

**DuPont™ Revulin™ Q Herbicide**

Version 3.0

Issue Date : 03/18/2019 Ref. 130000138573
Revision Date : 02/14/2019

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™ Revulin™ Q Herbicide
Tradename/Synonym : DPX-UKU48
MESOTRIONE: 2-[4-(methylsulfonyl)-2-nitrobenzoyl]-1,3-cyclohexandione
NICOSULFURON: (2-[[[4,6-dimethoxypyrimidin-2-yl)aminocarbonyl]aminosulfonyl]-N,N-dimethyl-3-pyridinecarboxamide)
Isoxadifen-ethyl: Ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate

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 : +1-800-424-9300 (outside the U.S. +1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION**Product hazard category**

Serious eye damage/eye irritation Category 2B

Label content

Pictogram : not required

Signal word : Warning

Hazardous warnings : Causes eye irritation.


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Hazardous prevention : Wash skin thoroughly after handling.
 measures IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 If eye irritation persists: Get medical advice/ attention.

Other hazards

If you mill or grind this product you may change its toxicological properties.
 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

Component	CAS-No.	Concentration
Nicosulfuron	111991-09-4	14.4 %
Mesotrione	104206-82-8	36.8 %
Ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate		3.5 %
Modified Aromatic Sulfonate Salt		10 - 15 %
Sodium alkylnaphthalene sulfonate		1 - 5 %
Other Ingredients		30 - 35 %

Present as an impurity in the components of this product:

Titanium dioxide	13463-67-7	0.1 - 0.5 %
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The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4. FIRST AID MEASURES



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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.

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.

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Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.

Further information : (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 to safe areas. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Wear suitable protective equipment.

Environmental precautions : Prevent material from entering sewers, waterways, or low areas.

Spill Cleanup : Sweep up and shovel into suitable containers for disposal.

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.

Handling (Physical Aspects) : Keep away from heat and sources of ignition.

Dust explosion class : No applicable data available.

Storage : Do not contaminate water, food or feed by disposal. Store in original container. 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.


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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 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.

Personal protective equipment

Skin and body protection : Applicators and other handlers must wear:
 Long sleeved shirt and long pants
 Chemical-resistant gloves, Category A (such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber), all greater than or equal to 14 mils
 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

Nicosulfuron			
AEL *	(DuPont)	5 mg/m3	8 & 12 hr. TWA

Mesotrione			
No applicable data available.			

Sodium alkylnaphthalene sulfonate			
No applicable data available.			

Modified Aromatic Sulfonate Salt			
No applicable data available.			

Titanium dioxide			
PEL (Permissible Exposure Limit)	(OSHA)	15 mg/m3	8 hr. TWA
PEL (Permissible Exposure Limit)	(OSHA)	10 mg/m3	TWA
TLV	(ACGIH)	10 mg/m3	TWA
AEL *	(DuPont)	10 mg/m3	8 & 12 hr. TWA

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AEL *	(DuPont)	5 mg/m3	8 & 12 hr. TWA
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Ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate

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 : solid
Color : light brown

Odor : slight

Odor threshold : No applicable data available.

pH : 3.6 - 4.6
(10% solution in water)

Melting point/range : No applicable data available.

Boiling point/boiling range : No applicable data available.

Flash point : No applicable data available.

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.

Density : 0.5 - 0.7 g/cm3

Specific gravity (Relative) : No applicable data available.

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density)

Water solubility : dispersible
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.
Oxidizing Substance : The product is not oxidizing.

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 : None reasonably foreseeable.
Hazardous decomposition products : No applicable data available.

SECTION 11. TOXICOLOGICAL INFORMATION

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Inhalation 4 h Acute toxicity estimate : > 3.0 mg/l , Rat
Dermal Acute toxicity estimate : > 3,878 mg/kg , Rabbit
Oral Acute toxicity estimate : > 5,000 mg/kg , Rat
Skin irritation : No skin irritation, Rabbit


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Minimal effects that do not meet the threshold for classification.

Eye irritation : Mild eye irritation, Rabbit

Sensitisation : Did not cause sensitisation on laboratory animals., Guinea pig

Mouse

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

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.

Nicosulfuron

Repeated dose toxicity : Ingestion
 multiple species
 - 90 d
 No toxicologically significant effects were found.

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

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

Reproductive toxicity : No toxicity to reproduction
 Animal testing showed no reproductive toxicity.
 No effects on or via lactation

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

Mesotrione

Repeated dose toxicity :
 No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., Reduced body weight gain, Increased liver weight, Increased kidney weight, altered hematology, eye effects, Cataracts

Carcinogenicity : Not classifiable as a human carcinogen.

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Mutagenicity : Animal testing did not show any mutagenic effects.

Reproductive toxicity : No toxicity to reproduction

Teratogenicity : Animal testing showed no developmental toxicity.

Ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate

Repeated dose toxicity : Ingestion
Mouse
- 90 dMethod: OPPTS 870.3100
No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., Information source: Data provided by an external source.

No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification.

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

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

Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.

Teratogenicity : Evidence suggests the substance is not a developmental toxin in animals.

Titanium dioxide

Repeated dose toxicity : Oral
Rat
-
NOAEL: 1,000 mg/kgMethod: OECD Test Guideline 408
No toxicologically significant effects were found.

Oral
Rat
-
No toxicologically significant effects were found.


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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		
Quartz	1	X	

SECTION 12. ECOLOGICAL INFORMATION
Aquatic Toxicity
Nicosulfuron

96 h LC50 : Cyprinodon variegatus (sheepshead minnow) > 124 mg/l

7 d EC50 : Lemna gibba (duckweed) 0.0032 mg/l US EPA Test Guideline OPP 122-2 & 123-2

14 d NOEC : Lemna gibba (duckweed) 0.0025 mg/l

48 h EC50 : Daphnia magna (Water flea) > 1,000 mg/l US EPA Test Guideline OPP 72-2

90 d : NOEC Oncorhynchus mykiss (rainbow trout) 24 mg/l OECD Test Guideline 210

21 d : NOEC Daphnia magna (Water flea) 43 mg/l OECD Test Guideline


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Mesotrione

96 h LC50 : Oncorhynchus mykiss (rainbow trout) > 120 mg/l
 72 h EC50 : Pseudokirchneriella subcapitata (green algae) 4.5 mg/l
 48 h EC50 : Daphnia magna (Water flea) 900 mg/l

Ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate

96 h LC50 : Lepomis macrochirus (Bluegill sunfish) 0.22 mg/l
 Information source: Data provided by an external source.
 96 h EC50 : Pseudokirchneriella subcapitata (green algae) > 1.26 mg/l
 Information source: Data provided by an external source.
 96 h NOEC : Pseudokirchneriella subcapitata (green algae) 1.26 mg/l
 Information source: Data provided by an external source.

Sodium alkylnaphthalene sulfonate

48 h LC50 : Oryzias latipes (Orange-red killifish) 360 mg/l
 72 h EC50 : Algae 102.5 mg/l
 48 h EC50 : Daphnia (water flea) 334.2 mg/l

Titanium dioxide

96 h LC50 : Pimephales promelas (fathead minnow) > 1,000 mg/l
 72 h ErC50 : Pseudokirchneriella subcapitata (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 : Daphnia magna (Water flea) > 100 mg/l OECD Test Guideline 202

Environmental Fate

Nicosulfuron

Bioaccumulation : Bioaccumulation is unlikely.

Sodium alkylnaphthalene sulfonate

Biodegradability : Not readily biodegradable.
 Bioaccumulation : Bioaccumulation is unlikely.



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Additional ecological information : 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.

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. (Nicosulfuron, Isoxadifen-ethyl)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
IMDG	UN number	: 3077
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nicosulfuron, Isoxadifen-ethyl)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
	Marine pollutant	: yes (Nicosulfuron, Isoxadifen-ethyl)

Not regulated as a hazardous material by DOT.



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Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA special provision A197, and ADR/RID special provision 375.

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.

SARA 311/312 Hazard classification : Serious eye damage or eye irritation

SARA 313 Regulated Chemical(s) : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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, Sodium sulphate, Sucrose, Sodium dodecylbenzenesulfonate

CERCLA Reportable Quantity : Based on the percentage composition of this chemical in the product.:

	Sodium dodecylbenzenesulfonate
	Naphthalene

SARA Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

EPA Reg. No. : 352-900
 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

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a manner inconsistent with its labeling. Read and follow all label directions.
This product is excluded from listing requirements under EPA/TSCA.

California Prop. 65 : This product can expose you to substances including Titanium dioxide, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SECTION 16. OTHER INFORMATION

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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.