



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

DuPont  
Material Safety Data Sheet

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M0000093 "DuPont" "ASSURE" II HERBICIDE  
Revised 17-MAY-2005

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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"ASSURE" is a registered trademark of DuPont.

Corporate MSDS Number : DU003046

# Tradenames and Synonyms

"MATADOR" HERBICIDE  
QUIZALOFOP P-ETHYL

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)

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

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

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

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HAZARDS IDENTIFICATION  
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## 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.

## Carcinogenicity Information

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

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FIRST AID MEASURES  
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## First Aid

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 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.

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FIRE FIGHTING MEASURES  
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## 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.

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ACCIDENTAL RELEASE MEASURES  
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## Safeguards (Personnel)

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

## Initial Containment

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.

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HANDLING AND STORAGE  
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## 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.

## (HANDLING AND STORAGE - Continued)

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.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## 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.

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

## (EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

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/m <sup>3</sup> , 8 Hr. TWA, total 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.

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PHYSICAL AND CHEMICAL PROPERTIES  
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## 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

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STABILITY AND REACTIVITY  
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## Chemical Stability

Stable at normal temperatures and storage conditions.

## Incompatibility with Other Materials

None reasonably foreseeable.

## Polymerization

Polymerization will not occur.

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TOXICOLOGICAL INFORMATION  
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## Animal Data

Acute Oral LD50: 5,900 mg/kg (rats, male)  
4,100 mg/kg (rats, female)  
Low level of toxicity by ingestion.

Acute Dermal LD50: > 2,000 mg/kg (rabbit)  
Slightly to moderately toxic by contact.

Skin Irritation and Sensitization: Product is a moderate skin irritant; but not considered a skin sensitizer.

Inhalation 4 hour LC50: 2.6 mg/L (rats, male);  
4.4 mg/L (rats, female);  
3.5 mg/L (rats combined)

Eye Contact: Severe irritant. Corneal opacity remained in one of 6 animals after day 21. All other animals were normal by this day.

CHRONIC STUDIES - ACTIVE INGREDIENT  
(Conducted with the racemic mixture of isomers)

2-Year Feeding Study (Rats): Dietary concentrations were 0, 25, 100 or 400 ppm. The no-observable-effect-level (NOEL) was considered to be 25 ppm (approximately 1.25 mg/kg/day) based on liver effects observed at 100 and 400 ppm. There was a slight but non-significant increase in female liver tumors at 400 ppm. The product was considered to be nononcogenic in this species.

18-Month Feeding Study (Mice): Dietary concentrations were 0, 2, 10, 80 and 320 ppm. The NOEL was considered to be 10 ppm (approximately 1.5 mg/kg/day) based on effects in liver and testes present at 80 and 320 ppm.

An increased incidence of liver carcinomas was observed in male mice and an increased incidence of ovarian tumors (leuteomas and granulosa cell tumors) was observed in female mice. These effects were only observed at the highest dose tested 320 ppm (approximately 48 mg/kg/day) and were not statistically significant when compared to tumor incidences in the untreated mice.

1-Year Feeding Study (Dog): Dietary concentrations were 0, 25, 100 and 400 ppm. The NOEL was considered to be 400 ppm (approximately 30 mg/kg/day). There were no compound-related effects.

## REPRODUCTION (Rats)

Tests ran at levels of 0, 25, 100 and 400 ppm. Decreased body weights were observed for parents and offspring in the

## (TOXICOLOGICAL INFORMATION - Continued)

400 ppm group. Histologic liver changes and increased liver weights occurred at 100 and 400 ppm. NOEL was 25 ppm (approximately 1.25 mg/kg/day).

## TERATOGENICITY (Rabbit and Rat)

Dose levels were 0, 7, 15, 30 and 60 mg/kg/day. Not teratogenic or embryotoxic at any level. Body weight gain and other toxic effects were observed in pregnant rabbits at 60 mg/kg/day. Overall NOEL was 30 mg/kg/day. Rat dose levels were 30, 100, or 300 mg/kg/day. This product was not teratogenic at any level. Reduced body weight gains were observed for dams at 300 mg/kg. Offspring of this treatment group exhibited reduced survival and a transient increase in skeletal variations. The overall NOEL was 30 mg/kg/day.

## MUTAGENICITY

Negative results in the following tests: Ames and Chinese hamster ovary (CHO) test for gene mutations; CHO and mouse micronucleus tests for chromosomal aberrations; DNA repair assays in *B. subtilis* and rat liver cells; Sister Chromatid Exchange Assay in Chinese hamster cells.

## TOXICOLOGICAL EFFECTS - N-METHYL-2-PYRROLIDONE

In animal testing this material has not caused carcinogenicity. Animal data show developmental effects only at or near levels producing other toxic effects in the adult animal. This material is not considered a unique developmental hazard to the conceptus. Reproductive data on adult animals show interference with reproduction only at levels which produce other toxic effects in the adult animal. This material is not considered a unique reproductive hazard. Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures.

Human experience or case reports have identified the following potential effects from overexposure to n-methyl-2-pyrrolidone: prolonged contact may cause severe skin irritation with burning, redness, swelling, pain, blisters, cracking, or rash. There are inconclusive or unverified reports of human sensitization to this solvent.

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ECOLOGICAL INFORMATION  
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## Ecotoxicological Information

## Aquatic Toxicity

Toxic to aquatic organisms.

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DISPOSAL CONSIDERATIONS  
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## Waste Disposal

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

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

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 by cleaning of equipment or disposal of equipment washwaters or wastes.

## 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



## (DISPOSAL CONSIDERATIONS - Continued)

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.

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.

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TRANSPORTATION INFORMATION  
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## # 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.

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REGULATORY INFORMATION  
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## U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

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

## (REGULATORY INFORMATION - Continued)

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

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OTHER INFORMATION  
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## 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.

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

Responsibility for MSDS : DuPont 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