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MATERIAL SAFETY DATA SHEET

Estes, Inc., P.O. Box 8287, Wichita Falls, TX 76307

Surf-King Plus

Date Prepared: October 23, 1994

Revised: March, 1997

General Information**Names & Synonyms:** Blend**Family:** Non-ionic surfactant blend**Formula:** Proprietary blend**Hazardous Classification:** Not hazardous. Not Regulated by DOT.**Motor Freight Class:** 40**Item Number:** 4610**UN/NA Number:** NA**Bill of Lading Description:** Adhesives, Adjuvants, Spreaders or Stickers**Physical Data****pH (5% Solution):** 7.3**Boiling Range:** 212 F and above**% Volatile by Volume:** 0%**Specific Gravity:** 1.03**Solubility in Water:** complete, hazy**Evaporation Rate (Water = 1):** Less than 1**Appearance & Odor:** Viscous green liquid with a slight fatty acid odor**Hazardous Ingredients****Principal Hazardous Materials**

Glycol butyl ether

Alkylaryl polyethoxyethanol

Phosphoric acid

Oleic acid

Percent

Less than 10%

Less than 80%

Less than 5%

Less than 10%

Threshold Limit Value (Units)

25 ppm (skin)

Eye irritant

1 ppm

Irritant

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Health Hazard Data

ACGIH Threshold Limit Value: Not established for mixture
Carcinogen-NTP Program: NO
Carcinogen-IARC Program: NO
Primary Routes of Entry:

Can cause severe eye irritation upon direct contact. Prolonged skin contact may cause drying and irritation. Inhalation of high mist concentrations may cause headaches and dizziness. Harmful if swallowed.

Health Hazard Data Cont.

ACGIH Threshold Limit Value: Not established for mixture
Carcinogen-NTP Program: NO
Carcinogen-IARC Program: NO
Primary Routes of Entry:

INHALATION: Inhalation of high concentrations may cause headaches and dizziness.

SKIN: Prolonged skin contact may cause drying and irritation.

EYE: Can cause severe eye irritation upon direct contact.

INGESTION: Harmful if swallowed.

Emergency First Aid:

INHALATION - Remove to fresh air. Treat symptomatically.

INGESTION - Dilute by drinking two large glasses of water. Get medical attention.

EYE CONTACT - Flush with water for 15 minutes. Get medical attention.

SKIN CONTACT - Flush with large amounts of water.

Sara Title III, Section 313

This product contains the following toxic chemicals subject to the reporting requirements of SARA Title III, Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR 372

CASH#	Chemical Name	Percent by Weight
H/A	Allylcol Ethers	5.0%
7664-38-2	Phosphoric acid	3.0%

- Eye Protection** - Chemical safety glasses
- Skin Protection** - Impermeable gloves
- Respiratory Protection** - None required under normal use
- Ventilation Recommended** - General
- Other Protection** - As needed to prevent prolonged skin contact

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Special Precautions

Handling & Storage Precautions: Avoid prolonged or repeated breathing of vapor or spray mists. Avoid contact with eyes, skin and clothing. Do not take internally. Always wear proper protective gear.

- VENTILATION:** (General)
- RESPIRATORY PROTECTION:** None required under normal use
- SKIN PROTECTION:** Impermeable gloves
- EYE PROTECTION:** Chemical safety glasses
- OTHER PROTECTIVE EQUIPMENT:** As needed to prevent prolonged skin contact

Other Precautions: Keep containers tightly closed and upright when not in use. Follow good industrial practices with regard to housekeeping and personal hygiene. Keep out of reach of children.

The information provided in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the users responsibility to determine the suitability of this information for the utilization of safety precautions as may be necessary. We reserve the right to revise Material Safety Data Sheets from time to time as new technical information becomes available. The information contained herein is furnished without warranty of any kind.

MSDS: NORTRAC SOLUBLE 20-20-20 FERTILIZER

SPECIAL PROTECTION INFORMATION

Avoid breathing fertilizer dusts. Avoid prolonged or repeated skin contact. Avoid eye contact with fertilizers. Use a NIOSH approved particulate respirator if respirable dust generation occurs or is anticipated during product use. Use other protective equipment (goggles, gloves, etc.) as required by conditions of product use. Wash thoroughly after handling fertilizers or other chemicals.

CAUTIONARY STATEMENTS FOR PERSONS HANDLING THIS MATERIAL

CAUTION: May be harmful if swallowed in quantity. Fertilizer dusts may irritate the eyes and respiratory system. Prolonged product contact may irritate sensitive skin.

Wash thoroughly after handling. Keep fertilizers out of the reach of children. Note: These products are fertilizers. Do not eat them and avoid breathing their dusts.

MATERIAL STORAGE INFORMATION

Store this product in a cool, dry place away from sources of high heat. Protect bags or other containers from damage. Keep bags or other containers closed when not in use.

SPILL, LEAK AND DISPOSAL PROCEDURES

Notify management of any fertilizer spills. Fertilizer spills should be swept up and/or be shoveled into closed containers for recovery and use or disposal.

DISPOSAL: Recover spills for reuse, or place recovered material in a state approved landfill or incinerator. Follow Federal, state and local regulations for disposal.

REACTIVITY INFORMATION

STABILITY: Stable **CONDITIONS TO AVOID:** Excessive heat; moisture

INCOMPATIBILITY (Avoid contact with): Strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS: Urea may decompose to release cyanuric acid, ammonia, HCN, NOx

HAZARDOUS POLYMERIZATION: Will not occur **CONDITIONS TO AVOID:** None known

REGULATORY INFORMATION

SARA TITLE III HAZARD CATEGORY:

IMMEDIATE FIRE SUDDEN RELEASE
DELAYED REACTIVE OF PRESSURE

SUBSTANCES REGULATED UNDER SARA, TITLE III, SEC. 313:

None Listed

DATE OF ISSUE: 3/21/95
SUPERSEDES: NEW

All information contained in this Material Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion the information is, as of the date of this Material Safety Data Sheet, reliable, however, it is your responsibility to determine the suitability of the information for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information gathered by you, and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee is expressed or implied as to the results to be obtained based upon your use of the information.

MATERIAL SAFETY DATA SHEET
NORTRACE SOLUBLE 20-20-20 FERTILIZER

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

IDENTIFICATION OF PRODUCT:

DISTRIBUTOR'S NAME:
NORTRACE LTD.
419 18th Street
Greely, CO 80632-1288

EMERGENCY TELEPHONE NO.:
(970) 358-4400 (8:00 A.M. - 5:00 P.M. MT) or
CHEMTREC (800) 424-9300 (24 Hours)

TRADE NAMES AND SYNONYMS: 20-20-20

CHEMICAL NAME AND SYNONYMS: Inorganic Chemical Fertilizer Mixture

MATERIAL IDENTIFICATION - INGREDIENTS potassium nitrate, monoammonium phosphate, diammonium phosphate, urea and micronutrients N-P-K (NITROGEN-PHOSPHORUS-POTASSIUM) MIXED DRY BLENDED FERTILIZERS. NO hazardous ingredient exceeds 1% of total mixture.
Composition:

- 20.0% - Total Nitrogen as N
- 20.0% - Total Phosphorus as P₂O₅
- 20.0% - Total Potassium

TLV = 10 mg/m³ nuisance dust

Containing Micro-Ingredients (Zn, Mn, Cu), fertilizer salts, inert ingredients/trace impurities

HEALTH HAZARD INFORMATION:

These blended dry fertilizers are typically mixtures of potassium, phosphates, chlorides, nitrates, sulfur, sulfates, urea, and micro-ingredient range quantities of metal salts such as iron, manganese, copper and zinc. A review of the ingredient salts indicates that ingestion may cause diarrhea, purging, and flatulence. Nausea and vomiting could be expected upon large dose ingestion. The acute ingestive effects are described as nausea, chills and diarrhea. Eye or skin contact with these products could cause irritation (particularly in sensitive persons), and respiratory irritation could be expected from the unprotected breathing of fertilizer dust. Product users should avoid prolonged or repeated skin contact, and they should use eye protection when required by conditions of use. Product users should wash thoroughly after using or handling these fertilizers. Since children could receive toxic ingestive doses of fertilizers, these products should be stored in a secure place where children cannot get at them.

EMERGENCY AND FIRST AID PROCEDURES: Call a physician immediately in all cases of suspected poisoning.

- Ingestion:** Dilute with water or milk. If necessary induce vomiting only when victim is conscious.
- Inhalation:** Remove to fresh air. If not breathing give artificial respiration.
- Skin:** Wash from skin with soap and water.
- Eyes:** Flush with running water for at least 15 minutes until irritation subsides.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known. Preexisting respiratory conditions may be aggravated by exposure to dusts.

POTENTIAL CARCINOGEN STATUS (Source of Information - Registry of Toxic Effects of Chemical Substances):

None listed

PHYSICAL DATA

Boiling Point - n.a. Vapor Pressure - n.a. Specific Gravity - >1
Solubility: Water - Appreciable (n.a. - not available/not applicable) Vapor Density - n.a.
Appearance/Odor: White to off-white and light colored granular powders with fertilizer-like odors.

FIRE, EXPLOSION AND REACTIVITY DATA

FLASH POINT (Specify Method - °C): Not Flammable

FLAMMABLE LIMITS (PERCENT BY VOLUME): Not Applicable

FIRE EXTINGUISHING MEDIA: Determined by surrounding fire. Not considered combustible.

SPECIAL FIRE FIGHTING PROCEDURES: Full protective equipment and self contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Urea may decompose in a fire situation and release cyanuric acid, ammonia, hydrogen cyanide, oxides of nitrogen, and irritating particulates. Sulfur-containing components may release oxides of sulfur.

NFPA HAZARD RATING:

0 Least		
1 Slight	1	Health
2 Moderate	0	Flammability
3 High	0	Reactivity
4 Severe		

20-20-20 SOLUBLE FERTILIZER

GUARANTEED ANALYSIS BY WEIGHT

Total Nitrogen (N)	20%
5.7% Ammoniacal Nitrogen	
6.0% Nitrate Nitrogen	
8.3% Urea Nitrogen	
Available Phosphate (P ₂ O ₅)	20%
Soluble Potash (K ₂ O)	20%
Boron (B)	0.02%
Copper (Cu)	0.05%
0.05% Chelated Copper	
Iron (Fe)	0.15%
0.15% Chelated Iron	
Manganese (Mn)	0.05%
0.05% Chelated Manganese	
Molybdenum (Mo)	0.0005%
Zinc (Zn)	0.15%
0.15% Chelated Zinc	

Derived from Potassium Nitrate, Ammonium Phosphate, Urea, Sodium Borate, Sodium Molybdate, Copper EDTA, Iron EDTA, Manganese EDTA, and Zinc EDTA derived from Ethylenediaminetetraacetate (EDTA).

Contains ICI, Not More Than 1%

FRUIT AND VEGETABLE CROPS: As a foliar spray use 5 to 10 pounds per acre. Applications may be made in 1 to 2 years depending on the amount of growth desired. When used as a soil dressing, use 10 to 20 pounds per acre. For the best results, the fertilizer should be mixed with soil and applied to the soil. This fertilizer is suitable for use on all types of crops. It is especially suitable for use on citrus, grapes, peaches, pears, pecans, avocados, plums, prunes, apples, cherries, walnuts, almonds, nectarines, strawberries, grapes and other vine crops. Apply early in the season during flush of new growth and well before fruit matures.

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NORTRACE

FRUIT AND VEGETABLE CROPS: As a foliar spray use at the rate of 5 to 10 pounds per acre. For dilute sprays use 2 pounds per 100 gallons of water. Apply early in the season or when improved vigor is desired. There is 4 applications may be applied per season. **NOTE:** Do not use in late season sprays where fruit color and maturity are delayed by nitrogen applications. These rates may be applied to citrus (all kinds), apples, peaches, pears, pecans, avocados, plums, prunes, apples, cherries, walnuts, almonds, nectarines, strawberries, grapes and other vine crops. Apply early in the season during flush of new growth and well before fruit matures.

NOTE: Use a minimum of 100 gallons of water per acre for dilute sprays and not less than 4 to 5 gallons per acre for concentrated sprays.

COMMERCIAL GROWERS AND GREEN-HOUSES: As a direct foliar spray use 2 to 4 pounds per 100 gallons or 4 teaspoons per gallon of water.

Greenhouse Cucumber Plants: Use 2 pounds per 100 gallons of water for intermittent feeding (weekly) which by constant feeding (weekly watering) use 4 to 8 ounces per 100 gallons of water. **Conifer Foliar Feeds:** Use up to 5% pounds per 100 gallons of water for intermittent feeding. For constant feeding use 3 to 10 ounces per 100 gallons of water.

Over-the-top feeding: Use 5 to 6 pounds in 100 gallons of water; for constant feeding use 1 to 1 1/2 pounds per 100 gallons of water. **Shrub and Tree Feeds:** Use at the rate of 1 pound per 25 gallons of water as plants are being set out in the field. Apply sufficient solution for proper soil moisture.

LANSCAPE TREES AND SHRUBS: For foliar spray or root feeding use 2 pounds per 100 gallons of water.

TURF, LAWNS, AND GOLF GREENS: While soil is wet apply 1 pound per 2,000 square feet described in 10 to 20 gallons of water. Color and rate of growth will determine frequency of application. For seedling use 1/2 to 1 pound per 1,000 square feet. For established lawns use 1/2 to 1 pound per 1,000 square feet.

INJECTOR-PROPORTIONER SYSTEMS: This fertilizer may be used in constant feeding or intermittent feeding systems. Foliar rates recommended for specific crops, as above.

COMPATIBILITY: This product is compatible with most insecticides and fungicides. However, a small scale compatibility test is recommended prior to making on a full scale. **DO NOT** use with highly alkaline spray materials, Bordeaux, or spray oils. Pre-test ALL proposed mixtures with herbicide products.

CAUTION: KEEP OUT OF REACH OF CHILDREN
NET WEIGHT: 25 POUNDS (7.34 kg)

DIRECTIONS FOR USE
For general application dissolve 2 to 4 pounds of this product in 100 gallons of spray solution, or use 5 to 10 pounds of this product per acre. May be applied with conventional sprayers of 20 to 500 gallons of spray per acre, or by aircraft at rates as low as 5 pounds of this product per 2 gallons of spray per acre. For small sprayers use 4 teaspoons per gallon of water.

Foliar fertilization is intended as a supplement to a regular fertilizer program and will not by itself, provide all the nutrients normally required by agriculture crops.
NOTE: The addition of 2 to 5 pounds of this product per 100 gallons of water of pH 8.5 will buffer the solution to approximately pH 6. However, at all labeled rates (up to 5 pounds per 2 gallons of water) the pH will not drop below pH 5.5 due to the excellent buffering action of this product.

MIXING INSTRUCTIONS

Add this product to tank when half full of water and maintain agitation during the remainder of the mixing and filling operation. The higher the water temperature, the greater the solubility and the more quickly this product dissolves. When fertilizer is added to water, there is an immediate decrease in temperature of the water mixture. Allow for this decrease in temperature when preparing spray solutions to ensure complete dissolving of all nutrients.

NOTICE

Merfaco, Ltd. WARRANTS THAT THIS PRODUCT CONFORMS TO THE CHEMICAL DESCRIPTION ON THE LABEL THEREOF AND IS REASONABLE FIT FOR THE PURPOSES STATED ON SUCH LABEL ONLY WHEN USED IN ACCORDANCE WITH THE DIRECTIONS UNDER NORMAL USE CONDITIONS. IT IS IMPROBABLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT, CROP INJURY, INFECTIOUSNESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT FROM USE OF SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF Merfaco, Ltd. IN NO CASE SHALL Merfaco, Ltd. BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER.

EXCEPT AS EXPRESSLY PROVIDED HEREIN, Merfaco, Ltd. MAKES NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND, OTHER THAN THOSE IMPLIED, OR BY USAGE OF TRADE, STATUTE, OR CUSTOM, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE OR EVIDENCE OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE, PURPOSE, OR USER'S EXCLUSIVE BENEFIT, AND Merfaco, Ltd.'s TOTAL LIABILITY SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

Manufactured for:
Merfaco, Ltd.
C/O Commercial Product Development
479 18th Street, Greeley, Colorado 80631-5252

MATERIAL SAFETY DATA SHEET



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

Effective Date: 10-12-04
Product Code: 88799
MSDS: 007711

INTREPID* 2F Insecticide

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: INTREPID* 2F Insecticide

COMPANY IDENTIFICATION:

Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Methoxyfehozide:	CAS # 161050-58-4	23.17%
N-tert-butyl-N'-(3-methoxy-o-toluoyl)-3,5-xylohydrazide		
Balance, Total, Including		76.83%
Propylene Glycol	CAS # 000057-55-6	

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Off-white liquid with a mild odor.

EMERGENCY PHONE NUMBER: 800-992-5994

4. FIRST AID:

EYES: Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

SKIN: Wash skin with plenty of water.

INGESTION: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air; if effects occur, consult a physician.

NOTE TO PHYSICIAN: Administer 100% oxygen to relieve headache and a general sense of weakness. Determine methemoglobin concentration of blood every 3 to 6 hours for first 24 hours. It should return to normal within 24 hours. The treatment of toxic methemoglobinemia may include the intravenous administration of methylene blue. If methemoglobin >10-20% consider methylene blue 1-2 mg/kg body weight as 1% solution IV over 5 minutes followed by 15-30 cc flush (Price D, Methemoglobinemia, Goldfrank Toxicologic Emergencies, 5th ed., 1994). Also provide 100% oxygen. Methemoglobinemia may aggravate any pre-existing condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemias. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: Non-combustible

METHOD USED: Not applicable

FLAMMABLE LIMITS

LFL: Not applicable

UFL: Not applicable

EXTINGUISHING MEDIA: Use the following extinguishing media when fighting fires involving this material: carbon dioxide, dry chemical, water spray or foam.

FIRE & EXPLOSION HAZARDS: Pesticide particulates can become airborne. Dried product can burn. Combustion generates toxic fumes of the following: nitrogen oxides.

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus and full protective clothing. Do not allow water from fire-fighting to enter water supplies.

SPECIAL PROCEDURES: Remain upwind. Avoid breathing smoke. Use water spray to cool containers exposed to fire. Contain run-off.

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6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Contain and absorb small spills with inert materials with sand or earth. Transfer liquids and solid diking material to separate suitable containers for recovery or disposal. Avoid breathing vapor. Keep spills and cleaning run-off out of municipal sewers and open bodies of water. Report large spills to Dow AgroSciences at 800-992-5994. If exposed to material during clean-up operations, remove all contaminated clothing promptly. Wash all exposed skin areas with soap and water immediately after exposure. Thoroughly launder clothing before reuse. Do not take clothing home to be laundered.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: Keep out of reach of children. Do not handle material near food, feed or drinking water. Avoid contact with eyes and skin.

STORAGE: Do not store this material near food, feed or drinking water. The minimum recommended storage temperature for this material is 32°F (0°C). The maximum recommended storage temperature for this material is 104°F (40°C). Store in a well-ventilated area. Keep container tightly closed when not in use.

OTHER: Dispose empty container in a sanitary landfill or as allowed by state and local authorities.

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):

Methoxyfenozide: Dow AgroSciences Industrial Hygiene is 3 mg/M³ TWA respirable, 10 mg/M³ inhalable.
Propylene glycol: AIHA WEEL is 10 mg/M³ TWA as aerosol.

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 guideline. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator. In dusty or misty atmospheres, use a NIOSH approved particulate respirator.

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

EYE PROTECTION: Use safety glasses.

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

9. PHYSICAL AND CHEMICAL PROPERTIES:

COLOR: Off-white
APPEARANCE: Liquid
ODOR: Mild
pH: 6 to 7 (1% solution)
VISCOSITY: 400 to 800 CPS
SPECIFIC GRAVITY (WATER = 1): 1.1 (Estimate)
VAPOR DENSITY (AIR = 1): <1 (Water)
VAPOR PRESSURE: 17 mmHg @ 68°F (20°C) (Water)
MELTING POINT: 32°F (0°C) (Water)
BOILING POINT: 212°F (100°C)
SOLUBILITY IN WATER: Dispersible
PERCENT VOLATILITY: 61 to 62% (Water)
EVAPORATION RATE (BAc = 1): <1 (Water).

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: Not known to occur.

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INTREPID* 2F Insecticide

11. TOXICOLOGICAL INFORMATION:

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

EYE: Essentially non-irritating to eyes.

SKIN: Brief contact is essentially non-irritating to skin. Did not cause allergic skin reactions when tested in guinea pigs. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD₅₀ for skin absorption in rats is >2000 mg/kg.

INGESTION: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. The oral LD₅₀ for rats and mice is >5000 mg/kg.

INHALATION: At room temperature, exposure to vapor is minimal due to low volatility. The aerosol LC₅₀ for rats is >0.9 mg/L for 4 hours. Mist may cause irritation of upper respiratory tract (nose and throat).

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:

Excessive exposure to methoxyfenozide may cause methemoglobinemia, thereby impairing the blood's ability to transport oxygen. In animals, effects have been reported on the following organs: blood, liver, kidney, and thyroid. In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

CANCER INFORMATION: The major component(s) did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): The major component(s) did not cause birth defects or any other fetal effects in laboratory animals.

REPRODUCTIVE EFFECTS: The major component(s), in animal studies, did not interfere with reproduction.

MUTAGENICITY: In-vitro and animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE: No relevant information found.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: 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 and regulations.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

For all package sizes by all modes of transportation:
This material is not regulated for transport

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: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

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MSDS: 007711

INTREPID* 2F Insecticide

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:

A delayed health 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
1,2-PROPANEDIOL (propylene glycol)	000057-55-6	PA1

PA1=Pennsylvania 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.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	0
Flammability	0
Reactivity	0

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 3, 8, 11, 13
Reference: DR-0376-9899
Replaces MSDS Dated: 10/8/03
Document Code: D03-846-002
Replaces Document Code: D03-846-001

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

24 hrs



MATERIAL SAFETY DATA SHEET

BAYER CORPORATION
AGRICULTURE DIVISION
P.O. Box 4913 Hawthorn Road
Kansas City, MO 64120-0013

TRANSPORTATION EMERGENCY
CALL CHEMTREC: 800-424-9300
INTERNATIONAL: 703-527-3887

NON-TRANSPORTATION
BAYER EMERGENCY PHONE...: (800) 414-0244
BAYER INFORMATION PHONE : (800) 842-8020

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: STRATEGO Fungicide
PRODUCT CODE.....: 12007
CHEMICAL FAMILY.....: Fungicide
PRODUCT USE.....: Commercial Fungicide

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME /CAS NUMBER EXPOSURE LIMITS CONCENTRATION (%)

***** HAZARDOUS INGREDIENTS *****

Propiconazole 60207-90-1 OSHA : Not Established ACGIH: Not Established 11.4 %

Trifloxystrobin 141517-21-7 OSHA : Not Established ACGIH: Not Established 11.4 %

Specific chemical identity is withheld as a trade secret. OSHA : Not Established ACGIH: Not Established 45-60 %

Specific chemical identity is withheld as a trade secret. OSHA : Not Established ACGIH: Not Established 20-25 %

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2. COMPOSITION/INFORMATION ON INGREDIENTS (Continued)

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS	CONCENTRATION (%)
Specific chemical identity is withheld as a trade secret.		
	OSHA : Not Established	1-5 %
	ACGIH: Not Established	

3. HAZARDE IDENTIFICATION:

 * EMERGENCY OVERVIEW *
 * *
 * WARNING! Color: Brown; Form: Liquid; Brown; Odor: Not *
 * Available; Causes eye irritation; Harmful if swallowed. *

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Inhalation; Skin Contact; Skin Absorption;
Eye Contact

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE EFFECTS OF EXPOSURE.....: Based on EPA Toxicity Category Criteria of a similar formulation, this product is mildly toxic orally and essentially non-toxic dermally. In addition, animal studies have shown that eye and skin irritation may result from direct contact and can include painful burning. Inhalation of vapors may result in respiratory irritation due to solvent components. Exposures to high concentrations of solvents may cause nausea or narcotic effects.

CHRONIC EFFECTS OF EXPOSURE....: No chronic effects from active ingredients are known; however, prolonged skin contact with the solvent components may result in redness and dermatitis.

CARCINOGENICITY.....: This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: None known

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: Hold eye 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 eye. Call a poison control center or doctor for treatment advice.

4. FIRST AID MEASURES (Continued)

FIRST AID FOR SKIN.....: 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.

FIRST AID FOR INHALATION: Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment information.

FIRST AID FOR INGESTION.: Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by physician or poison control center. Do not give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN.....: There is no specific antidote if this product is ingested. Treat symptomatically. In case of poisoning, it is requested that Bayer be notified. Telephone: 1.800.414.0244

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Not Available

EXTINGUISHING MEDIA.....: Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE / EXPLOSION HAZARDS: Not Available

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: Wear chemical goggles or a full-face shield, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved chemical cartridge respirator with organic vapor cartridges and either P-100 or P-95 pre-filters or a self-contained breathing apparatus (SCBA). For small spills, cover with an absorbent such as pet litter. Sweep up and place in an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal the container and handle in an approved manner. Flush the area with water to remove any residue. Do not allow wash water to contaminate water supplies.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE (MIN/MAK): Not available

SHELF LIFE.....: Not available

SPECIAL SENSITIVITY.....: Not available

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7. HANDLING AND STORAGE (Continued)

HANDLING/STORAGE PRECAUTIONS: Store the material in a well-ventilated, secure area out of the reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: To avoid eye contact, wear chemical goggles or a full-face shield.
SKIN PROTECTION REQUIREMENTS.....: To avoid skin contact, wear rubber gloves, rubber boots, long-sleeved shirt, long pants and a head covering.
RESPIRATOR REQUIREMENTS.....: To avoid breathing mists or sprays, wear a NIOSH-approved chemical cartridge respirator with organic vapor cartridges and either P-100 or P-95 pre-filters or a supplied-air respirator.
ADDITIONAL PROTECTIVE MEASURES.....: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Liquid
APPEARANCE.....: Brown
COLOR.....: Brown
ODOR.....: Not Available
BOILING POINT.....: Not Available
MELTING/FREEZING POINT.....: Not Available
SOLUBILITY IN WATER.....: Propiconazole: 0.1 g/L @ 20 C; Trifloxystrobin:
Not Available
SPECIFIC GRAVITY.....: 1.1 g/cm³
BULK DENSITY.....: Not Noted
VAPOR PRESSURE.....: Propiconazole: 1.30E-04 Pa @ 20 C;
Trifloxystrobin: Not Available

10. STABILITY AND REACTIVITY:

STABILITY.....: This is a stable material.
HAZARDOUS POLYMERIZATION....: Will not occur.
INCOMPATIBILITIES.....: Not known
INSTABILITY CONDITIONS.....: Not known
DECOMPOSITION PRODUCTS.....: Not known

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11. TOXICOLOGICAL INFORMATION:

Acute toxicity studies have not been performed on this product as formulated. The acute toxicity data is from a very similar Stratego formulation. The non-acute information pertains to the two active ingredients, trifloxystrobin technical and propiconazole technical.

ACUTE TOXICITY

ORAL LD50.....: Male Rat: 4757 mg/kg; Female Rat: 4830 mg/kg

DERMAL LD50.....: Male and Female Rabbit: >5050 mg/kg

INHALATION LC50.....: 1 HR Exposure to Liquid Aerosol: Male and Female Rat: >2.16 mg/L (actual); 1 HR Exposure to Liquid Aerosol (extrapolated from 4 HR): Male and Female Rat: >8.64 mg/L (actual)

EYE EFFECTS.....: Rabbit: Moderate irritation to the cornea and conjunctiva was observed with all irritation clearing completely within 21 days post-treatment.

SKIN EFFECTS.....: Rabbit: Slightly irritating.

SENSITIZATION.....: Guinea Pig: Not a dermal sensitizer.

SUBCHRONIC TOXICITY....: Trifloxystrobin Technical. In a 28-day dermal toxicity study in rats, trifloxystrobin was tolerated without local effects at doses up to and including the limit dose of 1000 mg/kg/day. Systemic effects were observed in males at the limit dose and included increased organ weights (liver and kidney). Propiconazole Technical. Subchronic toxicity - none observed.

CHRONIC TOXICITY.....: Trifloxystrobin Technical. In chronic toxicity studies in mice and dogs, the major primary target organ appears to be the liver following dietary administration of trifloxystrobin. Liver effects were not seen in a chronic toxicity rat study with trifloxystrobin. Propiconazole Technical. Chronic toxicity - none observed.

CARCINOGENICITY.....: Trifloxystrobin Technical. Trifloxystrobin did not cause any treatment-related increase in general tumor incidence, any elevated incidence of rare tumors, or shortened time to the development of palpable or rapidly lethal tumors in an 18-month mouse and a 24-month rat study. Propiconazole Technical. Carcinogenic potential - increased incidence of liver tumors at extremely high doses (male mice).

MUTAGENICITY.....: Trifloxystrobin Technical. Trifloxystrobin has been tested for its potential to induce gene mutation and chromosomal changes in 5 different test systems. Taken collectively, these studies demonstrate trifloxystrobin is not genotoxic or mutagenic. Propiconazole Technical. Mutagenic potential - none observed.

DEVELOPMENTAL TOXICITY: Trifloxystrobin Technical. In developmental toxicity studies using rats and rabbits, trifloxystrobin was not a primary developmental toxicant.

REPRODUCTION.....: Trifloxystrobin Technical. In a two generation reproduction study using rats, trifloxystrobin was not a primary reproductive toxicant. Propiconazole Technical. Reproductive hazard potential - none observed.

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12. ECOLOGICAL INFORMATION:

This pesticide is toxic to fish and aquatic invertebrates. Bayer will provide a summary of specific data upon written request. As with any pesticide, this product should be used according to label directions and should be kept out of streams, lakes and other aquatic habitats. IN EVENT OF A SPILL EMERGENCY, CALL 1-800/414-0244.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME.....: Fungicide
FREIGHT CLASS BULK.....: Insecticides or Fungicides; Agricultural, N.O.S.
FREIGHT CLASS PACKAGE.....: Insecticides or Fungicides; Agricultural, N.O.S.
PRODUCT LABEL.....: STRATEGO Fungicide

DOT (DOMESTIC SURFACE)

HAZARD CLASS OR DIVISION: Non-Regulated

IMO / IMDG CODE (OCEAN)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

ICAO / IATA (AIR)

HAZARD CLASS DIVISION NUMBER...: Non-Regulated

15. REGULATORY INFORMATION:

OSHA STATUS.....: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29

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This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Bayer Corporation. The data on this sheet relates only to the specific material designated herein. Bayer Corporation assumes no legal responsibility for use or reliance upon these data.

LORSBAN* -4E INSECTICIDE (NAF-163)

Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268
Effective Date: 2-Nov-06
Product Code: 47602
MSDS: 006888

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Lorsban* -4E Insecticide (NAF-163)
COMPANY IDENTIFICATION:
Dow AgroSciences LLC
9390 Zionsville Road
Indianapolis, IN 46268-1189

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Red liquid with solvent-type odor. May cause eye irritation or corneal injury. Prolonged exposure may cause skin irritation. Cholinesterase inhibitor. Toxic to aquatic organisms, birds, and fish. Store at temperatures below 122°F (50°C)

EMERGENCY PHONE NUMBER: 800-992-5994

3. COMPOSITION INFORMATION ON INGREDIENTS:

COMPONENT	CAS NUMBER	WWT%
Chlorpyrifos	2921-05-2	44.9
1,2,4-Trimethylbenzene	85-99-6	18.9
Xylene	1330-20-7	1.5
Cumene	98-02-9	6.9
Balances		28.9

4. FIRST AID:

EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, and then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

SKIN: 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.

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.

INHALATION: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, and 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.

NOTE TO PHYSICIAN: Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury. 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. Maintain adequate ventilation and oxygenation of the patient. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. 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). In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Attempt seizure control with diazepam 5-10 mg (adults) intravenous over 2-3 minutes. Repeat every 6-10 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 800-1200 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). Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have 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.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 106°F (41 °C)

METHOD USED: TCC

FLAMMABLE LIMITS

LFL: 1%

UFL: 6% (xylene range aromatic solvent)

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/or carbon dioxide.

OTHER FLAMMABILITY INFORMATION: Dense smoke is produced when product burns. 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.

FIRE-FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Eliminate ignition sources. 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. May spread fire. 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 the 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 isn't available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Absorb spills with an absorbent material such as HAZORB, ZORBALL, or dirt. Thoroughly wash body areas, which come into contact with this product. Contain spill to keep out of sewers. Report large spills to Dow AgroSciences at 800-992-5994. 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.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not

swallow. Do not get in eyes, on skin, or on clothing. Avoid breathing spray mist and vapors. 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. Store at temperatures below 122°F (50°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

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

EXPOSURE GUIDELINE(S):

Chlorpyrifos: ACGIH TLV is 0.1 mg/M³ (LV); A4, Skin SEL. Xylene range aromatic solvent: none established. Supplier recommends a guideline of 50 ppm for the total product which is a mixture of petroleum hydrocarbons.

1,2,4-Trimethylbenzene: ACGIH TLV is 25 ppm.

Cumene (isopropyl benzene): ACGIH TLV and OSHA PEL are 50 ppm. OSHA classifies as Skin.

Xylene: ACGIH TLV is 100 ppm TWA, 160 ppm STEL, A4. OSHA PEL is 100 ppm TWA

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.

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

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

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved positive-pressure supplied-air respirator. The following should be effective types of air-purifying respirators: organic vapor cartridge with a particulate prefilter.

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: Polyethylene, Viton, Polyvinyl chloride (PVC or vinyl), Styrene/butadiene rubber, Polyvinyl alcohol (PVA), Ethyl vinyl alcohol laminate (EVAL). Examples of acceptable glove barrier materials include: Butyl rubber Neoprene, Chlorinated polyethylene, Natural rubber (latex), Nitrile/butadiene rubber (Nitrile or NBR). **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.

EYE PROTECTION: Use chemical goggles. If exposure causes eye discomfort, use a 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: 290°F (143°C) (solvent)

VAPOR PRESSURE: <10 mmHg @ 25°C

VAPOR DENSITY: Not determined

SOLUBILITY IN WATER: Emulsifiable

SPECIFIC GRAVITY: 1.079

APPEARANCE: Red liquid

ODOR: Solvent-type odor

10. STABILITY AND REACTIVITY:

STABILITY: Unstable at elevated temperatures.

CONDITIONS TO AVOID: Avoid temperatures >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 and bases.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

EYE: May cause moderate eye irritation. May cause moderate corneal injury. Vapors may cause eye irritation experienced as mild discomfort and redness.

SKIN: Prolonged contact may cause moderate skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. A test in guinea pigs indicated that this product may have weak skin sensitization potential. However, experience in the manufacture and use of this product has not provided evidence for skin sensitizing properties. The LD₅₀ for a similar material for skin absorption in rabbits was >5,000 mg/kg.

INGESTION: Moderate toxicity if swallowed. The oral LD₅₀ for a similar material for rats was 778 mg/kg (males) and 300 mg/kg (females). Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury, even death. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

INHALATION: Excessive exposure may produce organophosphate-type cholinesterase inhibition. Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure to solvent may cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. The aerosol LC₅₀ for a similar material for rats is 2.7 mg/l. for 4 hours.

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, convulsions. Chlorpyrifos, 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. Solvent has been reported to cause liver, kidney, and blood effects at high exposure levels. Xylene is reported to have caused hearing loss in lab-

oratory animals upon exposure to high concentrations; such effects have not been reported in humans. For cumene, in animals, effects have been reported on the following organ: eye (cataract).

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.

TERATOLOGY (BIRTH DEFECTS): Chlorpyrifos did not cause birth defects in laboratory animals. Solvent was toxic to the fetus in laboratory animal tests, but only at doses that were toxic to the mothers. Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. No malformations were induced at exposures less than those causing severe toxicity to the adult animals.

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 solvent, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Results of in-vitro and animal genetic toxicity studies on the aromatic solvent have been negative. Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

Based largely or completely on information for chlorpyrifos and components of the solvent.

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

DEGRADATION & PERSISTENCE:

Based largely or completely on information for chlorpyrifos.

The photolytic 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 largely or completely on information for components of the solvent.

Biodegradation under aerobic static laboratory conditions is high (BOD 20 or BOD₂₈/ThOD is >40%).

ECOTOXICOLOGY:

Based largely or completely on information for chlorpyrifos.

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

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 is between 51 and 500 mg/kg).

Based largely or completely on information for the solvent.

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

Material is practically non-toxic to birds on a dietary basis (LC₅₀ is >5000 ppm).

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

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: 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 characterist(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 and regulations.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

For non-bulk land and air shipments: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)6.1(3)/UN3017/PG II/RQ (CHLORPYRIFOS)

For non-bulk vessel shipments: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)6.1(3)/UN3017/PG II/RQ (CHLORPYRIFOS)/MARINE POLLUTANT

For bulk shipments: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)6.1(9)/UN3017/PG II/RQ (CHLORPYRIFOS, XYLENE) MARINE POLLUTANT

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 1988 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
1,2,4-Trinitrobenzene	00025-83-6	15.5%
Xylene	001330-20-7	1.5%

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	001330-20-7	NJ1 NJ2 NJ3 PA1 PA3
Chlorpyrifos	00251-89-2	NJ3 PA1 PA3
1,2,4-Trinitrobenzene	00025-83-6	NJ2 NJ3 PA1
Cumene	00099-82-8	NJ2 NJ3 PA1 PA3

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.

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	00291-88-2	1	44.9%
Xylene	00100-20-7	100	1.6%
Cumene	00096-52-6	3000	0.2%

16. OTHER INFORMATION:

MSDS STATUS:

Revised Sections: 2, 3, 4, 8, 11, 12, 15

Reference: DR-0852-0817

Replaces MSDS Dated: 9/23/04

Document Code: D08-082-008

Replaces Document Code: D08-082-007

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

*Trademark of Dow AgroSciences LLC

VID 11.16.06



TETRA MICRONUTRIENTS

Super Tel® Zn

File: MSDS: AMT-104

TETRA Micronutrients

Material Safety Data Sheet

This MSDS complies with the style format specified by ANSI Z400.1 - 1993

SECTION 1: CHEMICAL PRODUCT - COMPANY IDENTIFICATION

TETRA Micronutrients
25025 I-45 North, Suite 377
The Woodlands, Texas 77380
(281) 419-9430
(800) 544-3155

(800) 424-9300 - CHEMTREC (24 Hour Emergency Response)

PRODUCT: Super Tel® Zn
TRADE NAMES: Super Tel® Zn
SYNONYMS: Zinc Sulfate Monohydrate
CHEMICAL FAMILY: Inorganic Salt
MSDS CREATION DATE: 25 AUG 93
MSDS REVISION DATE: 14 JUN 04

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENTS: Zinc Sulfate Monohydrate
FORMULA: $ZnSO_4 \cdot H_2O$
CAS NUMBER: 7446-19-7 (Zinc Sulfate Monohydrate)
PERCENTAGE: 99% Zinc Sulfate Monohydrate
≤1% Water
PERMISSIBLE EXPOSURE LIMITS (OSHA/ACGIH/OTHER): Not established
PROBABLE CONTAMINANT: None

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATINGS: (SCALE 0-4): HEALTH=1, FIRE=0, REACTIVITY=0

EMERGENCY OVERVIEW: White, free-flowing powder. Avoid contact with eyes and/or skin. May cause respiratory tract, skin and eye irritation, possibly severe. Wash thoroughly after handling. Work in well ventilated area.



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POTENTIAL HEALTH EFFECTS:

INHALATION:

Short Term Effects: May cause irritation of the nasal membranes and upper respiratory tract, possibly severe. Additional effects may include difficulty breathing, low blood pressure, dizziness, bluish skin color and lung congestion.

Long Term Effects: In addition to short term exposure, digestive disorders may occur.

SKIN CONTACT:

Short Term Effects: May cause irritation, possibly severe.

Long Term Effects: Same effects as short term exposure.

EYE CONTACT:

Short Term Effects: Contact may cause irritation, possibly severe. Additional effects may include tearing and/or blurred vision.

Long Term Effects: Same effects as short term exposure.

INGESTION:

Short Term Effects: May cause burns. Additional effects may include fever, nausea, vomiting, diarrhea, stomach pain, blood in the stool, inability to urinate, low blood pressure, kidney damage, liver damage and convulsions.

Long Term Effects: Same effects as reported in short term ingestion.

CARCINOGEN STATUS:

OSHA: No NTP: No IARC: No

SECTION 4: FIRST AID MEASURES

INHALATION: Remove from exposure area to fresh air immediately. If breathing is difficult, give oxygen. If breathing has stopped, perform artificial resuscitation. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.

SKIN CONTACT: Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of product remains (at least 15-20 minutes). If burns occur, proceed with the following: cover affected area securely with sterile, dry, loose-fitting dressing. Treat symptomatically and supportively. Get medical attention immediately.

EYE CONTACT: Flush eyes immediately with large amounts of water or normal saline solution, occasionally lifting upper and lower lids until no evidence of product remains (approximately 15-20 minutes). Cover with sterile bandages. Get medical attention immediately.



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INGESTION: Dilute the product immediately with large amounts of water or milk and remove by gastric lavage unless the victim is already vomiting (Dreisbach, Handbook of Poisoning, 12th Ed.). Administration of gastric lavage should be performed by qualified medical personnel. Get medical attention immediately. Treat symptomatically and supportively. If vomiting occurs, keep head lower than hips to prevent aspiration.

NOTE TO PHYSICIAN: Antidote: The antidote, for poisoning from zinc salts recommended, is from Dreisbach, Handbook of Poisoning, 12th Edition. However, the decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be made by qualified medical personnel.

SECTION 5: FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD: Negligible fire and explosion hazard in dust form when exposed to heat or flame.

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or foam, as appropriate for surrounding material. For larger fires, use water spray, fog or regular foam (1996 North American Emergency Response Guidebook, RSPA P 5800.7, Guide Number 171).

FIREFIGHTING: Move product from fire area if you can without risk. Extinguish fire using agent suitable for type of surrounding fire and/or chemicals. Do not use water directly on material. Avoid breathing vapors; keep upwind. Dike area to prevent runoff and contamination of water sources.

HAZARDOUS COMBUSTION PRODUCTS: Thermal decomposition may include toxic and hazardous oxides of zinc and sulfur.

SECTION 6: ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL: Do not touch spilled material. Pick-up dry spills by scooping, shoveling or vacuuming and place into containers for reuse or disposal. Wear respirator, protective clothing and gloves. Keep unnecessary people away. Isolate hazard area and deny entry to avoid material dispersal. Wash thoroughly after handling. Use with adequate ventilation.



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SECTION 7: HANDLING AND STORAGE

Avoid outdoor storage in open piles since run-off could contaminate streams and/or ground water. It is recommended that this product be stored in a dry area and product transfer be done on an impervious surface so any spills can be contained.

Observe all federal, state and local regulations when storing this product.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS: No occupational exposure limits established by OSHA/ACGIH/NIOSH.

VENTILATION: Provide local exhaust or process enclosure ventilation.

EYE PROTECTION: Wear safety glasses with splash shields or safety goggles/shield to prevent contact with this product.

EMERGENCY WASH FACILITIES: Where there is any possibility that an employee's eyes and/or skin may be exposed to this product, the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

CLOTHING: Wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this product. Although skin contamination is not generally a problem, it increases the possibility of ingestion through poor personnel hygiene. Contaminated work clothing and shoes should not be taken from the workplace.

GLOVES: Wear appropriate protective gloves to prevent contact with this product.

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RESPIRATOR: The respirator selected must be based on contamination levels found in the work place and specific to the job assignment. Do not exceed the working limits of the respirator. Respirators must also be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS: Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION: White, free-flowing powder

MOLECULAR FORMULA: $ZnSO_4 \cdot H_2O$

MOLECULAR WEIGHT: 179.46

pH: 5.0 @ 10% solution

MELTING POINT: Decomposes above 500°C (932°F)

BOILING POINT: Not applicable

VAPOR PRESSURE: No applicable

VAPOR DENSITY: Not applicable

WATER SOLUBILITY: 50% by weight

SOLVENT SOLUBILITY: Insoluble in alcohol

SPECIFIC GRAVITY: 3.28

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID: May burn but does not ignite readily. Avoid contact with strong oxidizers and/or excessive heat. Do not allow spilled material to contaminate water sources.

INCOMPATIBILITIES:

Oxidizers (Strong): Fire and explosion hazard.

HAZARDOUS DECOMPOSITION: Thermal decomposition products may include toxic and hazardous oxides of zinc and sulfur.

POLYMERIZATION: Has not been reported to occur under normal temperatures and pressures.



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SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information for Zinc Sulfate Monohydrate is not available.
Toxicological information sited below is for specific Zinc Sulfate species.

TOXICITY DATA:

Anhydrous:

- TD_{LO}: 45 mg/kg, oral, 7 days continuous, human
- TD_{LO}: 106 mg/kg, oral, human
- TD_{LO}: 180 mg/kg, oral, 6 weeks intermittent, man
- TD_{LO}: 3120 mg/kg, oral, 43 weeks intermittent, woman

Dihydrate:

- LD₅₀: 1710 mg/kg, oral, rat
- LD₅₀: 926 mg/kg, oral, mouse

Heptahydrate:

- LD₅₀: 2150 mg/kg, oral, rat
- LD₅₀: 2200 mg/kg, oral mouse
- LD_{LO}: 1914 mg/kg, oral, rabbit
- TD_{LO}: 226,226 mg/kg, oral, 13 weeks continuous, rat
- LD_{LO}: 221 mg/kg, unreported, man

CARCINOGEN STATUS: Data not available

LOCAL EFFECTS: Corrosive-inhalation, skin, eye, ingestion

ACUTE TOXICITY LEVEL: Moderately toxic by ingestion

TARGET EFFECTS: Poisoning may affect the liver and kidneys

HEALTH EFFECTS:

INHALATION (Zinc Sulfate):

Acute Exposure: Inhalation of dust may cause irritation of the respiratory tract with sore throat, coughing, shortness of breath, labored breathing, pain in the nose, mouth, and throat, and burns of the mucous membranes. If sufficient quantities are inhaled, pulmonary edema may develop, often with a latent period of 5 - 72 hours. The symptoms may include tightness in the chest, dyspnea, frothy sputum, cyanosis, and dizziness. Physical findings may include weak, rapid pulse, hypotension, hemoconcentration, and moist rales.

Chronic Exposure: Depending on the concentration and duration of exposure, repeated or prolonged exposure may cause inflammatory and ulcerative changes in the mouth and possibly bronchial and gastrointestinal disturbances.

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SKIN CONTACT (Zinc Sulfate):

Acute Exposure: Direct contact may cause severe irritation, redness, pain, and possibly burns.

Chronic Exposure: Effects depend on concentration and duration of exposure. Repeated or prolonged contact with metal salts may result in dermatitis with erythematous, papular, and granulomatous reactions in susceptible individuals or effects similar to acute exposure.

EYE CONTACT (Zinc Sulfate):

Acute Exposure: Direct contact may cause severe irritation, redness, pain, blurred vision, and burns, possibly severe. The degree of injury depends on the concentration and duration of contact. The full extent of the injury may not be immediately apparent. Application of a 20% zinc sulfate solution to corneas infected with herpetic keratitis ulcers resulted in edema and residual scarring upon healing.

Chronic Exposure: Effects depend on concentration and duration of exposure. Repeated or prolonged contact may result in conjunctivitis or effects as in acute exposure.

INGESTION (Zinc Sulfate):

Acute Exposure: Ingestion may cause a burning pain in the mouth and throat, fever, nausea, violent vomiting with severe abdominal pain, watery or bloody diarrhea, prostration, tenemus, retching, hyperglycemia, anuria, liver damage, kidney damage with albuminuria, acetonuria, and glycosuria, hypotension, sudden collapse, and convulsions.

Chronic Exposure: Depending on the concentration, repeated ingestion may cause effects as with acute ingestion. Prolonged ingestion of 33,000 mg/kg in drinking water resulted in severe anemia in mice. Reproductive effects have been reported in animals (anhydrous).

SECTION 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL IMPACT RATING (0-4): No data available

ACUTE AQUATIC TOXICITY: No data available

DEGRADABILITY: No data available

LOG BIOCONCENTRATION FACTOR (BCF): No data available

LOG OCTANOL/WATER PARTITION COEFFICIENT: No data available

SECTION 13: DISPOSAL INFORMATION

Observe all federal, state and local regulations when disposing of this product.



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SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: RQ, Environmentally hazardous substances, solid, n.o.s. (zinc sulfate monohydrate), 9, UN 3077, III

DOT Hazard Class or Division: 9

DOT Identification Number: UN 3077

DOT Packing Group: III

DOT Reportable Quantity: 1000 lb/454 kg

DOT Labeling Requirements: Class 9

DOT Packaging Authorizations: Refer to

Exceptions: 49 CFR 173.115

Non-Bulk Packaging: 49 CFR 173.213

Bulk Packaging: 49 CFR 173.240

NOTE:

When a package contains LESS than 1000 pounds of zinc sulfate, it is not regulated by the Department of Transportation as a hazardous material. The Proper Department of Transportation (DOT) Shipping Description is

“Non-DOT Regulated (zinc sulfate).”

When a package contains MORE than 1000 pounds of zinc sulfate, it becomes regulated by the Department of Transportation as a hazardous material due to the package containing the (RQ) amount of zinc sulfate. The Proper Department of Transportation (DOT) Shipping Description that must appear on a shipping paper is

“RQ, Environmentally hazardous substances, solid, n.o.s. (zinc sulfate monohydrate), 9, UN3077, III. ”

SECTION 15: REGULATORY INFORMATION

TSCA STATUS:

No



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40 CFR 302.4	CERCLA SECTION 103:	No
40 CFR 355.30	SARA SECTION 302:	No
40 CFR 355.40	SARA SECTION 304:	No
40 CFR 372.65	SARA SECTION 313:	No
29 CFR 1910.119	OSHA Process Safety:	No
	California Proposition 65:	No
40 CFR 370.21	SARA HAZARD CATEGORIES, SARA SECTIONS 311/312	
	ACUTE HAZARD:	Yes
	CHRONIC HAZARD:	No
	FIRE HAZARD:	No
	REACTIVITY HAZARD:	No
	SUDDEN RELEASE HAZARD:	No

SECTION 16: OTHER INFORMATION

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.



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This information relates to the specific product designated and may not be valid for such product used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy themselves as to the suitability and completeness of such information for their own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.

TETRA Micronutrients reserves the right to refuse shipment of this product to any consumer who fails to demonstrate the ability to consistently handle and use it safely and in compliance with all applicable laws, rules and regulations. Such demonstration may require on-site inspection of any or all storage, processing, packaging and other handling systems that come in contact with it.

Customers are responsible for compliance with local, state and federal regulations that may be pertinent in the storage, application and disposal of this product.

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name:	QUILT FUNGICIDE	Product No.:	A13705H
EPA Signal Word:	Caution		
Active Ingredient(%):	Azoxystrobin (7.0%)	CAS No.:	131860-33-8
Chemical Name:	Methyl (E)-2-(2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl)-3-methoxyacrylate		
Chemical Class:	A beta-methoxyacrylate fungicide		
Active Ingredient(%):	Propiconazole (11.7%)	CAS No.:	60207-90-1
Chemical Name:	1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole		
Chemical Class:	Triazole Derivative Fungicide		

EPA Registration Number(s): 100-1178

Section(s) Revised: 2, 3, 8, 9

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Propylene Glycol	Not Established	Not Established	50 ppm TWA ****	No
Azoxystrobin (7.0%)	Not Established	Not Established	2 mg/m ³ TWA ***	No
Propiconazole (11.7%)	Not Established	Not Established	10 mg/m ³ TWA ***	No

*** Syngenta Occupational Exposure Limit (OEL)

**** Recommended by AIHA (American Industrial Hygiene Association)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
 Syngenta Hazard Category: B, S

3. HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

Causes mild eye and skin irritation. Harmful if swallowed.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Light yellow to yellow liquid

Odor: Sweet musty

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion:** If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact:** If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact:** If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation:** If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

- Flash Point (Test Method): > 221°F
- Flammable Limits (% in Air): Lower: % Not Applicable Upper: % Not Applicable
- Autoignition Temperature: 833 °F
- Flammability: Not flammable

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions in Protective Equipment Section. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

- Ingestion:** Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

- Eye Contact:** Where eye contact is likely, use chemical splash goggles.
- Skin Contact:** Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
- Inhalation:** A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light yellow to yellow liquid
Odor:	Sweet musty
Melting Point:	Not Available
Boiling Point:	Not Applicable
Specific Gravity/Density:	1.07 g/ml
pH:	6.9 - 7.2 @ 68 - 77°F (20 - 25°C)
<u>Solubility in H₂O</u>	
Azoxystrobin :	6 mg/l in water @ 68°F (20°C)
Propiconazole:	0.1 g/l @ 68°F (20°C)
<u>Vapor Pressure</u>	
Azoxystrobin :	8.25 x 10 ⁽⁻¹³⁾ mmHg @ 68°F(20°C)
Propiconazole:	4.2 x 10 ⁽⁻⁷⁾ mmHg @ 77°F (25°C)

10. STABILITY AND REACTIVITY

Stability:	Stable under normal use and storage conditions.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	None known.
Materials to Avoid:	None known.
Hazardous Decomposition Products:	Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	<u>Slightly Toxic</u>	
	Oral (LD50 Rat) :	1,750 mg/kg body weight
Dermal:	<u>Practically Non-Toxic</u>	
	Dermal (LD50 Rat) :	> 5,000 mg/kg body weight
Inhalation:	<u>Practically Non-Toxic</u>	
	Inhalation (LC50 Rat) :	> 3.05 mg/l air - 4 hours
Eye Contact:	Slightly Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer (Guinea Pig)	

Reproductive/Developmental Effects

Azoxystrobin :	Shows weak chromosomal damage in mammalian cells at cytotoxic levels. Negative in whole animal assays for chromosomal and DNA damage at high dosages (> or = 2,000 mg/kg). In rabbits, no effect was observed up to the highest dose level (500 mg/kg/day). In rats, developmental effects were seen only at maternally toxic doses (100 mg/kg/day).
Propiconazole:	None observed.

Chronic/Subchronic Toxicity Studies

Azoxystrobin :	In a rat 90-day feeding study, liver toxicity was observed at 2,000 ppm. This was manifest as
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gross distension of the bile duct, increased numbers of lining cells and inflammation of the duct. No toxicologically significant effects were seen in repeat dose dog studies.

Data reviews do not indicate any potential for endocrine disruption.

There is no evidence of neurotoxicity in any of the studies conducted with azoxystrobin.

Propiconazole: None observed.

Carcinogenicity

Azoxystrobin : No carcinogenic effects observed in rats or mice at doses up to the maximum tolerated dose.

Propiconazole: Increased incidence of liver tumors at extremely high doses (male mice).

Other Toxicity Information

None

Toxicity of Other Components

Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

Target Organs

Active Ingredients

Azoxystrobin : Liver

Propiconazole: Liver

Inert Ingredients

Propylene Glycol: CNS, skin, eye, kidney, liver

12. ECOLOGICAL INFORMATION

Summary of Effects

Azoxystrobin :

Highly toxic to fish and invertebrates. Practically non-toxic to birds and bees.

Propiconazole:

Moderately toxic to fish and invertebrates. Practically non-toxic to birds and bees.

Eco-Acute Toxicity

Azoxystrobin :

Bees LC50/EC50 >200 ug/bee

Invertebrates (Water Flea) LC50/EC50 0.259 ppm

Fish (Trout) LC50/EC50 0.47 ppm

Fish (Bluegill) LC50/EC50 1.1 ppm

Birds (8-day dietary - Bobwhite Quail) LC50/EC50 > 5,200 ppm

Birds (8-day dietary - Mallard Duck) LC50/EC50 > 5,200 ppm

Propiconazole:

Bees LC50/EC50 > 25 ug/bee

Invertebrates (Water Flea) LC50/EC50 3.2 - 10.2 ppm

Fish (Trout) LC50/EC50 4.3 ppm

Fish (Bluegill) LC50/EC50 5.7 - 6.4 ppm

Birds (8-day dietary - Bobwhite Quail) LC50/EC50 > 5,620 ppm

Birds (8-day dietary - Mallard Duck) LC50/EC50 > 5,620 ppm

Eco-Chronic Toxicity

Azoxystrobin :

Not Available

Propiconazole:

Fish (Fathead minnow) Early Life Stage MATC > 0.43 and < 0.97 mg/l

Invertebrate (Daphnia Magna) Life Cycle MATC > 0.31 and < 0.69 mg/l

Mallard Reproduction NOEC 300 ppm

Bobwhite Reproduction NOEC 1,000 ppm

Environmental Fate

Azoxystrobin :

The information presented here is for the active ingredient, azoxystrobin.

Low bioaccumulation potential. Not persistent in soil. Stable in water. Moderate mobility in soil. Sinks in water (after 24 h).

Propiconazole:

The information presented here is for the active ingredient, propiconazole.

Low bioaccumulation potential. Not persistent in soil. Stable in water. Low mobility in soil. Sinks in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA
Not regulated.

B/L Freight Classification

Fungicides, NOIBN, O/T Poison

Comments

Water Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Azoxystrobin, Propiconazole), Marine Pollutant

Hazard Class or Division: Class 9

Identification Number: UN 3082

Packing Group: PG III

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: Propiconazole (11.7%) (CAS No. 60207-90-1)

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

None

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 1
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 1
Flammability: 1
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 12/17/2003

Revision Date: 09/13/2004

Replaces:

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP# : SCP-955-00421B

End of MSDS



Super Tel® Zn

File: MSDS: AMT-104

TETRA Micronutrients

Material Safety Data Sheet

This MSDS complies with the style format specified by ANSI Z400.1 - 1993

SECTION 1: CHEMICAL PRODUCT - COMPANY IDENTIFICATION

TETRA Micronutrients

25025 I-45 North, Suite 377

The Woodlands, Texas 77380

(281) 419-9430

(800) 544-3155

(800) 424-9300 - CHEMTREC (24 Hour Emergency Response)

PRODUCT: Super Tel® Zn

TRADE NAMES: Super Tel® Zn

SYNONYMS: Zinc Sulfate Monohydrate

CHEMICAL FAMILY: Inorganic Salt

MSDS CREATION DATE: 25 AUG 93

MSDS REVISION DATE: 14 JUN 04

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENTS: Zinc Sulfate Monohydrate

FORMULA: ZnSO₄ • H₂O

CAS NUMBER: 7446-19-7 (Zinc Sulfate Monohydrate)

PERCENTAGE: 99% Zinc Sulfate Monohydrate

≤1% Water

PERMISSIBLE EXPOSURE LIMITS (OSHA/ACGIH/OTHER): Not established

PROBABLE CONTAMINANT: None

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATINGS: (SCALE 0-4): HEALTH=1, FIRE=0, REACTIVITY=0

EMERGENCY OVERVIEW: White, free-flowing powder. Avoid contact with eyes and/or skin. May cause respiratory tract, skin and eye irritation, possibly severe. Wash thoroughly after handling. Work in well ventilated area.

TETRA Micronutrients

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POTENTIAL HEALTH EFFECTS:

INHALATION:

Short Term Effects: May cause irritation of the nasal membranes and upper respiratory tract, possibly severe. Additional effects may include difficulty breathing, low blood pressure, dizziness, bluish skin color and lung congestion.

Long Term Effects: In addition to short term exposure, digestive disorders may occur.

SKIN CONTACT:

Short Term Effects: May cause irritation, possibly severe.

Long Term Effects: Same effects as short term exposure.

EYE CONTACT:

Short Term Effects: Contact may cause irritation, possibly severe. Additional effects may include tearing and/or blurred vision.

Long Term Effects: Same effects as short term exposure.

INGESTION:

Short Term Effects: May cause burns. Additional effects may include fever, nausea, vomiting, diarrhea, stomach pain, blood in the stool, inability to urinate, low blood pressure, kidney damage, liver damage and convulsions.

Long Term Effects: Same effects as reported in short term ingestion.

CARCINOGEN STATUS:

OSHA: No **NTP:** No **IARC:** No

SECTION 4: FIRST AID MEASURES

INHALATION: Remove from exposure area to fresh air immediately. If breathing is difficult, give oxygen. If breathing has stopped, perform artificial resuscitation. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.

SKIN CONTACT: Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of product remains (at least 15-20 minutes). If burns occur, proceed with the following: cover affected area securely with sterile, dry, loose-fitting dressing. Treat symptomatically and supportively. Get medical attention immediately.

EYE CONTACT: Flush eyes immediately with large amounts of water or normal saline solution, occasionally lifting upper and lower lids until no evidence of product remains (approximately 15-20 minutes). Cover with sterile bandages. Get medical attention immediately.



TETRA MICRONUTRIENTS

Super Tel® Zn

File: MSDS: AMT-104

TETRA Micronutrients

Material Safety Data Sheet

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INGESTION: Dilute the product immediately with large amounts of water or milk and remove by gastric lavage unless the victim is already vomiting (Dreisbach, Handbook of Poisoning, 12th Ed.). Administration of gastric lavage should be performed by qualified medical personnel. Get medical attention immediately. Treat symptomatically and supportively. If vomiting occurs, keep head lower than hips to prevent aspiration.

NOTE TO PHYSICIAN: Antidote: The antidote, for poisoning from zinc salts recommended, is from Dreisbach, Handbook of Poisoning, 12th Edition. However, the decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be made by qualified medical personnel.

SECTION 5: FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD: Negligible fire and explosion hazard in dust form when exposed to heat or flame.

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or foam, as appropriate for surrounding material. For larger fires, use water spray, fog or regular foam (1996 North American Emergency Response Guidebook, RSPA P 5800.7, Guide Number 171).

FIREFIGHTING: Move product from fire area if you can without risk. Extinguish fire using agent suitable for type of surrounding fire and/or chemicals. Do not use water directly on material. Avoid breathing vapors; keep upwind. Dike area to prevent runoff and contamination of water sources.

HAZARDOUS COMBUSTION PRODUCTS: Thermal decomposition may include toxic and hazardous oxides of zinc and sulfur.

SECTION 6: ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL: Do not touch spilled material. Pick-up dry spills by scooping, shoveling or vacuuming and place into containers for reuse or disposal. Wear respirator, protective clothing and gloves. Keep unnecessary people away. Isolate hazard area and deny entry to avoid material dispersal. Wash thoroughly after handling. Use with adequate ventilation.



TETRA Micronutrients

Material Safety Data Sheet

This MSDS complies with the style format specified by ANSI Z400.1 - 1993

SECTION 7: HANDLING AND STORAGE

Avoid outdoor storage in open piles since run-off could contaminate streams and/or ground water. It is recommended that this product be stored in a dry area and product transfer be done on an impervious surface so any spills can be contained.

Observe all federal, state and local regulations when storing this product.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS: No occupational exposure limits established by OSHA/ACGIH/NIOSH.

VENTILATION: Provide local exhaust or process enclosure ventilation.

EYE PROTECTION: Wear safety glasses with splash shields or safety goggles/shield to prevent contact with this product.

EMERGENCY WASH FACILITIES: Where there is any possibility that an employee's eyes and/or skin may be exposed to this product, the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

CLOTHING: Wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this product. Although skin contamination is not generally a problem, it increases the possibility of ingestion through poor personnel hygiene. Contaminated work clothing and shoes should not be taken from the workplace.

GLOVES: Wear appropriate protective gloves to prevent contact with this product.

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RESPIRATOR: The respirator selected must be based on contamination levels found in the work place and specific to the job assignment. Do not exceed the working limits of the respirator. Respirators must also be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS: Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION: White, free-flowing powder

MOLECULAR FORMULA: $ZnSO_4 \cdot H_2O$

MOLECULAR WEIGHT: 179.46

pH: 5.0 @ 10% solution

MELTING POINT: Decomposes above 500°C (932°F)

BOILING POINT: Not applicable

VAPOR PRESSURE: No applicable

VAPOR DENSITY: Not applicable

WATER SOLUBILITY: 50% by weight

SOLVENT SOLUBILITY: Insoluble in alcohol

SPECIFIC GRAVITY: 3.28

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID: May burn but does not ignite readily. Avoid contact with strong oxidizers and/or excessive heat. Do not allow spilled material to contaminate water sources.

INCOMPATIBILITIES:

Oxidizers (Strong): Fire and explosion hazard.

HAZARDOUS DECOMPOSITION: Thermal decomposition products may include toxic and hazardous oxides of zinc and sulfur.

POLYMERIZATION: Has not been reported to occur under normal temperatures and pressures.

TETRA Micronutrients

Material Safety Data Sheet

This MSDS complies with the style format specified by ANSI Z400.1 - 1993

SECTION 11: TOXICOLOGICAL INFORMATION

**Toxicological information for Zinc Sulfate Monohydrate is not available.
Toxicological information sited below is for specific Zinc Sulfate species.**

TOXICITY DATA:

Anhydrous:

TD_{LO}: 45 mg/kg, oral, 7 days continuous, human

TD_{LO}: 106 mg/kg, oral, human

TD_{LO}: 180 mg/kg, oral, 6 weeks intermittent, man

TD_{LO}: 3120 mg/kg, oral, 43 weeks intermittent, woman

Dihydrate:

LD₅₀: 1710 mg/kg, oral, rat

LD₅₀: 926 mg/kg, oral, mouse

Heptahydrate:

LD₅₀: 2150 mg/kg, oral, rat

LD₅₀: 2200 mg/kg, oral mouse

LD_{LO}: 1914 mg/kg, oral, rabbit

TD_{LO}: 226,226 mg/kg, oral, 13 weeks continuous, rat

LD_{LO}: 221 mg/kg, unreported, man

CARCINOGEN STATUS: Data not available

LOCAL EFFECTS: Corrosive-inhalation, skin, eye, ingestion

ACUTE TOXICITY LEVEL: Moderately toxic by ingestion

TARGET EFFECTS: Poisoning may affect the liver and kidneys

HEALTH EFFECTS:

INHALATION (Zinc Sulfate):

Acute Exposure: Inhalation of dust may cause irritation of the respiratory tract with sore throat, coughing, shortness of breath, labored breathing, pain in the nose, mouth, and throat, and burns of the mucous membranes. If sufficient quantities are inhaled, pulmonary edema may develop, often with a latent period of 5 - 72 hours. The symptoms may include tightness in the chest, dyspnea, frothy sputum, cyanosis, and dizziness. Physical findings may include weak, rapid pulse, hypotension, hemoconcentration, and moist rales.

Chronic Exposure: Depending on the concentration and duration of exposure, repeated or prolonged exposure may cause inflammatory and ulcerative changes in the mouth and possibly bronchial and gastrointestinal disturbances.

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SKIN CONTACT (Zinc Sulfate):

Acute Exposure: Direct contact may cause severe irritation, redness, pain, and possibly burns.

Chronic Exposure: Effects depend on concentration and duration of exposure. Repeated or prolonged contact with metal salts may result in dermatitis with erythematous, papular, and granulomatous reactions in susceptible individuals or effects similar to acute exposure.

EYE CONTACT (Zinc Sulfate):

Acute Exposure: Direct contact may cause severe irritation, redness, pain, blurred vision, and burns, possibly severe. The degree of injury depends on the concentration and duration of contact. The full extent of the injury may not be immediately apparent. Application of a 20% zinc sulfate solution to corneas infected with herpetic keratitis ulcers resulted in edema and residual scarring upon healing.

Chronic Exposure: Effects depend on concentration and duration of exposure. Repeated or prolonged contact may result in conjunctivitis or effects as in acute exposure.

INGESTION (Zinc Sulfate):

Acute Exposure: Ingestion may cause a burning pain in the mouth and throat, fever, nausea, violent vomiting with severe abdominal pain, watery or bloody diarrhea, prostration, tenemus, retching, hyperglycemia, anuria, liver damage, kidney damage with albuminuria, acetonuria, and glycosuria, hypotension, sudden collapse, and convulsions.

Chronic Exposure: Depending on the concentration, repeated ingestion may cause effects as with acute ingestion. Prolonged ingestion of 33,000 mg/kg in drinking water resulted in severe anemia in mice. Reproductive effects have been reported in animals (anhydrous).

SECTION 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL IMPACT RATING (0-4): No data available

ACUTE AQUATIC TOXICITY: No data available

DEGRADABILITY: No data available

LOG BIOCONCENTRATION FACTOR (BCF): No data available

LOG OCTANOL/WATER PARTITION COEFFICIENT: No data available

SECTION 13: DISPOSAL INFORMATION

Observe all federal, state and local regulations when disposing of this product.



TETRA Micronutrients

Material Safety Data Sheet

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SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: RQ, Environmentally hazardous substances, solid, n.o.s. (zinc sulfate monohydrate), 9, UN 3077, III

DOT Hazard Class or Division: 9

DOT Identification Number: UN 3077

DOT Packing Group: III

DOT Reportable Quantity: 1000 lb/454 kg

DOT Labeling Requirements: Class 9

DOT Packaging Authorizations: Refer to

Exceptions: 49 CFR 173.115

Non-Bulk Packaging: 49 CFR 173.213

Bulk Packaging: 49 CFR 173.240

NOTE:

When a package contains LESS than 1000 pounds of zinc sulfate, it is not regulated by the Department of Transportation as a hazardous material. The Proper Department of Transportation (DOT) Shipping Description is

“Non-DOT Regulated (zinc sulfate).”

When a package contains MORE than 1000 pounds of zinc sulfate, it becomes regulated by the Department of Transportation as a hazardous material due to the package containing the (RQ) amount of zinc sulfate. The Proper Department of Transportation (DOT) Shipping Description that must appear on a shipping paper is

“RQ, Environmentally hazardous substances, solid, n.o.s. (zinc sulfate monohydrate), 9, UN3077, III.”

SECTION 15: REGULATORY INFORMATION

TSCA STATUS:

No



Super Tel® Zn

File: MSDS: AMT-104

TETRA Micronutrients

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40 CFR 302.4	CERCLA SECTION 103:	No
40 CFR 355.30	SARA SECTION 302:	No
40 CFR 355.40	SARA SECTION 304:	No
40 CFR 372.65	SARA SECTION 313:	No
29 CFR 1910.119	OSHA Process Safety:	No
	California Proposition 65:	No
40 CFR 370.21	SARA HAZARD CATEGORIES, SARA SECTIONS 311/312	
	ACUTE HAZARD:	Yes
	CHRONIC HAZARD:	No
	FIRE HAZARD:	No
	REACTIVITY HAZARD:	No
	SUDDEN RELEASE HAZARD:	No

SECTION 16: OTHER INFORMATION

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.

Syngenta Crop Protection, Inc.
 Post Office Box 18300
 Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name:	QUILT FUNGICIDE	Product No.:	A13705H
EPA Signal Word:	Caution		
Active Ingredient(%):	Azoxystrobin (7.0%)	CAS No.:	131860-33-8
Chemical Name:	Methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate		
Chemical Class:	A beta-methoxyacrylate fungicide		
Active Ingredient(%):	Propiconazole (11.7%)	CAS No.:	60207-90-1
Chemical Name:	1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole		
Chemical Class:	Triazole Derivative Fungicide		
EPA Registration Number(s):	100-1178	Section(s) Revised:	2, 3, 8, 9

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Propylene Glycol	Not Established	Not Established	50 ppm TWA ****	No
Azoxystrobin (7.0%)	Not Established	Not Established	2 mg/m ³ TWA ***	No
Propiconazole (11.7%)	Not Established	Not Established	10 mg/m ³ TWA ***	No

*** Syngenta Occupational Exposure Limit (OEL)

**** Recommended by AIHA (American Industrial Hygiene Association)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
 Syngenta Hazard Category: B, S

3. HAZARDS IDENTIFICATION
Symptoms of Acute Exposure

Causes mild eye and skin irritation. Harmful if swallowed.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Light yellow to yellow liquid

Odor: Sweet musty

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion:** If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact:** If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact:** If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation:** If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	> 221°F	
Flammable Limits (% in Air):	Lower: % Not Applicable	Upper: % Not Applicable
Autoignition Temperature:	833 °F	
Flammability:	Not flammable	

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions in Protective Equipment Section. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact: Where eye contact is likely, use chemical splash goggles.
 Skin Contact: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
 Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Light yellow to yellow liquid
 Odor: Sweet musty
 Melting Point: Not Available
 Boiling Point: Not Applicable
 Specific Gravity/Density: 1.07 g/ml
 pH: 6.9 - 7.2 @ 68 - 77°F (20 - 25°C)

Solubility in H₂O

Azoxystrobin : 6 mg/l in water @ 68°F (20°C)
 Propiconazole: 0.1 g/l @ 68°F (20°C)

Vapor Pressure

Azoxystrobin : 8.25 x 10⁽⁻¹³⁾ mmHg @ 68°F(20°C)
 Propiconazole: 4.2 x 10⁽⁻⁷⁾ mmHg @ 77°F (25°C)

10. STABILITY AND REACTIVITY

Stability: Stable under normal use and storage conditions.
 Hazardous Polymerization: Will not occur.
 Conditions to Avoid: None known.
 Materials to Avoid: None known.
 Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion: Slightly Toxic
 Oral (LD50 Rat) : 1,750 mg/kg body weight
 Dermal: Practically Non-Toxic
 Dermal (LD50 Rat) : > 5,000 mg/kg body weight
 Inhalation: Practically Non-Toxic
 Inhalation (LC50 Rat) : > 3.05 mg/l air - 4 hours
 Eye Contact: Slightly Irritating (Rabbit)
 Skin Contact: Slightly Irritating (Rabbit)
 Skin Sensitization: Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects

Azoxystrobin : Shows weak chromosomal damage in mammalian cells at cytotoxic levels. Negative in whole animal assays for chromosomal and DNA damage at high dosages (> or = 2,000 mg/kg). In rabbits, no effect was observed up to the highest dose level (500 mg/kg/day). In rats, developmental effects were seen only at maternally toxic doses (100 mg/kg/day).
 Propiconazole: None observed.

Chronic/Subchronic Toxicity Studies

Azoxystrobin : In a rat 90-day feeding study, liver toxicity was observed at 2,000 ppm. This was manifest as

gross distension of the bile duct, increased numbers of lining cells and inflammation of the duct. No toxicologically significant effects were seen in repeat dose dog studies. Data reviews do not indicate any potential for endocrine disruption. There is no evidence of neurotoxicity in any of the studies conducted with azoxystrobin.

Propiconazole: None observed.

Carcinogenicity

Azoxystrobin : No carcinogenic effects observed in rats or mice at doses up to the maximum tolerated dose.
Propiconazole: Increased incidence of liver tumors at extremely high doses (male mice).

Other Toxicity Information

None

Toxicity of Other Components

Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

Target Organs

Active Ingredients

Azoxystrobin : Liver

Propiconazole: Liver

Inert Ingredients

Propylene Glycol: CNS, skin, eye, kidney, liver

12. ECOLOGICAL INFORMATION

Summary of Effects

Azoxystrobin :

Highly toxic to fish and invertebrates. Practically non-toxic to birds and bees.

Propiconazole:

Moderately toxic to fish and invertebrates. Practically non-toxic to birds and bees.

Eco-Acute Toxicity

Azoxystrobin :

Bees LC50/EC50 >200 ug/bee
Invertebrates (Water Flea) LC50/EC50 0.259 ppm
Fish (Trout) LC50/EC50 0.47 ppm
Fish (Bluegill) LC50/EC50 1.1 ppm
Birds (8-day dietary - Bobwhite Quail) LC50/EC50 > 5,200 ppm
Birds (8-day dietary - Mallard Duck) LC50/EC50 > 5,200 ppm

Propiconazole:

Bees LC50/EC50 > 25 ug/bee
Invertebrates (Water Flea) LC50/EC50 3.2 - 10.2 ppm
Fish (Trout) LC50/EC50 4.3 ppm
Fish (Bluegill) LC50/EC50 5.7 - 6.4 ppm
Birds (8-day dietary - Bobwhite Quail) LC50/EC50 > 5,620 ppm
Birds (8-day dietary - Mallard Duck) LC50/EC50 > 5,620 ppm

Eco-Chronic Toxicity

Azoxystrobin :

Not Available

Propiconazole:

Fish (Fathead minnow) Early Life Stage MATC > 0.43 and < 0.97 mg/l
Invertebrate (Daphnia Magna) Life Cycle MATC > 0.31 and < 0.69 mg/l
Mallard Reproduction NOEC 300 ppm
Bobwhite Reproduction NOEC 1,000 ppm

Environmental Fate

Azoxystrobin :

The information presented here is for the active ingredient, azoxystrobin.

Low bioaccumulation potential. Not persistent in soil. Stable in water. Moderate mobility in soil. Sinks in water (after 24 h).

Propiconazole:

The information presented here is for the active ingredient, propiconazole.

Low bioaccumulation potential. Not persistent in soil. Stable in water. Low mobility in soil. Sinks in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA
Not regulated.

B/L Freight Classification

Fungicides, NOIBN, O/T Poison

Comments

Water Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Azoxystrobin, Propiconazole), Marine Pollutant

Hazard Class or Division: Class 9

Identification Number: UN 3082

Packing Group: PG III

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: Propiconazole (11.7%) (CAS No. 60207-90-1)

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

None

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 1
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 1
Flammability: 1
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 12/17/2003

Revision Date: 09/13/2004

Replaces:

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP# : SCP-955-00421B

End of MSDS

MATERIAL SAFETY DATA SHEET

LI 700®

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

FORMULATED FOR:

Loveland Products, Inc.
P.O. Box 1286 • Greeley, CO 80632-1286

24-Hour Emergency Phone: 1-800-424-9300
Medical Emergencies: 1-800-301-7976
U.S. Coast Guard National Response Center: 1-800-424-8802

PRODUCT NAME: LI 700®
CHEMICAL NAME: Blend of Methylacetic Acid, processed Lecithin and surfactant
CHEMICAL FAMILY: Surfactant
CALIF. REG. NO.: 34704-50035
WASH. REG. NO.: 34704-04007
MSDS Number: LI7-04-LPI

MSDS Revisions: New

Date Of Issue: 07/20/04

Supersedes: New

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN - DANGER. LIQUID CAUSES SKIN AND EYE INJURY. Wear eye protection and chemical resistant gloves.

This product is a dark brown liquid with pungent odor. Primary routes of entry are Inhalation, eye contact and skin contact.

3. COMPOSITION, INFORMATION ON INGREDIENTS

<u>Chemical Ingredients:</u>	<u>Percentage by Weight:</u>	<u>CAS No.</u>	<u>TLV (Units)</u>
Methylacetic Acid, and	34.70	79-09-4	30 mg/m ³
Phosphatidylcholine, Alkyl Polyoxyethylene Ether	45.30		
Inert Ingredients	20.00		

This product is hazardous according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

4. FIRST AID MEASURES

If in eyes: Treat as corrosive. Flush eyes with plenty of water for 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

If on skin: Treat as corrosive. Remove all contaminated clothing. Wash with soap and water. Get medical attention.

If swallowed: Call a physician immediately. Drink 2 glasses of water. Induce vomiting.

If inhaled: Move person to fresh air. Apply artificial respiration if necessary.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method): >212°F (100°C) / TCC

FLAMMABLE LIMITS (LFL & UFL): Not established

EXTINGUISHING MEDIA: Considered non-combustible; dry chemical, carbon dioxide, alcohol foam, foam, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: May produce hazardous by-products.

SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool containers exposed to fire. Remain upwind. Avoid breathing smoke. Wear self-contained breathing apparatus and full protective gear. Avoid using heavy streams of water.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Release or Spill: Wear chemical safety glasses with side shields or chemical goggles, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved pesticide respirator or air-supplied respirator.

For spills: Spills may be collected with absorbent material and placed in a container for proper disposal in accordance with Federal, State and Local Regulations. Prevent runoff from entering sewer drains and waterways.

7. HANDLING AND STORAGE

HANDLING: Avoid eye and skin contact. Use with ventilation and avoid breathing vapors.

STORAGE: Store above 40°F/4.4°C. Store in a cool, dry place. Store in original container. Keep container tightly closed. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Local ventilation recommended. Work in well-ventilated area or outdoors.

RESPIRATORY PROTECTION: Wear a NIOSH approved pesticide respirator with organic vapor/acid/gas cartridge and pesticide prefilter.

EYE PROTECTION: Chemical goggles or shielded safety glasses.

SKIN PROTECTION: Wear protective clothing: long-sleeved shirts and pants, hat, rubber boots with socks. Wear rubber or chemical-resistant gloves.

16. OTHER

MSDS STATUS: New

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental/ Regulatory Services

®LI 700 is a registered trademark of Loveland Industries, Inc.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct, Loveland Products, Inc., the manufacturer or the seller makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving it will make their own determination as to its suitability for their purposes prior to use.

The product covered by this information sheet is furnished "as is" by Loveland Products, Inc., the manufacturer or the seller, and is subject only to the warranties, if any, that appear on the product's label or are otherwise expressly provided herein.

Except as expressly provided on the product's label or otherwise provided herein, no warranties, guarantees, or representations of any kind, either express or implied, or by usage of trade, statutory or otherwise, are made by Loveland Products, Inc., the manufacturer or the seller with regard to the product or use of the product, including, but not limited to, merchantability, fitness for a particular purpose, use or eligibility of the product for any particular trade usage.

Except as expressly stated herein, Loveland Products, Inc., the manufacturer or the seller makes no warranty of results to be obtained by use of the product covered by this information. Buyer's or user's exclusive remedy, and the total liability of Loveland Products, Inc., the manufacturer or the seller, shall be limited to damages not exceeding the cost of the product. No agent or employee of Loveland Products, Inc., the manufacturer or the seller is authorized to amend the terms of this warranty disclaimer or the product's label or to make a representation or recommendation different from or inconsistent with the label of this product.

IN NO EVENT SHALL LOVELAND PRODUCTS, INC., THE MANUFACTURER OR THE SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES AND THE BUYER AND USER WAIVE ANY RIGHT THEY MAY HAVE TO SUCH DAMAGES.

LORSBAN* -4E INSECTICIDE (NAF-163)

Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268
Effective Date: 2-Nov-06
Product Code: 47602
MSDS: 005668

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Lorsban* -4E Insecticide (NAF-163)
COMPANY IDENTIFICATION:
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Red liquid with solvent-type odor. May cause eye irritation or corneal injury. Prolonged exposure may cause skin irritation. Cholinesterase inhibitor. Toxic to aquatic organisms, birds, and fish. Store at temperatures below 122°F (50°C)

EMERGENCY PHONE NUMBER: 800-992-5994

3. COMPOSITION/INFORMATION ON INGREDIENTS:

COMPONENT	CAS NUMBER	W/W%
Chlorpyrifos	2921-88-2	44.9
1,2,4-Trimethylbenzene	95-63-6	15.8
Xylene	1330-20-7	1.5
Cumene	88-62-8	0.9
Balance		36.9

4. FIRST AID:

EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, and then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

SKIN: 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.

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.

INHALATION: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, and 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.

NOTE TO PHYSICIAN: Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury. 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. Maintain adequate ventilation and oxygenation of the patient. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. 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). In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. 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). Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have 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.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 106°F (41 °C)

METHOD USED: TCC

FLAMMABLE LIMITS

LFL: 1%

UFL: 6% (xylene range aromatic solvent)

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/or carbon dioxide.

OTHER FLAMMABILITY INFORMATION: Dense smoke is produced when product burns. 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.

FIRE-FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Eliminate ignition sources. 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. May spread fire. 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 the 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 (SCPA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment isn't available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Absorb spills with an absorbent material such as HAZORB, ZORBALL, or dirt. Thoroughly wash body areas, which come into contact with this product. Contain spill to keep out of sewers. Report large spills to Dow AgroSciences at 800-992-5994. 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.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not

swallow. Do not get in eyes, on skin, or on clothing. Avoid breathing spray mist and vapors. 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. Store at temperatures below 122°F (50°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

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

EXPOSURE GUIDELINE(S):

Chlorpyrifos: ACGIH TLV is 0.1 mg/M³, (1,V); A4, Skin BEI. Xylene range aromatic solvent: none established. Supplier recommends a guideline of 50 ppm for the total product which is a mixture of petroleum hydrocarbons.

1,2,4-Trimethylbenzene: ACGIH TLV is 25 ppm.

Cumene (Isopropyl benzene): ACGIH TLV and OSHA PEL are 50 ppm. OSHA classifies as Skin.

Xylene: ACGIH TLV is 100 ppm TWA, 150 ppm STEL, A4. OSHA PEL is 100 ppm TWA

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.

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

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

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved positive-pressure supplied-air respirator. The following should be effective types of air-purifying respirators: organic vapor cartridge with a particulate prefilter.

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: Polyethylene, Viton, Polyvinyl chloride (PVC or vinyl), Styrene/butadiene rubber, Polyvinyl alcohol (PVA), Ethyl vinyl alcohol laminate (EVAL). Examples of acceptable glove barrier materials include: Butyl rubber Neoprene, Chlorinated polyethylene, Natural rubber (latex), Nitrile/butadiene rubber (Nitrile or NBR). **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.

EYE PROTECTION: Use chemical goggles. If exposure causes eye discomfort, use a 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: 290°F (143°C)(solvent)

VAPOR PRESSURE: <10 mmHg @ 25°C

VAPOR DENSITY: Not determined

SOLUBILITY IN WATER: Emulsifiable

SPECIFIC GRAVITY: 1.079

APPEARANCE: Red liquid

ODOR: Solvent-type odor

10. STABILITY AND REACTIVITY:

STABILITY: Unstable at elevated temperatures.

CONDITIONS TO AVOID: Avoid temperatures >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 and bases.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

EYE: May cause moderate eye irritation. May cause moderate corneal injury. Vapors may cause eye irritation experienced as mild discomfort and redness.

SKIN: Prolonged contact may cause moderate skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. A test in guinea pigs indicated that this product may have weak skin sensitization potential. However, experience in the manufacture and use of this product has not provided evidence for skin sensitizing properties. The LD₅₀ for a similar material for skin absorption in rabbits rats was >5,000 mg/kg.

INGESTION: Moderate toxicity if swallowed. The oral LD₅₀ for a similar material for rats was 776 mg/kg (males) and 300 mg/kg (females). Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury, even death. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

INHALATION: Excessive exposure may produce organophosphate-type cholinesterase inhibition. Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure to solvent may cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. The aerosol LC₅₀ for a similar material for rats is 2.7 mg/L for 4 hours.

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, convulsions. Chlorpyrifos, 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. Solvent has been reported to cause liver, kidney, and blood effects at high exposure levels. Xylene is reported to have caused hearing loss in lab-

oratory animals upon exposure to high concentrations; such effects have not been reported in humans. For cumene, in animals, effects have been reported on the following organ: eye (cataract).

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.

TERATOLOGY (BIRTH DEFECTS): Chlorpyrifos did not cause birth defects in laboratory animals. Solvent was toxic to the fetus in laboratory animal tests, but only at doses that were toxic to the mothers. Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. No malformations were induced at exposures less than those causing severe toxicity to the adult animals.

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 solvent, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Results of in-vitro and animal genetic toxicity studies on the aromatic solvent have been negative. Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

Based largely or completely on information for chlorpyrifos and components of the solvent.

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

DEGRADATION & PERSISTENCE:

Based largely or completely 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 largely or completely on information for components of the solvent.

Biodegradation under aerobic static laboratory conditions is high (BOD 20 or BOD28/ThOD is >40%).

ECOTOXICOLOGY:

Based largely or completely on information for chlorpyrifos.

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

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 is between 51 and 500 mg/kg).

Based largely or completely on information for the solvent.

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

Material is practically non-toxic to birds on a dietary basis (LC₅₀ is >5000 ppm).

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

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: 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 and regulations.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

For non-bulk land and air shipments: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)/6.1(3)/UN3017/PG III/RQ (CHLORPYRIFOS)

For non-bulk vessel shipments: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)/6.1(3)/UN3017/PG III/RQ (CHLORPYRIFOS)/MARINE POLLUTANT

For bulk shipments: ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)/6.1(3)/UN3017/PG III/RQ (CHLORPYRIFOS, XYLENE)/MARINE POLLUTANT

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
1,2,4-Trimethylbenzene	000095-63-6	15.8%
Xylene	001330-20-7	1.5%

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	001330-20-7	NJ1 NJ2 NJ3 PA1 PA3
Chlorpyrifos	002821-88-2	NJ3 PA1 PA3
1,2,4-Trimethylbenzene	000095-63-6	NJ2 NJ3 PA1
Cumene	000096-82-8	NJ2 NJ3 PA1 PA3

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.

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	44.0%
Xylene	001330-20-7	100	1.5%
Cumene	000098-82-8	5000	0.9%

16. OTHER INFORMATION:

MSDS STATUS:

Revised Sections: 2, 3, 4, 8, 11, 12, 15

Reference: DR-0352-3817

Replaces MSDS Dated: 9/23/04

Document Code: D03-062-008

Replaces Document Code: D03-062-007

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

*Trademark of Dow AgroSciences LLC

VID 11.16.06

MATERIAL SAFETY DATA SHEET

WARHAWK™

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

FORMULATED FOR:

Loveland Products, Inc.
P.O. Box 1286 • Greeley, CO 80632-1286

24-Hour Emergency Phone: 1-800-424-9300
Medical Emergencies: 1-800-301-7976
U.S. Coast Guard National Response Center: 1-800-424-8802

PRODUCT NAME: WARHAWK™
CHEMICAL NAME: Chlorpyrifos: O,O-diethyl-O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate
CHEMICAL FAMILY: Organophosphate Insecticide
EPA REG. NO.: 62719-220-34704
MSDS Number: 62719220-04b-LPI

MSDS Revisions: See section 16

Date of Issue: 07/12/04

Supersedes: 04/09/04

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN – WARNING - AVISO – Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle (If you do not understand the label, find someone to explain it to you in detail.) May be fatal if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, skin or clothing.

This product is red liquid with solvent-like odor.

3. COMPOSITION, INFORMATION ON INGREDIENTS

<u>Chemical Ingredients:</u>	<u>Percentage by Weight:</u>	<u>CAS No.</u>	<u>TLV (Units)</u>
Chlorpyrifos	44.90	2921-88-2	0.1 mg/m ³
Inert Ingredients, including Xylene Range Aromatic Solvent	55.10	64742-95-6	

This product is hazardous according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

4. FIRST AID MEASURES

If swallowed: 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.

If in eyes: Hold eye 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 eye. Call a poison control center or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: 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 preferred antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early but only in conjunction with Atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. This product contains petroleum distillate – vomiting may cause aspiration pneumonia.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-301-7976. Have the product label or container with you when calling a poison control center or doctor, or going for treatment.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method): 106°F / 41.1°C (TCC)
FLAMMABLE LIMITS (LFL & UFL): LFL: 1%; UFL: 6% (xylene range aromatic solvent)
EXTINGUISHING MEDIA: Water fog, foam, dry chemical, or carbon dioxide.
HAZARDOUS COMBUSTION PRODUCTS: May generate hydrogen chloride, ethyl sulfide, diethyl sulfide and oxides of nitrogen in a fire situation.
SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus with full protective clothing. Fight fire from upwind and keep all non-essential personnel out of area.
UNUSUAL FIRE AND EXPLOSION HAZARDS: If water is used to fight fire and cool the containers, contain run-off by diking to prevent contamination of water supplies.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

For small spills, absorb with an absorbent material such as sand, vermiculite or other absorbent material. Place contaminated material in appropriate containers for proper disposal. For large spills: dike large spills using absorbent or impervious material such as clay or sand. Recover and contain as much free liquid as possible for reuse. Allow absorbed material to solidify, and scrape up for disposal. After removal, scrub the area with detergent and water and flush contaminated area thoroughly with water.

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

HANDLING: 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 PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE: Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 100°F/37.8°C for extended periods of time. Storage below 20°F/-6.7°C may result in the formation of crystals. If product crystallizes, store at 50°F/10°C to 70°F/21°C and agitate to redissolve crystals. Do not contaminate water, food, or feed by storage or disposal.

Personal Protective Equipment (PPE): Mixers and loaders using a mechanical transfer loading system and applicators using aerial application equipment must wear: long-sleeved shirt and long pants, shoes and socks, chemical-resistant gloves, chemical-resistant apron, and a NIOSH-approved dust mist filtering respirator with MSHS/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any R, P, or HE filter. **All other mixers, loaders, applicators and handlers must wear:** coveralls over short sleeved shirt and short pants, chemical-resistant gloves, chemical-resistant apron when mixing or loading or exposed to the concentrate, chemical-resistant footwear plus socks, chemical-resistant headgear for overhead exposure, a NIOSH-approved dust mist filtering respirator with MSHS/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any R, P, or HE filter. Discard clothing and 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 and maintaining PPE. If no instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Refer to product label for additional information.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Mixers and loaders supporting aerial applications must use a mechanical transfer system that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4)] for dermal protection, and must: wear the personal protective equipment require above for mixers/loaders; wear protective eyewear if the system operates under pressure, and be provided and have immediately available for use in an emergency, such as broken package, spill, or equipment breakdown: coveralls, chemical resistant footwear and chemical resistant headgear if overhead exposure. Refer to product label for additional information.

RESPIRATORY PROTECTION: Not normally required; if vapors or mists become excessive, wear a NIOSH approved pesticide respirator with cartridges for pesticide vapors.

EYE PROTECTION: Chemical goggles or shielded safety glasses.

SKIN PROTECTION: Wear protective clothing: long-sleeved shirts and pants, shoes with socks. Wear rubber chemical-resistant gloves.

	OSHA PEL 8 hr TWA	ACGIH TLV-TWA
Xylene (mixed isomers)	435 mg/m ³	434 mg/m ³
Trimethylbenzene	not listed	123 mg/m ³
Cumene	245 mg/m ³ (Skin)	246 mg/m ³

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Red liquid with solvent-like odor.

SPECIFIC GRAVITY (Water = 1): 1.079 g/ml

VAPOR PRESSURE: <10mm Hg @ 25°C

PERCENT VOLATILE (by volume): Not established

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

BULK DENSITY: 9.0 lbs/gal.

BOILING POINT: 290°F/143°C (solvent)

EVAPORATION RATE: Not established

SOLUBILITY: Soluble

pH: not established

10. STABILITY AND REACTIVITY

STABILITY: Stable

INCOMPATIBILITY: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: May generate hydrogen chloride, ethyl sulfide, diethyl sulfide and oxides of nitrogen in a fire situation.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Temperatures above 122°F/50°C

11. TOXICOLOGICAL INFORMATION

Acute Oral LD₅₀ (male rat): 776 mg/kg

Eye Irritation (rabbit): Moderate irritant

Inhalation LC₅₀ (rat): 2.7 mg/L (4 hrs.)

Carcinogenic Potential: Nothing listed in ACGIH, NTP, IARC, or OSHA.

Acute Dermal LD₅₀ (rabbit): >5,000 mg/kg

Skin Irritation (rabbit): Slight irritant

Skin Sensitization (guinea pig): Not a sensitizer

12. ECOLOGICAL INFORMATION

This pesticide is toxic to fish, aquatic invertebrates, small mammals and birds. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops. Do not apply this product or allow it to drift to blooming crops or weeds if bees are actively visiting the treatment area. Do not contaminate water when disposing of equipment wash waters or rinsate.

13. DISPOSAL CONSIDERATIONS

Do not reuse containers. **Plastic Containers:** Triple rinse (or equivalent), then offer for recycling at an ACRC site (go to <http://www.acrecycle.org/> for locations) or by 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. Open dumping is prohibited. Pesticide wastes are toxic. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of Federal law. Do not contaminate water, food, or feed by storage or disposal.

14. TRANSPORT INFORMATION

DOT Shipping Description: RQ ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, 6.1 (3), UN3017, III (CHLORPYRIFOS, AROMATIC NAPHTHA) RQ (CHLORPYRIFOS) ERG GUIDE 131
U.S. Surface Freight Classification: INSECTICIDES OR FUNGICIDES, INSECT OR ANIMAL REPELLENTS, NOI, OR VERMIN EXTERMINATORS, ANIMAL OR POULTRY, NOI; POISON (NMFC 102100; CLASS: 77.5)

Consult appropriate ICAO/IATA and IMDG regulations for shipment requirements in the Air and Maritime shipping modes.

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:	NFPA		HMIS
	2 Health	0 Least	2 Health
	2 Flammability	1 Slight	2 Flammability
	1 Instability	2 Moderate	1 Reactivity
		3 High	G PPE
		4 Severe	

SARA Hazard Notification/Reporting			
SARA Title III Hazard Category:	Immediate <u>Y</u>	Fire <u>Y</u>	Sudden Release of Pressure <u>N</u>
	Delayed <u>Y</u>	Reactive <u>N</u>	

Reportable Quantity (RQ) under U.S. CERCLA: Chlorpyrifos (CAS: 2921-88-2) 1 pound; Xylene (mixed isomers) (CAS: 1330-20-7) 100 pounds; Cumene (CAS: 98-82-8) 5000 pounds
SARA, Title III, Section 313: 1,2,4-Trimethylbenzene (CAS: 95-63-6) 3.5% maximum; Xylene (mixed isomers) (CAS: 1330-20-7) <1.5% maximum; Cumene (CAS: 98-82-8) <1.0% maximum
RCRA Waste Code: Not listed.
CA Proposition 65: Not listed.

16. OTHER INFORMATION

MSDS STATUS: Format modified to address changes in ANSI Standard Z400.1-2004

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental/ Regulatory Services

This is a Restricted Use Pesticide (for retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification)

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