

# SAFETY DATA SHEET



## REVULIN Q

Version 1.1      Revision Date: 02/01/2022      SDS Number: 800080000563      Date of last issue: 02/01/2022  
Date of first issue: 02/01/2022

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Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

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### SECTION 1. IDENTIFICATION

Product name : REVULIN Q

#### Manufacturer or supplier's details

#### COMPANY IDENTIFICATION

**Manufacturer/importer** : CORTEVA AGRISCIENCE LLC  
9330 ZIONSVILLE RD  
INDIANAPOLIS, IN, 46268-1053  
UNITED STATES

**Customer Information Number** : 1-800-258-3033

**E-mail address** : customerinformation@corteva.com

**Emergency telephone** : INFOTRAC (CONTRACT 84224).  
800-992-5994 or 317-337-6009

#### Recommended use of the chemical and restrictions on use

**Recommended use** : Herbicide

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

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Reproductive toxicity : Category 2


Specific target organ toxicity - repeated exposure : Category 1 (Lungs)

Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Eyes, Nervous system)

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**GHS label elements**

- Hazard pictograms : 
- Signal Word : Danger
- Hazard Statements : H361d Suspected of damaging the unborn child.  
 H372 Causes damage to organs (Lungs) through prolonged or repeated exposure.  
 H373 May cause damage to organs (Eyes, Nervous system) through prolonged or repeated exposure if swallowed.
- Precautionary Statements : **Prevention:**  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.  
 P264 Wash skin thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- Response:**  
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
- Storage:**  
 P405 Store locked up.
- Disposal:**  
 P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
mesotrione(ISO)	104206-82-8	36.8
Nicosulfuron	111991-09-4	14.4
Barden clay	1332-58-7	>= 10 - < 20
Alkylnaphthalenesulfonic acid, polymer with formaldehyde, sodium salt	68425-94-5	>= 3 - < 10
ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate	163520-33-0	>= 3 - < 10

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Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts	91078-64-7	>= 1 - < 3
Sucrose	57-50-1	>= 1 - < 3

Actual concentration is withheld as a trade secret

### 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 1-888-226-8832. 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.
- If inhaled : Move to fresh air.  
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- In case of 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.
- In case of 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.
- If swallowed : 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.  
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : None known.

### SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam
- Unsuitable extinguishing media : Dry chemical
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.  
Applying foam will release significant amounts of hydrogen gas that can be trapped under the foam blanket.  
Do not allow run-off from firefighting to enter drains or water courses.

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- Hazardous combustion products : During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.
- Specific extinguishing methods : Do not allow extinguishing medium to contact container contents. Most fire extinguishing media will cause hydrogen evolution, and once the fire is put out, may accumulate in poorly ventilated or confined areas and result in flash fire or explosion if ignited.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Avoid dust formation.  
Use personal protective equipment.  
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.  
Discharge into the environment must be avoided.  
Prevent further leakage or spillage if safe to do so.  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.  
Prevent from entering into soil, ditches, sewers, underwater.  
See Section 12, Ecological Information.
- Methods and materials for containment and cleaning up : Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in.  
Pick up and arrange disposal without creating dust.  
Recovered material should be stored in a vented container.  
The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to over-pressurization of the container.  
Keep in suitable, closed containers for disposal.  
Sweep up or vacuum up spillage and collect in suitable container for disposal.  
See Section 13, Disposal Considerations, for additional information.

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### SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Do not breathe vapors/dust.  
Do not smoke.  
Handle in accordance with good industrial hygiene and safety practice.  
Smoking, eating and drinking should be prohibited in the application area.  
Avoid inhalation of vapor or mist.  
Do not swallow.  
Avoid contact with eyes.  
Avoid prolonged or repeated contact with skin.  
Take care to prevent spills, waste and minimize release to the environment.  
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Conditions for safe storage : Store in a closed container.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Keep in properly labeled containers.  
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store near acids.  
Strong oxidizing agents
- Packaging material : Unsuitable material: None known.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Barden clay	1332-58-7	TWA (Respirable particulate matter)	2 mg/m3	ACGIH
		TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1
Sucrose	57-50-1	TWA	10 mg/m3	ACGIH
		TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1

- Engineering measures** : 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.

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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.
- Hygiene measures : 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.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

- Appearance : solid
- Color : light brown
- Odor : slight
- Odor Threshold : No data available
- pH : 3.6 - 4.6  
(10% solution in water)
- Melting point/range : No data available
- Freezing point : Not applicable
- Boiling point/boiling range : Not applicable
- Flash point : Method: closed cup  
Not applicable
- Evaporation rate : Not applicable
- Flammability (solid, gas) : The product is not flammable.
- Upper explosion limit / Upper flammability limit : Not applicable
- Lower explosion limit / Lower flammability limit : Not applicable
- Vapor pressure : Not applicable

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Relative vapor density : Not applicable

Relative density : No data available

Density : 0.5 - 0.7 g/cm<sup>3</sup>

Solubility(ies)  
Water solubility : dispersible

Autoignition temperature : Not applicable

Viscosity  
Viscosity, dynamic : Not applicable

Explosive properties : No data available

Oxidizing properties : The substance or mixture is not classified as oxidizing.

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### SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : No decomposition if stored and applied as directed.  
Stable under normal conditions.

Possibility of hazardous reactions : Stable under recommended storage conditions.  
No hazards to be specially mentioned.  
None known.

Conditions to avoid : None known.

Incompatible materials : None.

Hazardous decomposition products : Decomposition products depend upon temperature, air supply and the presence of other materials.

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### SECTION 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

##### Product:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: US EPA Test Guideline OPP 81-1

Acute inhalation toxicity : LC50 (Rat): > 5.6 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute toxicity estimate: 78.74 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Method: US EPA Test Guideline OPP 81-2

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**Components:****mesotrione(ISO):**

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
- Acute inhalation toxicity : LC50 (Rat, male and female): > 4.75 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**Nicosulfuron:**

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
- Acute inhalation toxicity : LC50 (Rat): > 5.9 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**Barden clay:**

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

**Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:**

- Acute oral toxicity : LD50 (Rat): > 4,500 mg/kg

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

- Acute oral toxicity : LD50 (Rat, male and female): 1,740 mg/kg
- Acute inhalation toxicity : LC50 (Rat, male and female): 5.04 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Symptoms: No deaths occurred at this concentration.
- Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

- Acute oral toxicity : LD50 (Rat): 1,790 mg/kg
- Acute inhalation toxicity : LC50 (Rat): 3.82 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist



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Acute dermal toxicity : LD50 (Rabbit): 3,000 mg/kg

**Sucrose:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity

**Skin corrosion/irritation****Product:**

Species : Rabbit  
Method : US EPA Test Guideline OPP 81-5  
Result : No skin irritation

**Components:****Barden clay:**

Result : No skin irritation

**Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:**

Species : Rabbit  
Result : No skin irritation

**Sucrose:**

Species : Rabbit  
Result : No skin irritation

**Serious eye damage/eye irritation****Product:**

Species : Rabbit  
Result : No eye irritation  
Method : US EPA Test Guideline OPP 81-4

**Components:****Barden clay:**

Result : No eye irritation

**Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:**

Species : Rabbit  
Result : Eye irritation

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Species : Rabbit  
Result : Eye irritation

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**Sucrose:**

Species : Rabbit  
Result : No eye irritation

**Respiratory or skin sensitization****Product:**

Test Type : Buehler Test  
Species : Guinea pig  
Method : US EPA Test Guideline OPP 81-6  
Result : Did not cause sensitization on laboratory animals.

**Components:****mesotrione(ISO):**

Species : Guinea pig  
Assessment : Does not cause skin sensitization.

**Nicosulfuron:**

Remarks : Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:  
No relevant data found.

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

Species : Guinea pig  
Assessment : The product is a skin sensitizer, sub-category 1B.

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Species : Guinea pig  
Result : Does not cause skin sensitization.

**Germ cell mutagenicity****Components:****mesotrione(ISO):**

Germ cell mutagenicity - Assessment : The weight of evidence from in vitro genetic toxicity studies indicates that this material is not genotoxic.

**Nicosulfuron:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative.

**Barden clay:**

Germ cell mutagenicity - Assessment : No relevant data found.

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

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## Assessment

**Sucrose:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were inconclusive., Animal genetic toxicity studies were inconclusive

**Carcinogenicity****Components:****mesotrione(ISO):**

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

**Nicosulfuron:**

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

**Barden clay:**

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

Available data suggest that the material is unlikely to cause cancer.

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

**IARC** Group 1: Carcinogenic to humans  
Barden clay 1332-58-7  
(Silica dust, crystalline)

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** Known to be human carcinogen  
Barden clay 1332-58-7  
(Silica, Crystalline (Respirable Size))

**Reproductive toxicity****Components:****mesotrione(ISO):**

Reproductive toxicity - Assessment : Suspected human reproductive toxicant, Suspected of damaging the unborn child.

Relevant data not available.

**Nicosulfuron:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction., In animal studies, did not interfere with fertility.

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**Barden clay:**

Reproductive toxicity - Assessment : No relevant data found.

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Has caused birth defects in laboratory animals only at doses toxic to the mother.

**STOT-single exposure****Components:****Barden clay:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:**

Assessment : Available data are inadequate to determine single exposure specific target organ toxicity.

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

Assessment : Available data are inadequate to determine single exposure specific target organ toxicity.

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Sucrose:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**STOT-repeated exposure****Components:****mesotrione(ISO):**

Routes of exposure : Oral  
 Target Organs : Eyes, Nervous system  
 Assessment : May cause damage to organs through prolonged or repeated exposure.

**Barden clay:**

Target Organs : Lungs

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Assessment : Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity****Components:****Nicosulfuron:**

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Barden clay:**

Remarks : Repeated excessive exposure to crystalline silica may cause silicosis, a progressive and disabling disease of the lungs.

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

Remarks : In animals, effects have been reported on the following organs:  
Liver.  
Kidney.

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Aspiration toxicity****Components:****mesotrione(ISO):**

Based on physical properties, not likely to be an aspiration hazard.

**Nicosulfuron:**

Based on physical properties, not likely to be an aspiration hazard.

**Barden clay:**

Based on physical properties, not likely to be an aspiration hazard.

**Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:**

Based on physical properties, not likely to be an aspiration hazard.

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

Based on physical properties, not likely to be an aspiration hazard.

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Based on physical properties, not likely to be an aspiration hazard.

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## SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity****Components:****mesotrione(ISO):**

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 3.5 mg/l  
 Exposure time: 120 h

EC50 (Lemna gibba): 0.0077 mg/l  
 Exposure time: 14 d

M-Factor (Acute aquatic toxicity) : 100

Toxicity to fish (Chronic toxicity) : NOEC (Fish): 12.5 mg/l  
 Exposure time: 36 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia): 180 mg/l  
 Exposure time: 21 d

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): > 437.7 mg/kg  
 Exposure time: 14 d  
 End point: survival

Toxicity to terrestrial organisms : oral LD50 (Colinus virginianus (Bobwhite quail)): > 2000 mg/kg bodyweight.

dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5200 mg/kg diet.

oral LD50 (Apis mellifera (bees)): > 11 micrograms/bee  
 Exposure time: 48 h

contact LD50 (Apis mellifera (bees)): > 9.1 micrograms/bee  
 Exposure time: 48 h

**Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**Nicosulfuron:**

Toxicity to fish : Remarks: Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50 (Oncorhynchus mykiss (rainbow trout)): > 1,000 mg/l  
 Exposure time: 96 h  
 Test Type: static test  
 Method: US EPA Test Guideline OPP 72-1  
 GLP: yes

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- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: US EPA Test Guideline OPP 72-2  
GLP: yes
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 71.17 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
GLP: yes
- EbC50 (Anabaena flos-aquae (cyanobacteria)): 41.8 mg/l  
Exposure time: 96 h  
Method: Directive 67/548/EEC, Annex V, C.3.  
GLP: yes
- ErC50 (Anabaena flos-aquae (cyanobacteria)): 59.8 mg/l  
Exposure time: 96 h  
Method: Directive 67/548/EEC, Annex V, C.3.  
GLP: yes
- EC50 (Lemna gibba (duckweed)): 0.0032 mg/l  
Exposure time: 7 d  
Method: US EPA Test Guideline OPP 122-2 & 123-2  
GLP: yes
- M-Factor (Acute aquatic toxicity) : 100
- Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 24 mg/l  
Exposure time: 90 d  
Test Type: Early Life-Stage  
Method: OECD Test Guideline 210  
GLP: yes
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 43 mg/l  
Exposure time: 21 d  
Test Type: Static-Renewal  
Method: OECD Test Guideline 202  
GLP: yes
- M-Factor (Chronic aquatic toxicity) : 10
- Toxicity to terrestrial organisms : oral LD50 (Colinus virginianus (Bobwhite quail)): > 2,250 mg/kg  
Method: US EPA Test Guideline OPP 71-1  
GLP: yes
- dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5,620 mg/kg  
Exposure time: 5 d  
Method: US EPA Test Guideline OPP 71-2  
GLP: yes
- dietary LC50 (Anas platyrhynchos (Mallard duck)): > 5,620

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mg/kg  
 Exposure time: 5 d  
 Method: US EPA Test Guideline OPP 71-2  
 GLP: yes

oral LD50 (*Apis mellifera* (bees)): 0.050 mg/kg  
 Exposure time: 48 d  
 Method: OECD Test Guideline 213  
 GLP: yes

oral LD50 (*Apis mellifera* (bees)): > 100 mg/kg  
 Exposure time: 48 d  
 Method: OECD Test Guideline 214  
 GLP: yes

**Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**Barden clay:**

Toxicity to fish : Remarks: Not expected to be acutely toxic to aquatic organisms.

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): 0.34 mg/l  
 End point: mortality  
 Exposure time: 96 h  
 Test Type: flow-through

LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 0.22 mg/l  
 End point: mortality  
 Exposure time: 96 h  
 Test Type: flow-through

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC (*Oncorhynchus mykiss* (rainbow trout)): 0.42 mg/l  
 Exposure time: 28 d  
 Test Type: flow-through

(*Oncorhynchus mykiss* (rainbow trout)): 0.65 mg/l  
 End point: Growth rate inhibition  
 Exposure time: 28 d  
 Test Type: flow-through

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 0.38 mg/l  
 Exposure time: 21 d  
 Test Type: semi-static test

**Ecotoxicology Assessment**

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.



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**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 100 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 78 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (algae): 180 mg/l  
Exposure time: 72 h

**Ecotoxicology Assessment**

Acute aquatic toxicity : Harmful to aquatic life.

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

**Sucrose:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l  
Exposure time: 72 h  
Test Type: static test  
Method: Method Not Specified.

**Persistence and degradability****Components:****Nicosulfuron:**

Biodegradability : Remarks: According to the results of tests of biodegradability this product is not readily biodegradable.

**Barden clay:**

Biodegradability : Remarks: Biodegradation is not applicable.

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Biodegradability : Result: Not readily biodegradable.

**Sucrose:**

ThOD : 1.12 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)  
Sensitizer: OH radicals  
Concentration: 1,500,000 1/cm<sup>3</sup>  
Rate constant: 1.1479E-10 cm<sup>3</sup>/s  
Method: Estimated.

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**Bioaccumulative potential****Components:****mesotrione(ISO):**

Partition coefficient: n-octanol/water : Pow: 0.11 (68 °F / 20 °C)  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Nicosulfuron:**

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: -1.15  
Method: Estimated.  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Barden clay:**

Partition coefficient: n-octanol/water : Remarks: Partitioning from water to n-octanol is not applicable.

**Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:**

Partition coefficient: n-octanol/water : Remarks: No data available for this product.

**ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate:**

Partition coefficient: n-octanol/water : log Pow: 3.8 (86 °F / 30 °C)

**Naphthalenesulfonic acids, branched and linear Bu derivs., sodium salts:**

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: -0.27  
pH: 8.9

**Sucrose:**

Bioaccumulation : Bioconcentration factor (BCF): 3  
Method: Estimated.

Partition coefficient: n-octanol/water : Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).  
Potential for mobility in soil is very high (Koc between 0 and 50).

log Pow: -3.7 - -3.67  
Method: Estimated.  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

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**Mobility in soil****Components:****mesotrione(ISO):**

Distribution among environmental compartments : Koc: 19 - 390  
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

**Nicosulfuron:**

Distribution among environmental compartments : Koc: 33 - 51  
Remarks: Under actual use conditions the product has a low potential of mobility in soil.

**Barden clay:**

Distribution among environmental compartments : Remarks: No relevant data found.

**Sucrose:**

Distribution among environmental compartments : Koc: 3.16  
Method: Estimated.  
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

**Other adverse effects****Components:****mesotrione(ISO):**

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Nicosulfuron:**

Results of PBT and vPvB assessment : This mixture has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Barden clay:**

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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**Alkyl-naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:**

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Sucrose:**

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

UN number : UN 3077  
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
 (Nicosulfuron, Mesotrione)  
 Class : 9  
 Packing group : III  
 Labels : 9

**IATA-DGR**

UN/ID No. : UN 3077  
 Proper shipping name : Environmentally hazardous substance, solid, n.o.s.  
 (Nicosulfuron, Isoxadifen-ethyl)  
 Class : 9  
 Packing group : III  
 Labels : Miscellaneous  
 Packing instruction (cargo) : 956

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aircraft)

Packing instruction (passenger aircraft) : 956

### IMDG-Code

UN number : UN 3077  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Nicosulfuron, Isoxadifen-ethyl)  
Class : 9  
Packing group : III  
Labels : 9  
EmS Code : F-A, S-F  
Marine pollutant : yes  
Remarks : Stowage category A

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### Domestic regulation

#### 49 CFR

Not regulated as a dangerous good

### Further information

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5L 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.

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15. REGULATORY INFORMATION

**SARA 311/312 Hazards** : Reproductive toxicity  
Specific target organ toxicity (single or repeated exposure)

**SARA 313** : 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.

### US State Regulations

#### Pennsylvania Right To Know

Barden clay	1332-58-7
Sodium sulfate	7757-82-6
Sucrose	57-50-1

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### California Prop. 65

WARNING: This product can expose you to chemicals including Barden clay, Quartz, which is/are known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### The ingredients of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

### TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:

ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate 163520-33-0

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate 163520-33-0

### Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 352-900

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

### CAUTION

Causes moderate eye irritation.  
Harmful if swallowed, inhaled or absorbed through skin.

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## SECTION 16. OTHER INFORMATION

### Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants  
ACGIH / TWA : 8-hour, time-weighted average  
OSHA Z-1 / TWA : 8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Har-

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monized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 02/01/2022

Product code: GF-4623

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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