



DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

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 : DuPont™ Combo 770 Herbicide
 DuPont™ Herbicide 770 SB
 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

Product Use : Herbicide

Restrictions on use :
 Do not use product for anything outside of the above specified uses

Manufacturer/Supplier : DuPont
 974 Centre Road
 Wilmington, DE 19805, USA

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

Product hazard category

Acute toxicity (Inhalation)	Category 4
Reproductive toxicity	Category 2

DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

Label content

Pictogram

:



Signal word

: Warning

Hazardous warnings

: Harmful if inhaled.
Suspected of damaging fertility or the unborn child.Hazardous prevention
measures: Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Use only outdoors or in a well-ventilated area.
Use personal protective equipment as required.
IF INHALED: Remove victim to fresh air and keep at rest in a position
comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
Store locked up.
Dispose of contents/ container to an approved waste disposal plant.**Other hazards**

Information presented in Section 2 conforms to the requirements of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard of 2012. See Section 15 for applicable information conforming to the requirements of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as required by the US Environmental Protection Agency (EPA), or by state Regulatory Agencies.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

**DuPont™ Envive® Herbicide**

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

Component	CAS-No.	Concentration
Thifensulfuron methyl	79277-27-3	2.9 %
Chlorimuron ethyl	90982-32-4	9.23 %
Flumioxazin	103361-09-7	29.22 %
Sodium carbonate	497-19-8	0.1 - 1 %
Titanium dioxide	13463-67-7	0.1 - 0.5 %
Other Ingredients		57.55 - 58.5 %

SECTION 4. FIRST AID MEASURES

- General advice** : Information presented in Section 4 conforms to the requirements of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard of 2012. See Section 15 for applicable information conforming to the requirements of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as required by the US Environmental Protection Agency (EPA), or by state Regulatory Agencies.
For medical emergencies involving this product, call toll free 1-800-441-3637. See Label for Additional Precautions and Directions for Use.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
- 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.



DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

- 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.
- 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.
- Most important symptoms/effects, acute and delayed : No applicable data available.
- Protection of first-aiders : No applicable data available.
- Notes to physician : No applicable data available.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO₂)
- Unsuitable extinguishing media : High volume water jet, (contamination risk)
- Specific hazards : No applicable data available.
- Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.
- Further information : 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.

**DuPont™ Envive® Herbicide**

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

- Safeguards (Personnel) : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.
- Environmental precautions : Prevent material from entering sewers, waterways, or low areas.
- 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 : 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.
- Dust explosion class : No applicable data available.
- 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.
- Storage period : No applicable data available.
- Storage temperature : No applicable data available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Engineering controls : Information presented in Section 8 conforms to the requirements of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard of 2012. See Section 15 for applicable information



DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

conforming to the requirements of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as required by the US Environmental Protection Agency (EPA), or by state Regulatory Agencies. 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, such as polyethylene or polyvinyl chloride.
 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
 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

Sodium carbonate
 AEL * (DUPONT) 5 mg/m3 8 & 12 hr. TWA Total dust.

Thifensulfuron methyl
 AEL * (DUPONT) 5 mg/m3 8 & 12 hr. TWA Total dust.

Chlorimuron ethyl



DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA Total dust.
AEL *	(DUPONT)	5 mg/m3	8 & 12 hr. TWA Respirable dust.

Flumioxazin
No applicable data available.

Titanium dioxide			
Permissible exposure limit:	(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.

Other Ingredients
No applicable data available.

* 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

Appearance

Physical state	: solid
Form	: dry, free flowing, water dispersible granules
Color	: ivory, light brown

Odor : slight

Odor threshold : No applicable data available.

pH : 6.3 - 7.1

Melting point/range : No applicable data available.

Boiling point/boiling range : No applicable data available.

Flash point : No applicable data available.

**DuPont™ Envive® Herbicide**

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

Evaporation rate	: No applicable data available.
Flammability (solid, gas)	: No applicable data available.
Upper explosion limit	: No applicable data available.
Lower explosion limit	: No applicable data available.
Vapour Pressure	: No applicable data available.
Vapour density	: No applicable data available.
Specific gravity (Relative density)	: No applicable data available.
Water solubility	: No applicable data available.
Solubility(ies)	: No applicable data available.
Partition coefficient: n-octanol/water	: No applicable data available.
Auto-ignition temperature	: No applicable data available.
Decomposition temperature	: No applicable data available.
Viscosity, kinematic	: No applicable data available.
Viscosity, dynamic	: No applicable data available.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No applicable data available.
Chemical stability	: Stable at normal temperatures and storage conditions.
Possibility of hazardous reactions	: Polymerization will not occur.
Conditions to avoid	: None reasonably foreseeable.
Incompatible materials	: No materials to be especially mentioned. oxidizing agents (strong)
Hazardous decomposition products	: Decomposition will not occur.


DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

SECTION 11. TOXICOLOGICAL INFORMATION
DuPont™ Envive® Herbicide

- Inhalation 4 h Acute toxicity estimate : > 1.7 mg/l , Rat
- Dermal Acute toxicity estimate : > 2,689 mg/kg , Rabbit
- Dermal : Rat
- Oral Acute toxicity estimate : > 5,000 mg/kg , Rat
- Skin irritation : No skin irritation, Rabbit
Minimal effects that do not meet the threshold for classification.
- Eye irritation : No eye irritation, Rabbit
Minimal effects that do not meet the threshold for classification.
- Sensitisation : Did not cause sensitisation on laboratory animals., Guinea pig

Further information : Information presented in this Section conforms to the requirements of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard of 2012. See Section 15 for applicable information conforming to the requirements of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), as required by the US Environmental Protection Agency (EPA), or by state Regulatory Agencies.

Further information : Information given is based on data on the components.

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.
Animal testing did not show any mutagenic effects.

**DuPont™ Envive® Herbicide**

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

Reproductive toxicity : No toxicity to reproduction
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.

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

-

No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., Abnormal decrease in number of red blood cells

Oral
Rat

-

No adverse effect has been observed in chronic toxicity tests.

Carcinogenicity : Not classifiable as a human carcinogen.
Animal testing did not show any carcinogenic effects.

Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Animal testing did not show any mutagenic effects.

Reproductive toxicity : No toxicity to reproduction

Teratogenicity : Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Flumioxazin

Repeated dose toxicity : Ingestion
Rat



DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

-
No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., altered hematology, Organ weight changes

Ingestion
Dog

-
No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., altered hematology, Organ weight changes

- Carcinogenicity : Animal testing did not show any carcinogenic effects.
- Mutagenicity : Animal testing did not show any mutagenic effects.
Did not cause genetic damage in cultured bacterial cells.
Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.
- Reproductive toxicity : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.
- Teratogenicity : Animal testing showed effects on embryo-foetal development at levels below those causing maternal toxicity.

Sodium carbonate

- Repeated dose toxicity : Inhalation
Rat
-
Respiratory tract irritation
- Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Evidence suggests this substance does not cause genetic damage in animals.
- Reproductive toxicity : Animal testing showed no reproductive toxicity.
- Teratogenicity : Animal testing showed no developmental toxicity.

Titanium dioxide

- Repeated dose toxicity : Oral
Rat
-


DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

NOAEL: 1,000 mg/kg Method: OECD Test Guideline 408
No toxicologically significant effects were found.

Oral
Rat

-

No toxicologically significant effects were found.

- Carcinogenicity** : Not classifiable as a human carcinogen.
Overall weight of evidence indicates that the substance is not carcinogenic.
- Mutagenicity** : Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- Reproductive toxicity** : Animal testing showed no reproductive toxicity.
- Teratogenicity** : Animal testing showed no developmental toxicity.

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

Material	IARC	NTP	OSHA
Titanium dioxide	2B		

SECTION 12. ECOLOGICAL INFORMATION
Aquatic Toxicity
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


DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

28 d	:	NOEC <i>Americamysis bahia</i> (mysid shrimp) 7.93 mg/l
Chlorimuron ethyl		
96 h LC50	:	<i>Oncorhynchus mykiss</i> (rainbow trout) > 1,000 mg/l
96 h LC50	:	<i>Lepomis macrochirus</i> (Bluegill sunfish) > 100 mg/l
72 h EC50	:	<i>Pseudokirchneriella subcapitata</i> (green algae) 0.001 mg/l
48 h EC50	:	<i>Daphnia magna</i> (Water flea) > 1,000 mg/l
Flumioxazin		
96 h LC50	:	<i>Cyprinus carpio</i> (Carp) > 1.3 mg/l
72 h EC50	:	<i>Desmodesmus subspicatus</i> (green algae) 0.0006 mg/l
72 h NOEC	:	<i>Desmodesmus subspicatus</i> (green algae) 0.00023 mg/l
48 h EC50	:	<i>Daphnia magna</i> (Water flea) 17 mg/l
Sodium carbonate		
96 h LC50	:	<i>Lepomis macrochirus</i> (Bluegill sunfish) 300 mg/l
48 h LC50	:	<i>Ceriodaphnia dubia</i> (water flea) 200 - 227 mg/l
4 d	:	EC50 <i>Daphnia magna</i> (Water flea) 228 - 297 mg/l
Titanium dioxide		
96 h LC50	:	<i>Pimephales promelas</i> (fathead minnow) > 1,000 mg/l
72 h ErC50	:	<i>Pseudokirchneriella subcapitata</i> (green algae) > 100 mg/l see user defined free text
72 h NOEC	:	Algae 5,600 mg/l see user defined free text
48 h EC50	:	<i>Daphnia magna</i> (Water flea) > 100 mg/l OECD Test Guideline 202

Environmental Fate

Sodium carbonate

Biodegradability	:	The methods for determining biodegradability are not applicable to inorganic substances.
Bioaccumulation	:	Does not bioaccumulate.


DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

Additional ecological information : Environmental Hazards: This product is toxic to non-target plants. Toxic to aquatic organisms. 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

Waste disposal methods - Product : 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.

Waste disposal methods - Container : 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.

Contaminated packaging : No applicable data available.

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



DuPont™ Envive® Herbicide

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

Marine pollutant : yes (Flumioxazin)

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

SECTION 15. REGULATORY INFORMATION

Other regulations : This Safety Data Sheet is for a pesticide product registered by the US Environmental Protection Agency (USEPA) and various state regulatory agencies, and is therefore also subject to certain requirements under US and state pesticide laws, including the Federal Insecticide Fungicide and Rodenticide Act (FIFRA). These requirements differ from the classification criteria and hazard information required by OSHA for safety data sheets, and for workplace labels of non-pesticide chemicals. The following is information determined by USEPA, and various states.

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.

SARA 313 Regulated Chemical(s) : Chlorimuron ethyl

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

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.

**DuPont™ Envive® Herbicide**

Version 2.0

Revision Date 12/08/2015

Ref. 130000036267

SECTION 16. OTHER INFORMATION

NFPA

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

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Revision Date : 12/08/2015

Contact person : DuPont Crop Protection, Wilmington, DE, 19805, Phone: 1-888-638-7668

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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