

# SAFETY DATA SHEET



## PowerFlex® HL

Version 1.0      Revision Date: 06/09/2022      SDS Number: 800080002753      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 : PowerFlex® HL

#### Manufacturer or supplier's details

#### COMPANY IDENTIFICATION

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

Customer Information Number : 800-992-5994

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 : End use herbicide product

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### SECTION 2. HAZARDS IDENTIFICATION

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

Skin sensitization : Sub-category 1B

#### GHS label elements

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.

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Precautionary Statements : **Prevention:**  
P261 Avoid breathing dust.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves.

**Response:**  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P333 + P313 If skin irritation or rash occurs: 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)
pyroxsulam (ISO)	422556-08-9	13.13
Cloquintocet-mexyl	99607-70-2	13.13
Kaolin	1332-58-7	>= 20 - < 25
Sodium lignosulfonate	8061-51-6	>= 10 - < 20
citric acid	77-92-9	>= 3 - < 10
Sodium N-methyl-N-oleoyltaurine	137-20-2	>= 1 - < 3
titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]	13463-67-7	>= 1 - < 3
Quartz	14808-60-7	>= 0.3 - < 1

Actual concentration is withheld as a trade secret

## SECTION 4. FIRST AID MEASURES

If inhaled : Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

In case of skin contact : Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.  
Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.  
Suitable emergency safety shower facility should be available in work area.

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- In case of eye contact : Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.
- If swallowed : No emergency medical treatment necessary.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- Notes to physician : No specific antidote.  
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.  
Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.
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### 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 fire fighting 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 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 : In the event of fire, wear self-contained breathing apparatus.
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for fire-fighters

Use personal protective equipment.

**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.

**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.  
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.  
Avoid contact with skin and eyes.  
Avoid contact with eyes.

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- 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/m <sup>3</sup>	ACGIH
		TWA (total dust)	15 mg/m <sup>3</sup>	OSHA Z-1
		TWA (respirable fraction)	5 mg/m <sup>3</sup>	OSHA Z-1
		TWA (Total dust)	10 mg/m <sup>3</sup>	OSHA P0
		TWA (respirable dust fraction)	5 mg/m <sup>3</sup>	OSHA P0
		PEL (respirable)	0.05 mg/m <sup>3</sup>	OSHA CARC
pyroxsulam (ISO)	422556-08-9	TWA	5 mg/m <sup>3</sup>	Dow IHG
titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm]	13463-67-7	TWA	2.4 mg/m <sup>3</sup>	Dow IHG
		TWA (total dust)	15 mg/m <sup>3</sup>	OSHA Z-1
		TWA	10 mg/m <sup>3</sup> (Titanium dioxide)	ACGIH
		TWA (Total dust)	10 mg/m <sup>3</sup>	OSHA P0
Quartz	14808-60-7	TWA (Respirable dust)	0.05 mg/m <sup>3</sup>	OSHA Z-1
		TWA (respirable)	10 mg/m <sup>3</sup> / %SiO <sub>2</sub> +2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO <sub>2</sub> +5	OSHA Z-3

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		TWA (Respirable particulate matter)	0.025 mg/m <sup>3</sup> (Silica)	ACGIH
		TWA (respirable dust fraction)	0.1 mg/m <sup>3</sup>	OSHA P0
		PEL (respirable)	0.05 mg/m <sup>3</sup>	OSHA CARC

**Engineering measures** : Use engineering controls to maintain airborne level below exposure limit requirements or guidelines.  
If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation.  
Local exhaust ventilation may be necessary for some operations.

### 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, use an approved respirator.  
Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material.  
For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

**Hand protection**

**Remarks** : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). 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.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** : Solid.  
**Color** : Tan  
**Odor** : Sweet  
**Odor Threshold** : No data available

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pH : 5.17 (75 °F / 24 °C)  
Concentration: 1 %  
Method: pH Electrode

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

Bulk density : 0.43 g/cm<sup>3</sup> (73.8 °F / 23.2 °C)  
Method: Loose Volumetric

Solubility(ies)  
Water solubility : No data available

Partition coefficient: n-octanol/water : No data available.

Autoignition temperature : Not applicable

Viscosity  
Viscosity, kinematic : 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 : None.

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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 : LD50 (Rat, female): > 5,000 mg/kg

Acute dermal toxicity : LD50 (Rabbit, male and female): > 5,000 mg/kg  
Method: OECD Test Guideline 402

**Components:****pyroxsulam (ISO):**

Acute oral toxicity : LD50 (Rat, female): > 5,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.12 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute dermal toxicity

**Cloquintocet-mexyl:**

Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.42 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): > 5,000 mg/kg

**Kaolin:**

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



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**Sodium lignosulfonate:**

Acute oral toxicity : LD50 (Rat, male and female): > 10,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.48 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

**citric acid:**

Acute oral toxicity : LD50 (Mouse): 5,400 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity

LD50 (Rat): 3,000 - 12,000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute dermal toxicity

**Sodium N-methyl-N-oleoyltaurine:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg

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

Acute oral toxicity : LD50 (Rat): > 10,000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male): > 6.82 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity

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

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

Species : Rabbit  
Result : No skin irritation

**Components:****Kaolin:**

Species : Rabbit  
Result : No skin irritation

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**citric acid:**

Result : No skin irritation

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

Result : No skin irritation

**Quartz:**

Result : No skin irritation

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

Species : Rabbit  
Result : No eye irritation

**Components:****pyroxsulam (ISO):**

Species : Rabbit  
Result : No eye irritation

**Kaolin:**

Species : Rabbit  
Result : No eye irritation

**Sodium lignosulfonate:**

Result : Eye irritation

**citric acid:**

Result : Eye irritation

**Sodium N-methyl-N-oleoyltaurine:**

Species : Rabbit  
Result : Eye irritation

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

Result : No eye irritation

**Quartz:**

Result : No eye irritation

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

Species : Mouse

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Result : The product is a skin sensitizer, sub-category 1B.

**Components:****pyroxsulam (ISO):**

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

**Cloquintocet-mexyl:**

Species : Guinea pig  
 Assessment : May cause sensitization by skin contact.

**Sodium lignosulfonate:**

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

Remarks : For respiratory sensitization:  
 No relevant data found.

**Sodium N-methyl-N-oleoyltaurine:**

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

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

Remarks : Did not demonstrate the potential for contact allergy in mice. Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:  
 No relevant data found.

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

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

**Cloquintocet-mexyl:**

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

**Sodium lignosulfonate:**

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

**citric acid:**

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

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Assessment toxicity studies were negative.

**Sodium N-methyl-N-oleoyltaurine:**

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

**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 in some cases and positive in other cases., Animal genetic toxicity studies were negative.

**Quartz:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative in some cases and positive in other cases.

**Carcinogenicity****Product:**

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

**Components:****pyroxsulam (ISO):**

Carcinogenicity - Assessment : There was equivocal evidence of carcinogenic activity in long-term bioassays. These effects are not believed to be relevant to humans.

**Cloquintocet-mexyl:**

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

**Kaolin:**

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

**citric acid:**

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

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

Carcinogenicity - Assessment : Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

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**Quartz:**

Carcinogenicity - Assessment : Human carcinogen.

Has caused cancer in humans., Has caused cancer in laboratory animals.

**IARC**

Group 1: Carcinogenic to humans  
Kaolin 1332-58-7  
(Silica dust, crystalline)

Group 1: Carcinogenic to humans  
Quartz 14808-60-7  
(Silica dust, crystalline)

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

**OSHA**

OSHA specifically regulated carcinogen  
Kaolin 1332-58-7  
(crystalline silica)

OSHA specifically regulated carcinogen  
Quartz 14808-60-7  
(crystalline silica)

**NTP**

Known to be human carcinogen  
Kaolin 1332-58-7  
(Silica, Crystalline (Respirable Size))

Known to be human carcinogen  
Quartz 14808-60-7  
(Silica, Crystalline (Respirable Size))

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

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

**Cloquintocet-mexyl:**

Reproductive toxicity - Assessment : Did not cause birth defects or any other fetal effects in laboratory animals.

**citric acid:**

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

**Sodium N-methyl-N-oleoyltaurine:**

Reproductive toxicity - Assessment : Screening studies suggest that this material does not affect reproduction.

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**Quartz:**

Reproductive toxicity - Assessment : For similar material(s); Did not cause birth defects or any other fetal effects in laboratory animals.

**STOT-single exposure****Product:**

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

**Components:****Cloquintocet-mexyl:**

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.

**citric acid:**

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

**Sodium N-methyl-N-oleoyltaurine:**

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

**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.

**Quartz:**

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

**STOT-repeated exposure****Components:****Quartz:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

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**Repeated dose toxicity****Components:****pyroxsulam (ISO):**

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

**Cloquintocet-mexyl:**

Remarks : In animals, effects have been reported on the following organs:  
Liver.  
Kidney.  
Thymus.  
Thyroid.  
Bladder.  
Bone marrow.

**Kaolin:**

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

**Sodium lignosulfonate:**

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

**citric acid:**

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

**Sodium N-methyl-N-oleoyltaurine:**

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]:**

Remarks : Repeated excessive inhalation exposures to dusts may cause respiratory effects.  
In animals, effects have been reported on the following organs:  
Lung.

**Quartz:**

Remarks : In humans, effects have been reported on the following organs:  
Kidney.  
Repeated excessive exposure to crystalline silica may cause silicosis, a progressive and disabling disease of the lungs.

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**Aspiration toxicity****Product:**

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

**Components:****pyroxsulam (ISO):**

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

**Cloquintocet-mexyl:**

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

**Kaolin:**

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

**Sodium lignosulfonate:**

Based on available information, aspiration hazard could not be determined.

**citric acid:**

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

**Sodium N-methyl-N-oleoyltaurine:**

Based on available information, aspiration hazard could not be determined.

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

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

**Quartz:**

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

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**SECTION 12. ECOLOGICAL INFORMATION**
**Ecotoxicity****Components:****pyroxsulam (ISO):**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 87.0 mg/l  
 Exposure time: 96 h  
 Test Type: static test  
 Method: OECD Test Guideline 203 or Equivalent

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



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Toxicity to algae/aquatic plants	:	EC50 (Lemna minor (duckweed)): 0.00257 mg/l End point: Biomass Exposure time: 7 d Method: OECD 221.
M-Factor (Acute aquatic toxicity)	:	100
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 3.2 - 10.1 mg/l End point: survival Exposure time: 40 d Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 10.4 mg/l End point: survival Exposure time: 21 d Test Type: static test
M-Factor (Chronic aquatic toxicity)	:	100
Toxicity to microorganisms	:	EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): > 10,000 mg/kg Exposure time: 14 d
Toxicity to terrestrial organisms	:	LC50 (Colinus virginianus (Bobwhite quail)): > 5000 mg/kg diet. Exposure time: 8 d
		LD50 (Colinus virginianus (Bobwhite quail)): > 2000 mg/kg bodyweight.
		oral LD50 (Apis mellifera (bees)): > 107.4 micrograms/bee Exposure time: 48 h
		contact LD50 (Apis mellifera (bees)): > 100 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.

**Cloquintocet-mexyl:**

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.97 mg/l Exposure time: 96 h Test Type: flow-through test Method: Method Not Specified. Remarks: As the ester active substance.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 0.82 mg/l Exposure time: 48 h

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Test Type: flow-through test  
Method: Method Not Specified.

Toxicity to algae/aquatic plants : EbC50 (alga *Scenedesmus* sp.): 0.63 mg/l  
End point: Biomass  
Exposure time: 96 h  
Method: Method Not Specified.

EbC50 (*Lemna minor* (duckweed)): > 0.42 mg/l  
End point: Biomass  
Exposure time: 14 d  
Method: Method Not Specified.

Toxicity to soil dwelling organisms : LC50 (*Eisenia fetida* (earthworms)): > 1,000 mg/kg

Toxicity to terrestrial organisms : oral LD50 (*Anas platyrhynchos* (Mallard duck)): > 2000 mg/kg bodyweight.

dietary LC50 (*Anas platyrhynchos* (Mallard duck)): > 5200 mg/kg diet.  
Exposure time: 8 d

oral LD50 (*Apis mellifera* (bees)): > 100 micrograms/bee  
Exposure time: 48 h

contact LD50 (*Apis mellifera* (bees)): > 100 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.

**Sodium lignosulfonate:**

Toxicity to fish : Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50 (*Pimephales promelas* (fathead minnow)): 615 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (*Daphnia magna* (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202 or Equivalent  
Remarks: For this family of materials:

**citric acid:**

Toxicity to fish : Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 1,516 mg/l

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Exposure time: 96 h  
 Test Type: static test  
 Method: OECD Test Guideline 203 or Equivalent

LC50 (Leuciscus idus (Golden orfe)): 440 - 760 mg/l  
 Exposure time: 96 h  
 Test Type: static test  
 Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,535 mg/l  
 Exposure time: 24 h  
 Test Type: Static  
 Method: OECD Test Guideline 202 or Equivalent

**Sodium N-methyl-N-oleoyltaurine:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 1.32 mg/l  
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 5.76 mg/l  
 Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 197 mg/l  
 Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 2 mg/l  
 Exposure time: 21 d

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

Toxicity to fish : Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

NOEC mortality (Leuciscus idus (Golden orfe)): > 1,000 mg/l  
 Exposure time: 48 h  
 Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l  
 Exposure time: 48 h  
 Test Type: static test

**Quartz:**

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

**Ecotoxicology Assessment**

Acute aquatic toxicity : This product has no known ecotoxicological effects.

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**Persistence and degradability****Components:****pyroxsulam (ISO):**

Biodegradability : aerobic  
Biodegradation: 20 - 30 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B or Equivalent  
Remarks: 10-day Window: Fail

**Sodium lignosulfonate:**

Biodegradability : Remarks: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Biodegradation: < 5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301E  
Remarks: 10-day Window: Fail

Photodegradation : Rate constant: 1.089E-10 cm<sup>3</sup>/s  
Method: Estimated.

**citric acid:**

Biodegradability : Remarks: Material is expected to be readily biodegradable. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

aerobic  
Result: Readily biodegradable.  
Biodegradation: 97 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B or Equivalent  
Remarks: 10-day Window: Pass

aerobic  
Biodegradation: 98 %  
Exposure time: 7 d  
Method: OECD Test Guideline 302B or Equivalent  
Remarks: 10-day Window: Not applicable

**Sodium N-methyl-N-oleoyltaurine:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 80 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B or Equivalent  
Remarks: 10-day Window: Pass  
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

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

Biodegradability : Remarks: Biodegradation is not applicable.

**Quartz:**

Biodegradability : Remarks: Biodegradation is not applicable.

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

Partition coefficient: n-octanol/water :

log Pow: -1.01

Method: Measured

Remarks: Bioconcentration potential is low (BCF &lt; 100 or Log Pow &lt; 3).

**Cloquintocet-mexyl:**Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 122 - 621

Partition coefficient: n-octanol/water :

log Pow: 5.3

Method: Estimated.

Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Sodium lignosulfonate:**Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 3.2

Partition coefficient: n-octanol/water :

log Pow: -3.45

Method: Estimated.

Remarks: Bioconcentration potential is low (BCF &lt; 100 or Log Pow &lt; 3).

**citric acid:**Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 0.01  
Method: Measured

Partition coefficient: n-octanol/water :

log Pow: -1.72 (68 °F / 20 °C)

Method: Measured

Remarks: Bioconcentration potential is low (BCF &lt; 100 or Log Pow &lt; 3).

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**Sodium N-methyl-N-oleoyltaurine:**

Partition coefficient: n-octanol/water : Pow: 1.36 (68 °F / 20 °C)  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

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

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

**Quartz:**

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

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

Distribution among environmental compartments : Koc: ≤ 42  
Method: Estimated.  
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

**Cloquintocet-mexyl:**

Distribution among environmental compartments : Koc: 38070  
Method: Estimated.  
Remarks: Expected to be relatively immobile in soil (Koc > 5000).

**Sodium lignosulfonate:**

Distribution among environmental compartments : Koc: > 99999  
Method: Estimated.  
Remarks: Expected to be relatively immobile in soil (Koc > 5000).

**citric acid:**

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

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

Distribution among environmental compartments : Remarks: No data available.

**Quartz:**

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

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**Other adverse effects****Components:****pyroxsulam (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.

**Cloquintocet-mexyl:**

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.

**Sodium lignosulfonate:**

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.

**citric acid:**

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.

**Sodium N-methyl-N-oleoyltaurine:**

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

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.

**Quartz:**

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. (CLOQUINTOCET-MEXYL, Pyroxsulam)  
 Class : 9  
 Packing group : III  
 Labels : 9

**IATA-DGR**

UN/ID No. : UN 3077  
 Proper shipping name : Environmentally hazardous substance, solid, n.o.s. (CLOQUINTOCET-MEXYL, Pyroxsulam)  
 Class : 9  
 Packing group : III  
 Labels : Miscellaneous



# SAFETY DATA SHEET



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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. (CLOQUINTOCET-MEXYL, Pyroxsulam)  
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** : Respiratory or skin sensitization

**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  
titanium dioxide; [in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm] 13463-67-7

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**California Prop. 65**

WARNING: This product can expose you to chemicals including Kaolin, Quartz, ethanol, which is/are known to the State of California to cause cancer, and ethanol, toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. 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:

Cloquintocet-mexyl 99607-70-2

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

Cloquintocet-mexyl 99607-70-2

**Federal Insecticide, Fungicide and Rodenticide Act**

EPA Registration Number : 62719-643

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:

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)
Dow IHG	: Dow Industrial Hygiene Guideline
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
OSHA Z-3	: USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	: 8-hour, time-weighted average
Dow IHG / TWA	: Time Weighted Average (TWA):
Dow IHG / TWA	: 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
OSHA Z-3 / TWA	: 8-hour time weighted average

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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 - 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 : 06/09/2022

Product code: GF-2468

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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