

# SAFETY DATA SHEET



## Steadfast® Q

Version	Revision Date:	SDS Number:	Date of last issue: -
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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 : Steadfast® 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)

Eye irritation : Category 2A

Skin sensitization : Category 1

#### GHS label elements

Hazard pictograms :



Signal Word : Warning

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Hazard Statements : H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.

Precautionary Statements : **Prevention:**  
P261 Avoid breathing dust.  
P264 Wash skin thoroughly after handling.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves/ eye protection/ face protection.

**Response:**  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P363 Wash contaminated clothing before reuse.

**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)
Nicosulfuron	111991-09-4	25.2
Rimsulfuron	122931-48-0	12.5
ethyl 5,5-diphenyl-2-isoxazoline-3-carboxylate	163520-33-0	8.3
Kaolin	1332-58-7	>= 10 - < 20
Sucrose	57-50-1	>= 3 - < 10
Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde	105859-97-0	>= 3 - < 10
Alkylnaphthalenesulfonic acid, polymer with formaldehyde, sodium salt	68425-94-5	>= 1 - < 3
Benzenesulfonic acid, dodecyl-, branched, sodium salt	69227-09-4	>= 1 - < 3
titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]	13463-67-7	>= 0.1 - < 0.3
Balance	Not Assigned	> 5

Actual concentration is withheld as a trade secret

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**SECTION 4. FIRST AID MEASURES**

- General advice : Have the product container or label with you when calling a poison control center or doctor, or going for treatment. 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.
- 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.  
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 : No specific intervention is indicated as the compound is not likely to be hazardous.  
Consult a physician if necessary.
- Most important symptoms and effects, both acute and delayed : None known.
- Notes to physician : Treat symptomatically.

**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.
- 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.
- Combustion products may include and are not limited to:  
Carbon oxides
- 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 explo-

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- sion 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.
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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Avoid dust formation.  
 Avoid breathing dust.  
 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 : Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.  
 Do not breathe vapors/dust.

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Do not smoke.  
Handle in accordance with good industrial hygiene and safety practice.  
Avoid exposure - obtain special instructions before use.  
Smoking, eating and drinking should be prohibited in the application area.  
Do not get on skin or clothing.  
Avoid inhalation of vapor or mist.  
Do not swallow.  
Do not get in eyes.  
Avoid contact with skin and eyes.  
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 : 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
Kaolin	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
		TWA (Total dust)	10 mg/m3	OSHA P0
		TWA (respirable dust fraction)	5 mg/m3	OSHA P0
		PEL (respirable)	0.05 mg/m3	OSHA CARC
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
		TWA (Total dust)	15 mg/m3	OSHA P0

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		TWA (respirable dust fraction)	5 mg/m3	OSHA P0
titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]	13463-67-7	TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA	10 mg/m3 (Titanium dioxide)	ACGIH
		TWA (Total dust)	10 mg/m3	OSHA P0

**Engineering measures** : Ensure adequate ventilation.

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

**Personal protective equipment**

**Respiratory protection** : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

**Hand protection**

**Remarks** : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Eye protection** : Use safety glasses (with side shields).

**Skin and body protection** : Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**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.

**Hygiene measures** : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

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Remove clothing/PPE immediately if material gets inside.  
Wash thoroughly and put on clean clothing.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	solid, granules
Color	:	tan
Odor	:	slight
Odor Threshold	:	No data available
pH	:	5.3 - 6.3
Melting point/range	:	No data available
Freezing point	:	Not applicable
Boiling point/boiling range	:	Not applicable
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Vapor pressure	:	Not applicable
Relative vapor density	:	Not applicable
Density	:	0.57 - 0.67 g/cm <sup>3</sup>
Solubility(ies) Water solubility	:	No data available
Autoignition temperature	:	Not applicable
Viscosity Viscosity, dynamic	:	Not applicable
Explosive properties	:	No data available
Oxidizing properties	:	No data available

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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 : Strong acids  
Strong bases  
Hazardous decomposition products : Decomposition products depend upon temperature, air supply  
and the presence of other materials.  
Decomposition products can include and are not limited to:  
Carbon oxides

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**SECTION 11. TOXICOLOGICAL INFORMATION****Acute toxicity****Product:**

Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method  
Acute inhalation toxicity : Acute toxicity estimate: 62.6 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method  
Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

**Components:****Nicosulfuron:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: US EPA Test Guideline OPP 81-1  
Acute inhalation toxicity : LC50 (Rat): > 5.9 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: US EPA Test Guideline OPP 81-3  
Assessment: The substance or mixture has no acute inhalation toxicity  
Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: US EPA Test Guideline OPP 81-2  
Assessment: The substance or mixture has no acute dermal toxicity



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**Rimsulfuron:**

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: Directive 67/548/EEC, Annex V, B.1.
- Acute inhalation toxicity : LC50 (Rat): > 205.4 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Directive 67/548/EEC, Annex V, B.2.  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Method: Directive 67/548/EEC, Annex V, B.3.  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute dermal toxicity

**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.

**Kaolin:**

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

**Sucrose:**

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

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

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

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

- Acute oral toxicity : Remarks: Low toxicity if swallowed.  
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
- LD50 (Rat): > 1,000 mg/kg  
Method: Estimated.
- Acute dermal toxicity : Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

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LD50 (Rabbit): > 1,000 mg/kg  
Method: Estimated.

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: OECD Test Guideline 425

Acute inhalation toxicity : LC50 (Rat): > 6.82 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 10,000 mg/kg

**Skin corrosion/irritation**

**Components:**

**Nicosulfuron:**

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

**Rimsulfuron:**

Species : Rabbit  
Method : Directive 67/548/EEC, Annex V, B.4.  
Result : No skin irritation

**Kaolin:**

Species : Rabbit  
Result : No skin irritation

**Sucrose:**

Species : Rabbit  
Result : No skin irritation

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

Species : Rabbit  
Result : No skin irritation

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

Result : Skin irritation

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

Species : Rabbit

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Method : OECD Test Guideline 404  
Result : No skin irritation

**Serious eye damage/eye irritation****Components:****Nicosulfuron:**

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

**Rimsulfuron:**

Species : Rabbit  
Result : No eye irritation  
Method : Directive 67/548/EEC, Annex V, B.5.

**Kaolin:**

Species : Rabbit  
Result : No eye irritation

**Sucrose:**

Species : Rabbit  
Result : No eye irritation

**Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde:**

Species : Rabbit  
Result : Eye irritation

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

Species : Rabbit  
Result : Eye irritation

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

Result : Corrosive

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter  $\leq 10 \mu\text{m}$ ]:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

**Respiratory or skin sensitization****Components:****Nicosulfuron:**

Test Type : Buehler Test  
Species : Guinea pig

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Method : US EPA Test Guideline OPP 81-6  
 Result : Did not cause sensitization on laboratory animals.

**Rimsulfuron:**

Test Type : Maximization Test  
 Species : Guinea pig  
 Method : OECD Test Guideline 406  
 Result : Does not cause skin sensitization.

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

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

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

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

Remarks : For respiratory sensitization:  
 No relevant data found.

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

Species : Guinea pig  
 Assessment : Does not cause skin sensitization.  
 Method : OECD Test Guideline 406

Species : Mouse  
 Assessment : Does not cause respiratory sensitization.

**Germ cell mutagenicity****Components:****Nicosulfuron:**

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

**Rimsulfuron:**

Germ cell mutagenicity - Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.

**Sucrose:**

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

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., In vivo tests did not show genotoxic effects

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**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

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

**Carcinogenicity**

**Components:**

**Nicosulfuron:**

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

**Rimsulfuron:**

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

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

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

**Kaolin:**

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

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

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

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

<b>IARC</b>	Group 1: Carcinogenic to humans Kaolin (Silica dust, crystalline)	1332-58-7
	Group 2B: Possibly carcinogenic to humans titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]	13463-67-7
<b>OSHA</b>	OSHA specifically regulated carcinogen Kaolin (crystalline silica)	1332-58-7
<b>NTP</b>	Known to be human carcinogen Kaolin (Silica, Crystalline (Respirable Size))	1332-58-7

**Reproductive toxicity**

**Components:**

**Nicosulfuron:**

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

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Did not show teratogenic effects in animal experiments.

**Rimsulfuron:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Development effects were not observed in laboratory animals.

**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.

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

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

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Did not cause birth defects or any other fetal effects in laboratory animals.

**STOT-single exposure****Components:****Nicosulfuron:**

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

**Rimsulfuron:**

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.

**Kaolin:**

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.

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

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

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

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

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

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

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

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

**Rimsulfuron:**

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

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

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

**Kaolin:**

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

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

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

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

Species : Rat  
NOAEL : 1,000 mg/kg  
Application Route : Oral  
Method : OECD Test Guideline 408  
Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

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**Aspiration toxicity****Components:****Nicosulfuron:**

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

**Rimsulfuron:**

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.

**Kaolin:**

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.

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

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

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

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

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****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

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



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Toxicity to algae/aquatic plants	:	<p>ErC50 (<i>Pseudokirchneriella subcapitata</i> (green algae)): 71.17 mg/l          Exposure time: 72 h          Method: OECD Test Guideline 201          GLP: yes</p> <p>EbC50 (<i>Anabaena flos-aquae</i> (cyanobacteria)): 41.8 mg/l          Exposure time: 96 h          Method: Directive 67/548/EEC, Annex V, C.3.          GLP: yes</p> <p>ErC50 (<i>Anabaena flos-aquae</i> (cyanobacteria)): 59.8 mg/l          Exposure time: 96 h          Method: Directive 67/548/EEC, Annex V, C.3.          GLP: yes</p> <p>EC50 (<i>Lemna gibba</i> (duckweed)): 0.0032 mg/l          Exposure time: 7 d          Method: US EPA Test Guideline OPP 122-2 &amp; 123-2          GLP: yes</p>
M-Factor (Acute aquatic toxicity)	:	100
Toxicity to fish (Chronic toxicity)	:	<p>NOEC (<i>Oncorhynchus mykiss</i> (rainbow trout)): 24 mg/l          Exposure time: 90 d          Test Type: Early Life-Stage          Method: OECD Test Guideline 210          GLP: yes</p>
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	<p>NOEC (<i>Daphnia magna</i> (Water flea)): 43 mg/l          Exposure time: 21 d          Test Type: Static-Renewal          Method: OECD Test Guideline 202          GLP: yes</p>
M-Factor (Chronic aquatic toxicity)	:	10
Toxicity to terrestrial organisms	:	<p>oral LD50 (<i>Colinus virginianus</i> (Bobwhite quail)): &gt; 2,250 mg/kg          Method: US EPA Test Guideline OPP 71-1          GLP: yes</p> <p>dietary LC50 (<i>Anas platyrhynchos</i> (Mallard duck)): &gt; 5,620 mg/kg          Exposure time: 5 d          Method: US EPA Test Guideline OPP 71-2          GLP: yes</p> <p>oral LD50 (<i>Apis mellifera</i> (bees)): 0.050 mg/kg          Exposure time: 48 h          Method: OECD Test Guideline 213          GLP: yes</p> <p>oral LD50 (<i>Apis mellifera</i> (bees)): &gt; 100 mg/kg          Exposure time: 48 h</p>

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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.

**Rimsulfuron:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 390 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203  
 GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia): > 360 mg/l  
 Exposure time: 48 h  
 Test Type: static test  
 Method: OECD Test Guideline 202  
 GLP: yes

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 1.2 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201  
 GLP: yes

ErC50 (Pseudokirchneriella subcapitata (green algae)): 2.8 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 201  
 GLP: yes

EC50 (Lemna gibba (duckweed)): 0.023 mg/l  
 End point: Frond  
 Exposure time: 14 d  
 Method: US EPA Test Guideline OPP 122-2 & 123-2  
 GLP: yes

EC50 (Lemna gibba (duckweed)): 0.017 mg/l  
 End point: Biomass  
 Exposure time: 14 d  
 Method: US EPA Test Guideline OPP 122-2 & 123-2  
 GLP: yes

ErC50 (Anabaena flos-aquae (cyanobacteria)): 5.2 mg/l  
 Exposure time: 96 h  
 Method: US EPA Test Guideline OPPTS 850.5400  
 GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 110 mg/l  
 Exposure time: 90 d  
 Test Type: Early Life-Stage  
 Method: OECD Test Guideline 210  
 GLP: yes

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.82 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 202  
GLP: yes

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): 1,000 mg/kg  
Method: OECD Test Guideline 207  
GLP: yes

Toxicity to terrestrial organisms : oral LD50 (Colinus virginianus (Bobwhite quail)): > 2,250 mg/kg  
Method: US EPA Test Guideline OPP 71-1  
GLP: yes

oral LD50 (Anas platyrhynchos (Mallard duck)): > 2,000 mg/kg  
Method: US EPA Test Guideline OPP 71-1  
GLP: yes

dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5,620 mg/kg  
Exposure time: 8 d  
Method: OECD Test Guideline 205

dietary LC50 (Anas platyrhynchos (Mallard duck)): > 5,620 mg/kg  
Exposure time: 8 d  
Method: OECD Test Guideline 205

contact LD50 (Apis mellifera (bees)): > 100 µg/b  
Method: OEPP/EPPO Test Guideline 170  
GLP: yes

oral LD50 (Apis mellifera (bees)): > 1000 mg/b  
Method: OEPP/EPPO Test Guideline 170

**Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

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

**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

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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.

**Sucrose:**

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

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:****Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

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

**titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 1,000 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l  
Exposure time: 72 h

NOEC (Algae): 5,600 mg/l  
Exposure time: 72 h

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

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

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**Rimsulfuron:**

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.

**Bioaccumulative potential****Components:****Nicosulfuron:**

Bioaccumulation : Remarks: Does not bioaccumulate.

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).

**Rimsulfuron:**

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

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

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

**Kaolin:**

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

**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.

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Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde:**

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

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

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

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

**Balance:**

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

**Mobility in soil****Components:****Nicosulfuron:**

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

**Sucrose:**

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

**Benzenesulfonic acid, dodecyl-, branched, sodium salt:**

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

**Balance:**

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

**Other adverse effects****Components:****Nicosulfuron:**

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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**Rimsulfuron:**

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.

**Kaolin:**

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.

**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.

**Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde:**

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.

**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.

**Benzenesulfonic acid, dodecyl-, branched, 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.

**Balance:**

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.

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**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, Rimsulfuron)  
 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, Rimsulfuron)  
 Class : 9  
 Packing group : III  
 Labels : Miscellaneous  
 Packing instruction (cargo aircraft) : 956  
 Packing instruction (passenger aircraft) : 956

**IMDG-Code**

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



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**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.

**SECTION 15. REGULATORY INFORMATION**

**SARA 311/312 Hazards** : Respiratory or skin sensitization  
Serious eye damage or eye irritation

**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**

Kaolin	1332-58-7
Disodium hydrogen phosphate	7558-79-4
Sucrose	57-50-1

**California Prop. 65**

WARNING: This product can expose you to chemicals including Kaolin, 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

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**Federal Insecticide, Fungicide and Rodenticide Act**

EPA Registration Number : 352-774

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**

Harmful if absorbed through skin.  
Causes moderate eye irritation.  
Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**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 CARC	:	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
OSHA CARC / PEL	:	Permissible exposure limit (PEL)
OSHA P0 / 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 Harmonized 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

# SAFETY DATA SHEET



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- 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; TECL - Thailand Existing Chemicals 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 : 04/29/2022

Product code: GF-4171

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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