

**DuPont™ Envive® Herbicide**

Version 2.0

Revision Date 07/12/2013

Ref. 130000036267

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DuPont™ Envive® Herbicide
Tradename/Synonym : DPX-QER54
B12500618
Chlorimuron ethyl: Ethyl 2-[[[(4-chloro-6-methoxypyrimidin-2-yl)amino]carbonyl]amino]sulfonyl]benzoate
Flumioxazin :2-[7-fluor-3,4-dihydro-3oxo-4-(2-propynyl)-2H-1,4-benzoxazin-6-yl]-4,5,6,7-tetrahydro-1H-isoindole-1,3(2H)-dione
Thifensulfuron methyl: Methyl 3-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]amino]sulfonyl]-2-thiophenecarboxylate

MSDS Number : 130000036267

Product Use : Herbicide

Manufacturer : DuPont
1007 Market Street
Wilmington, DE 19898

Product Information : 1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency : 1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency : CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Caution

Harmful if swallowed, inhaled or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes and clothing. Avoid breathing dust or spray mist. Remove and wash contaminated clothing before re-use.

Potential Health Effects



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This section includes potential acute adverse effects which could occur if this material is not used according to the label.

Skin : May cause: Irritation with discomfort or rash.

Eyes : May cause: Irritation with discomfort, pain, redness, or visual impairment.

Inhalation

Flumioxazin : May cause: Respiratory tract irritation, Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough., nasal effects, Information given is based on data obtained from similar substances..

Thifensulfuron methyl : May cause: Respiratory irritation, Discomfort, Cough.

Ingestion

Flumioxazin : Prolonged contact may cause: Abnormal liver function, Abnormal serum enzyme levels, anemia, Information given is based on data obtained from similar substances..

Chlorimuron ethyl : Gross overexposure may cause: Abnormal decrease in number of red blood cells (anaemia) which could produce tiredness, rapid heartbeat, dizziness, pale skin, leg cramps, shortness of breath.

Repeated exposure

Quartz : DuPont has classified this material as a known human carcinogen.

Carcinogenicity

Material	IARC	NTP	OSHA
Titanium dioxide	2B		
Quartz	1	X	

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration

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Flumioxazin	103361-09-7	29.2 %
Chlorimuron ethyl	90982-32-4	9.2 %
Thifensulfuron methyl	79277-27-3	2.9 %
Other Ingredients		58.7 %

Present as an impurity in the clay component of this product:

Quartz		<1 %
Titanium Dioxide		<1 %

SECTION 4. FIRST AID MEASURES

- Skin contact : Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact : 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.
- Inhalation : Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

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- Ingestion : Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Do not give anything by mouth to an unconscious person.
- General advice : Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
For medical emergencies involving this product, call toll free 1-800-441-3637.
See Label for Additional Precautions and Directions for Use.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO₂)
- Unsuitable extinguishing media : High volume water jet, (contamination risk)
- Firefighting Instructions : Wear full protective clothing and self-contained breathing apparatus. Control Runoff. Evacuate personnel and keep upwind of fire. (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers / tanks with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

- Safeguards (Personnel) : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.
- Spill Cleanup : Sweep up and shovel into suitable containers for disposal. For minor spills, leaks, etc., follow all precautions indicated on the label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. If spill area is on ground near valuable plants or trees, remove top 2 inches of soil after initial cleanup.
- Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas.

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Never return spills in original containers for re-use. Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

- Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/PPE immediately if material gets inside. 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) : Keep away from heat and sources of ignition. Avoid dust formation.
- Storage : Store in original container. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place. Keep out of the reach of children.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Engineering controls : Ensure adequate ventilation. 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 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS. IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified for "Applicators and Other Handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.
- Personal protective equipment
Skin and body protection : Mixers, loaders, applicators and other handlers must wear:
Long sleeved shirt and long pants
Chemical resistant gloves made of any waterproof material
Shoes plus socks
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



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Chemical resistant gloves made of any waterproof material, such as polyvinyl chloride, nitrile rubber, or butyl rubber
Shoes plus socks

Protective measures : Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Use this product in accordance with its label.

Exposure Guidelines
Exposure Limit Values

Chlorimuron ethyl AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA	Total dust.
AEL *	(DUPONT)	5 mg/m3	8 & 12 hr. TWA	Respirable dust.
Thifensulfuron methyl AEL *	(DUPONT)	5 mg/m3	8 & 12 hr. TWA	Total dust.
Titanium dioxide PEL:	(OSHA)	15 mg/m3	8 hr. TWA	Total dust.
TLV	(ACGIH)	10 mg/m3	TWA	
AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA	Total dust.
AEL *	(DUPONT)	5 mg/m3	8 & 12 hr. TWA	Respirable dust.
Quartz PEL:	(OSHA)	2.4 millions of particles per cubic foot of air Respirable.		TWA


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		Remarks	
			The exposure limit is calculated from the equation, $250/(\%SiO_2+5)$, using a value of 100% SiO ₂ . Lower percentages of SiO ₂ will yield higher exposure limits.
PEL:	(OSHA)	0.1 mg/m ³ Remarks	TWA Respirable. The exposure limit is calculated from the equation, $10/(\%SiO_2+2)$, using a value of 100% SiO ₂ . Lower percentages of SiO ₂ will yield higher exposure limits.
PEL:	(OSHA)	0.3 mg/m ³ Remarks	TWA Total dust. The exposure limit is calculated from the equation, $30/(\%SiO_2+2)$, using a value of 100% SiO ₂ . Lower values of % SiO ₂ will give higher exposure limits.
TLV	(ACGIH)	0.025 mg/m ³	TWA Respirable fraction.
AEL *	(DUPONT)	0.01 mg/m ³	12 hr. TWA Respirable dust.
AEL *	(DUPONT)	0.02 mg/m ³	8 hr. TWA Respirable dust.

* 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: dry, free flowing, water dispersible granules
Color	: ivory, light brown
Odor	: slight
pH	: 6.3 - 7.1
Bulk density	: 0.60 - 0.67 GJ


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SECTION 10. STABILITY AND REACTIVITY

Stability	: Stable at normal temperatures and storage conditions.
Conditions to avoid	: None reasonably foreseeable.
Incompatibility	: No materials to be especially mentioned. oxidizing agents (strong)
Hazardous decomposition products	: Decomposition will not occur.
Hazardous reactions	: Polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

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Inhalation 4 h LC50	: > 0.96 mg/l , rat
Dermal LD50	: > 2,000 mg/kg , rabbit
Oral LD50	: > 5,000 mg/kg , rat
Skin irritation	: slight irritation, rat
Eye irritation	: Moderate eye irritation, rabbit
Sensitisation	: Did not cause sensitisation on laboratory animals., guinea pig
Further information	: Information given is based on data on the components.
Flumioxazin	
Repeated dose toxicity	: Oral rat altered hematology, Organ weight changes Oral dog Prolonged blood-clotting time, altered blood chemistry, Increased liver weight, Liver effects



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- Carcinogenicity : Animal testing did not show any carcinogenic effects.
- Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Did not show mutagenic effects in animal experiments.
- Reproductive toxicity : Experiments have shown reproductive toxicity effects on laboratory animals.
- Teratogenicity : Animal testing showed effects on embryo-foetal development at levels below those causing maternal toxicity.

Chlorimuron ethyl

- Repeated dose toxicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.
 - Dermal rabbit
No toxicologically significant effects were found.
 - Oral dog
Abnormal decrease in number of red blood cells
 - Oral rat
No adverse effect has been observed in chronic toxicity tests.

- Carcinogenicity : Animal testing did not show any carcinogenic effects.
- Mutagenicity : Did not cause genetic damage in animals.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- Reproductive toxicity : No toxicity to reproduction
- Teratogenicity : Animal testing showed effects on embryo-fetal development at levels



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equal to or above those causing maternal toxicity.

Thifensulfuron methyl

Repeated dose toxicity

:

The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral - feed
multiple species

Reduced body weight gain

Carcinogenicity

:

Animal testing did not show any carcinogenic effects.

Mutagenicity

:

Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Did not cause genetic damage in animals.

Reproductive toxicity

:

Animal testing showed no reproductive toxicity.

Teratogenicity

:

Did not show teratogenic effects in animal experiments.
Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Quartz

Repeated dose toxicity

:

The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Inhalation
Fluid retention in lungs (pulmonary oedema), lung effects,
Inflammation, Chronic lung disease, Fibrosis

Carcinogenicity

:

Human carcinogen.

DuPont has classified this material as a known human carcinogen.

Titanium Dioxide

Carcinogenicity

:

Based upon all available study results, DuPont scientists conclude that titanium dioxide will not cause lung cancer or chronic respiratory diseases in humans at concentrations experienced in the workplace.


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SECTION 12. ECOLOGICAL INFORMATION
Aquatic Toxicity
Flumioxazin

- 96 h LC50 : Oncorhynchus mykiss (rainbow trout) 2.3 mg/l
- 96 h LC50 : Lepomis macrochirus (Bluegill sunfish) > 21 mg/l
- 96 h LC50 : Cyprinodon variegatus (sheepshead minnow) > 4.7 mg/l
- 48 h LC50 : Daphnia magna (Water flea) 5.5 mg/l
- 96 h LC50 : Americamysis bahia (mysid shrimp) 0.23 mg/l

Chlorimuron ethyl

- 96 h LC50 : Oncorhynchus mykiss (rainbow trout) > 1,000 mg/l
- 96 h LC50 : Lepomis macrochirus (Bluegill sunfish) > 100 mg/l
- 72 h EC50 : Pseudokirchneriella subcapitata (green algae) 0.001 mg/l
- 48 h EC50 : Daphnia magna (Water flea) > 1,000 mg/l

Thifensulfuron methyl

- 96 h LC50 : Oncorhynchus mykiss (rainbow trout) > 100 mg/l
- 14 d EC50 : Lemna minor (duckweed) 0.0013 mg/l
- 48 h EC50 : Daphnia magna (Water flea) 470 mg/l

Additional ecological information : 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 when cleaning equipment or disposing of equipment washwaters or rinsate. Do not apply where/when conditions favour runoff. See product label for additional application instructions relating to environmental precautions.

SECTION 13. DISPOSAL CONSIDERATIONS

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

Container Disposal : Container Refilling and Disposal:
Refer to the product label for instructions.
Do not transport if this container is damaged or leaking.

In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

SECTION 14. TRANSPORT INFORMATION

IATA_C	UN number	: 3077
	Proper shipping name	: Environmentally hazardous substance, solid, n.o.s. (Flumioxazin)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9MI
IMDG	UN number	: 3077
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Flumioxazin)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
	Marine pollutant	: yes (Flumioxazin)

Not regulated by DOT/49 CFR unless shipped in bulk package or by water.

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s) : Chlorimuron ethyl



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Title III hazard classification : Acute Health Hazard: Yes
 Chronic Health Hazard: Yes
 Fire: No
 Reactivity/Physical hazard: No
 Pressure: No

EPA Reg. No. : 352-756
 In the United States this product is regulated by the US Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

PA Right to Know Regulated Chemical(s) : Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Kaolin , Sucrose

SECTION 16. OTHER INFORMATION

	NFPA	HMIS
Health :	1	1
Flammability :	1	1
Reactivity/Physical hazard :	0	0

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Contact person : DuPont Crop Protection, Wilmington, DE, 19898, Phone: 1-888-638-7668

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