The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

"DuPont" "ASSURE" II HERBICIDE
M0000093 Revised 11-JUN-2007

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"ASSURE" is a registered trademark of DuPont.

Corporate MSDS Number : DU003046

Tradenames and Synonyms

QUIZALOFOP P-ETHYL
DPX-79376

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS
Product Information : 1-800-441-7515 (outside the U.S. 302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S. 703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S. 302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
QUIZALOFOP P-ETHYL Ethyl(R)-2-[4-(6-chloroquinoxalin-2-yloxy) phenoxy]propionate	100646-51-3	10.3
INERT INGREDIENTS AND RELATED COMPOUNDS		89.7
*N-METHYL-2-PYRROLIDONE (May contain less than 8% N-methyl-2-pyrrolidone)	872-50-4	

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

HAZARDS IDENTIFICATION

Emergency Overview

DANGER! Causes irreversible eye damage. Harmful if swallowed, inhaled, or absorbed through the skin. Avoid contact with eyes, skin, or clothing. Avoid breathing vapor or spray mist.

Potential Health Effects

Based on components, Assure II may cause eye irritation with tearing, pain or blurred vision.

Based on components, Assure II may cause skin irritation with itching, burning, redness, swelling or rash. Human experience or case reports have identified the following potential effects from overexposure with NMP: Prolonged contact may cause severe skin irritation with burning, redness, swelling, pain, blisters, cracking, or rash. There are inconclusive or unverified reports of human skin sensitization to NMP.

Based on components, inhalation of Assure II may cause irritation of the nose and throat with sneezing, sore throat or runny nose.

Carcinogenicity Information

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

FIRST AID MEASURES

First Aid

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 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: 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.

IF INHALED: Move person to fresh air. If person is not

(FIRST AID MEASURES - Continued)

breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-441-3637 for emergency medical treatment information.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point	: 98.9 C (210 F)
Method	: Setaflash

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

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Use water spray. Cool tank/container with water spray.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

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

Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

Spill Clean Up

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

Accidental Release Measures

If spill area is on ground near trees or other valuable plants remove top 2 inches of soil after initial clean up.

HANDLING AND STORAGE

Handling (Personnel)

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

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

Handling (Physical Aspects)

Combustible. Keep away from heat, sparks, and open flames. Keep container closed.

Storage

Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR part 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

Personal Protective Equipment

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category G on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

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

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:
- Coveralls.
- Chemical-resistant gloves, such as barrier laminate or Viton.
- Shoes plus socks.
- Protective eyewear.

Exposure Guidelines

Applicable Exposure Limits

QUIZALOFOP P-ETHYL

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: None Established
AEL *	(DuPont)	: 2 mg/m3, 8 Hr. TWA, total dust 1 mg/m3, 8 Hr. TWA, respirable dust 1 mg/m3, 12 Hr. TWA, total dust 0.5 mg/m3, 12 Hr. TWA, respirable dust
WEEL	(AIHA)	: None Established

N-METHYL-2-PYRROLIDONE

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: None Established
AEL *	(DuPont)	: 5 ppm, 8 & 12 Hr. TWA, Skin
WEEL	(AIHA)	: 10 ppm, 8 Hr. TWA, Skin

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

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Solubility in Water	: Emulsifiable concentrate
pH	: 5.6 (1% wt/wt in water)
Odor	: Aromatic hydrocarbon
Form	: Liquid
Color	: Dark amber
Specific Gravity	: 1.02

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Quizalofop-p-Ethyl

- Oral LD50: 4100 mg/kg in female rats
- Oral LD50: 5900 mg/kg in male rats
- Dermal LD50: > 2000 mg/kg in rabbits
- Inhalation 4 hour ALC: 0.36 mg/L in male rats
- Inhalation 4 hour ALC: 0.62 mg/L in female rats

Quizalofop-p-Ethyl is moderate eye irritant, but is not a skin irritant or skin sensitizer in animals.

In animals, repeated oral doses caused increased liver weights, and changes in clinical chemical parameters associated with the liver. In mice there were morphological changes to the liver. In addition, at higher doses there were weight changes in the testes, body, brain, heart, lung, liver and kidneys in a different study; there were also morphological changes in the testes at these doses.

No animal tests are available to define the carcinogenic, or developmental hazards of Quizalofop-p-Ethyl. Quizalofop-p-Ethyl may cause reproductive effects in animals.

Tests have shown that Quizalofop-p-Ethyl did not produce genetic damage in bacterial or mammalian cell cultures.

NMP

- Inhalation 4 hour ALC: 1.7 mg/L in rats
- Ingestion LD50: 4,320 mg/kg in rats
- Dermal LD50: 8,000 mg/kg in rabbits

NMP is a moderate eye irritant, and a mild skin irritant, but is not a skin sensitizer in tests on animals.

(TOXICOLOGICAL INFORMATION - Continued)

Repeated ingestion exposure caused altered hematology and clinical chemistry, altered enzyme activity, increased thyroid weight, histopathological changes of the kidneys, and decreased body weight. No-Observed-Adverse-Effect-Level (NOAEL): 3000 ppm. A different repeated dose study caused body and clinical changes in rats fed 2000 to 30,000 ppm of NMP. The NOELs were 6000 ppm in male rats and 18,000 ppm in female rats. Kidney effects occurred in mice fed diets containing 500 to 10,000 ppm of NMP. The NOEL in mice was 2500 ppm.

Single inhalation exposure caused altered respiratory rate, redness of skin, and non-specific effects such as weight loss and irritation. Repeated inhalation exposures caused lethargy, altered respiratory rate, and histopathological changes of the testes. Repeated exposures at higher concentrations caused increased mortality, altered bone marrow function and degeneration of the lymph tissue. Long term exposure to lower concentrations caused reduced weight gain. Neurobehavioral studies show effects on cognitive function of offsprings in rats.

NMP was not carcinogenic in rats. Male and female mice showed an increased incidence of liver tumors in an 18-month feeding study. There was no clear dose-response relationship in the mouse study and the significance of the data is unknown. In earlier developmental toxicity studies animal data showed developmental effects only at or near levels producing other toxic effects in the adult animal. More recent inhalation developmental studies in animals demonstrate fetal toxicity in the absence of maternal toxicity. Reproductive data on adult animals show interference with reproduction only at levels which produce other toxic effects in the adult animal. Tests have shown that NMP does not cause genetic damage in bacterial or mammalian cell cultures, or in animals.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:
N-METHYL-2-PYRROLIDONE
Low toxicity.
96 hour LC50 - Fathead minnows: 1,072 mg/L

DISPOSAL CONSIDERATIONS

Waste Disposal

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

(DISPOSAL CONSIDERATIONS - Continued)

Do not contaminate water, food, or feed by disposal. Waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

ENVIRONMENTAL HAZARDS
This pesticide is toxic to fish and invertebrates. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposal of equipment washwaters or rinsate.

Refer to the product label for additional application instructions relating to environmental precautions. Always read and follow the product label.

Container Disposal

For Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Fiber Sacks: Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by incineration if allowed by State and local authorities.

For Fiber Drums With Liners: Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration, if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner.

For Bags Containing Water Soluble Packets: Do not reuse the outer box or the resealable plastic bag. When all water-soluble packets are used, the outer packaging should be clean and may be disposed of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by open burning. If burned, stay out of smoke. If the resealable plastic bag contacts the formulated product in any way, the bag must be triple-rinsed with clean water. Add the rinsate to the spray tank and dispose of the outer wrap as described above.

For Metal Containers (non aerosol): Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

(DISPOSAL CONSIDERATIONS - Continued)

For Paper and Plastic Bags: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO

Proper Shipping Name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (10% QUIZALOFOP P-ETHYL)
Hazard Class	: CLASS 9
UN No.	: 3082
Special Information	: MARINE POLLUTANT
Packing Group	: III

IATA

Proper Shipping Name	: Aviation Regulated Liquid, n.o.s., (Quizalofop P-ethyl)
Hazard Class	: 9
UN No.	: 3334
Packing Group	: None

Note - this product is NOT REGULATED for domestic non-bulk shipments.

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

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

In the United States this product is regulated by the US Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

EPA Reg. No. 352-541

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health	: 1
Flammability	: 1
Reactivity	: 0

NPCA-HMIS Rating

Health	: 2
Flammability	: 1
Reactivity	: 0

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

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

Responsibility for MSDS : DuPont Crop Protection
Wilmington, DE 19898
Telephone : 1-888-638-7668

# Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS