

MATERIAL SAFETY DATA SHEET



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

LONTREL* TURF AND ORNAMENTAL HERBICIDE

Effective Date: 2/14/03
Product Code: 69440
MSDS: 002805

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Lontrel* Turf and Ornamental Herbicide

COMPANY IDENTIFICATION:

Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Clopyralid: (3,6-Dichloro-2-pyridinecarboxylic acid), Monoethanolamine salt	CAS# 057754-85-5	40.9%
Inert ingredients, total, including:		59.1%
Isopropyl alcohol	CAS# 000067-63-0	
Polyglycol 26-2	CAS# 069029-39-6	

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

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Hazardous Chemical. Reddish-brown liquid, sweet odor. Slight transient corneal injury may occur. Prolonged exposure may cause skin irritation. LD₅₀ for skin absorption in rabbits is >5000 mg/kg. Oral LD₅₀ for rats is >5000 mg/kg. Inhalation LC₅₀ for rats is >3.0 mg/L.
EMERGENCY PHONE NUMBER: 800-992-5994

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

EYE: May cause very slight transient (temporary) corneal injury. Vapors may irritate the eyes.

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

INGESTION: Single dose oral toxicity is extremely low. The oral LD₅₀ for rats is >5000 mg/kg. No hazards anticipated from swallowing small amounts incidental to normal handling operations.

INHALATION: Excessive vapor concentrations are attainable and could be hazardous on single exposure. The aerosol LC₅₀ for rats is >3.0 mg/L for 4 hours. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypertension, hypothermia, circulatory collapse, respiratory arrest and death may occur following longer duration of higher levels. Observations in animals include middle ear lining damage upon exposure to vapors of isopropanol.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: In animals, effects have been reported on the following organs: liver and kidney. Observations in animals include lethargy. For isopropanol: Kidney effects and/or tumors have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

CANCER INFORMATION: For the components tested, did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid ad doses several times greater than those expected during normal exposure. Isopropyl alcohol at extremely high concentrations has been reported to cause birth defects and fetal toxicity in rats. At lower concentrations there were no effects on the fetus.

REPRODUCTIVE EFFECTS: For the components tested, in animal studies, has been shown not to interfere with reproduction.

MATERIAL SAFETY DATA SHEET



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

LONTREL* TURF AND ORNAMENTAL HERBICIDE

Effective Date: 2/14/03
Product Code: 69440
MSDS: 002805

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, 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: 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. Do not give anything by mouth to an unconscious person.

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

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 117°F (47.2°C)

METHOD USED: TCC

FLAMMABLE LIMITS

LFL: Not determined

UFL: Not determined

EXTINGUISHING MEDIA: Water fog, alcohol resistant foam, CO₂, dry chemical, or foam preferred.

FIRE & EXPLOSION HAZARDS: Toxic, irritating fumes may be produced if product is involved in a fire. Contain water from fire-fighting to prevent entry into surface or ground water.

FIRE-FIGHTING EQUIPMENT: Under fire conditions use a positive-pressure self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Absorb small spills with inert material such as sawdust or sand. Report large spills to Dow AgroSciences on 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children and animals. Do not swallow. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Remove and wash contaminated clothing. Store in original container with the lid tightly closed. This product is combustible. Do not use or store this product near a heat source, open flame or other sources of ignition, particularly if storage temperatures are near the flash point (117°F, 47.2°C). Noxious fumes may be formed under fire conditions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

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

EXPOSURE GUIDELINES:

Isopropyl alcohol: ACGIH TLV and OSHA PEL are 400 ppm TWA, 500 ppm STEL.

PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

Polyglycol 26-2: Dow AgroSciences Industrial Hygiene Guideline is 2 mg/M³.

Clopyralid: Dow AgroSciences Industrial Hygiene Guideline is 10 mg/M³.

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

MATERIAL SAFETY DATA SHEET



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

LONTREL* TURF AND ORNAMENTAL HERBICIDE

Effective Date: 2/14/03
Product Code: 69440
MSDS: 002805

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required use a NIOSH 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 a NIOSH approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use a NIOSH approved positive-pressure supplied-air respirator.

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

EYE PROTECTION: Use safety glasses. If vapor exposure causes eye discomfort, use a NIOSH approved full-face respirator.

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

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: 212°F (100°C)
VAPOR PRESSURE: 23.5 mmHg @ 20°C
VAPOR DENSITY: 1.06 @ 20°C
SOLUBILITY IN WATER: Miscible
SPECIFIC GRAVITY: 1.161 @ 68°F, 20°C
APPEARANCE: Reddish-brown liquid
ODOR: Sweet
pH: 7.5-8.0

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Store under cool, dry conditions. Avoid elevated temperatures and direct sunlight. Combustible. Do not use or store near heat, open flame, or other sources of ignition, especially if temperatures are near or at the flash point.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Avoid acid, oxidizing material, halogenated organics, brass, copper, zinc, and aluminum.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride, nitrogen oxides under fire conditions, chlorinated pyridine.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY: For the components tested, in-vitro and animal mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING: Based largely or completely on information for clopyralid. Bioconcentration potential is low (BCF <100 or Log Pow <3). Potential for mobility in soil is very high (Koc between 0 and 50).

DEGRADATION & PERSISTENCE: Based largely or completely on information for clopyralid. Biodegradation under aerobic laboratory conditions is below detectable limits. The photolysis half-life in water is 261 days. The photolysis half-life in soil is >12 years. Under aerobic soil conditions the half-life is 71 days.

ECOTOXICOLOGY: Based largely or completely on information for clopyralid. Material is practically non-toxic to aquatic organisms on an acute bases (LC₅₀/EC₅₀ >100 mg/L in most sensitive species).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate food, feed, or water by storage or disposal. Wastes are toxic. Improper disposal or excess waste, spray mixture, or rinsate is a violation of federal law. If wastes resulting from the use of this product cannot be disposed of according to label instructions, dispose of these wastes at an approved facility. Contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

MATERIAL SAFETY DATA SHEET



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

LONTREL* TURF AND ORNAMENTAL HERBICIDE

Effective Date: 2/14/03
Product Code: 69440
MSDS: 002805

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION INFORMATION:

FOR ALL PACKAGE SIZES:

BY LAND: Not regulated for transportation.
BY AIR OR VESSEL: FLAMMABLE LIQUIDS, N.O.S.
(CONTAINS ISOPROPANOL)/3/UN1993/PGIII

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:

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>CONCENTRATION</u>
Isopropyl Alcohol	000067-63-0	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

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.

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>LIST</u>
Isopropyl Alcohol	000067-63-0	NJ1 NJ2 NJ3 PA1 PA3

NJ1=New Jersey Special Health Hazard Substance (present at > or = to 0.1%).

NJ2=New Jersey Environmental Hazardous Substance (present at > or = to 1.0%).

NJ3=New Jersey Workplace Hazardous Substance (present at > or = to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at > or = to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at > or = 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	2
Flammability	2
Reactivity	1

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: 5
Reference: DR-0135-0385
Replaces MSDS Dated: 6/3/02
Document Code: D03-071-004
Replaces Document Code: D03-071-003

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