* (DuPont) : 200 ppm, 8 & 12 Hr. TWA, Skin

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

Vapor Pressure : 57 mm Hg @ 25 C (77 F)  
Solubility in Water : Soluble  
Odor : Aromatic  
Form : Liquid  
Color : Amber  
Specific Gravity : 1.021 @ 25C (77F)

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STABILITY AND REACTIVITY  
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## Chemical Stability

Stable at normal temperatures and storage conditions.

## Incompatibility with Other Materials

None reasonably foreseeable.

## Decomposition

Decomposes with heat.

Hazardous gases/vapors produced are toxic and/or noxious.  
They may include sulfur oxides, methylisocyanate and HCN.

## Polymerization

Polymerization will not occur.



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ECOLOGICAL INFORMATION  
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## Ecotoxicological Information

## Aquatic Toxicity

Methomyl is extremely toxic:

96 hour LC50, bluegill sunfish: 0.72 ppm

96 hour LC50, rainbow trout: 3.4 ppm

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DISPOSAL CONSIDERATIONS  
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## Waste Disposal

Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

DISPOSAL: Do not contaminate water, food, or feed by disposal. Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use 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.

CONTAINER DISPOSAL: Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

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TRANSPORTATION INFORMATION  
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## Shipping Information

DOT/IMO

Proper Shipping Name : CARBAMATE PESTICIDE, LIQUID, TOXIC,  
FLAMMABLE  
(methomyl in cyclohexanone)

Hazard Class : 6.1

UN No. : UN 2991

Special Information : Marine Pollutant (water or bulk)  
Flash Point: 39 deg C (102.2 deg F)

Subsidiary Hazard Class : 3

Packing Group : II

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REGULATORY INFORMATION  
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## U.S. Federal Regulations

## TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes  
Chronic : No  
Fire : Yes  
Reactivity : No  
Pressure : No

## ADDITIONAL REGULATORY INFORMATION

Section 302 Extremely Hazardous Substance:  
Methomyl - Threshold Planning Quantity (TPQ)  
(500/10,000 lbs)

SARA/CERCLA Reportable Quantity:  
Methomyl (100 lbs)  
Methanol (5000 lbs)  
Cyclohexanone (5000 lbs)

## REGULATORY CONTROLS:

This product is registered under EPA/FIFRA regulations. It is a violation of Federal Laws to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

EPA Reg. No. 352-384

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OTHER INFORMATION  
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## NFPA, NPCA-HMIS

NFPA Rating  
Health : 2  
Flammability : 2  
Reactivity : 0

NPCA-HMIS Rating  
Health : 3  
Flammability : 2  
Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

(Continued)

## Additional Information

## RESTRICTED USE PESTICIDE

Due to High Acute Toxicity to Humans

For retail sale and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Direct supervision for this product requires the certified applicator to review federal and supplemental label instructions with all personnel prior to application, mixing, loading, or repair or cleaning of application equipment.

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The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : DuPont  
Address : Agricultural Products  
Wilmington DE 19898  
Telephone : 800-441-7515

# Indicates updated section.

End of MSDS