

SAFETY DATA SHEET



Sapphire®

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

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.

SECTION 1. IDENTIFICATION

Product name : Sapphire®

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

SECTION 2. HAZARDS IDENTIFICATION

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

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Penoxsulam	219714-96-2	3.68

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SAFETY DATA SHEET



Sapphire®

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

Propylene glycol	57-55-6	$\geq 3 - < 10$
Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	68425-94-5	$\geq 1 - < 3$
Balance	Not Assigned	> 80

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. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- In case of eye contact : Hold 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 : 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.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health. 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:
Nitrogen oxides (NO_x)
Hydrogen fluoride
Carbon oxides
- Specific extinguishing method : Remove undamaged containers from fire area if it is safe to do

SAFETY DATA SHEET



Sapphire®

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2022	800080005021	Date of first issue: 03/22/2022

ods	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	: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: 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. Prevent spreading over a wide area (e.g., by containment or oil barriers). 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	: Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, 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. Wipe up with absorbent material (e.g. cloth, fleece). Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). See Section 13, Disposal Considerations, for additional information.

SECTION 7. HANDLING AND STORAGE

SAFETY DATA SHEET



Sapphire®

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

- Advice on safe handling : Do not breathe vapors/dust.
Handle in accordance with good industrial hygiene and safety practice.
Smoking, eating and drinking should be prohibited in the application area.
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
Propylene glycol	57-55-6	TWA	10 mg/m3	US WEEL

- Engineering measures** : Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.
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, 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 : Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.
- Eye protection : Use safety glasses (with side shields).
- Skin and body protection : No precautions other than clean body-covering clothing should be needed.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

SAFETY DATA SHEET



Sapphire®

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

Appearance : Liquid.

Color : Tan

Odor : Musty

Odor Threshold : No data available

pH : 6.8 (68.9 °F / 20.5 °C)
Concentration: 1 %
Method: pH Electrode
(1% aqueous suspension)

Melting point/range : Not applicable

Freezing point : No data available

Boiling point/boiling range : No data available

Flash point : 212 °F / 100 °C
Method: Pensky-Martens Closed Cup ASTM D 93, closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Density : 1.03 g/cm³ (68 °F / 20 °C)
Method: Digital density meter

Solubility(ies)
Water solubility : No data available

Autoignition temperature : No data available

Viscosity
Viscosity, dynamic : 4.82 mPa.s (68 °F / 20 °C)

Explosive properties : No

Oxidizing properties : No significant increase (>5C) in temperature.

SECTION 10. STABILITY AND REACTIVITY

Sapphire®

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2022	800080005021	Date of first issue: 03/22/2022

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	No decomposition if stored and applied as directed. Stable under normal conditions.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. No hazards to be specially mentioned. None known.
Conditions to avoid	:	None known.
Incompatible materials	:	None.
Hazardous decomposition products	:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Nitrogen oxides (NO _x) Hydrogen fluoride Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity**Product:**

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg Remarks: For similar material(s):
Acute inhalation toxicity	:	LC50 (Rat): > 0.74 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity Remarks: For similar material(s): Maximum attainable concentration.
Acute dermal toxicity	:	LD50 (Rat): > 5,000 mg/kg Remarks: For similar material(s):

Components:**Penoxsulam:**

Acute oral toxicity	:	LD50 (Rat, male and female): > 5,000 mg/kg GLP: yes LD50 (Mouse, female): > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 3.50 mg/l Exposure time: 4 h Test atmosphere: dust/mist Symptoms: No deaths occurred at this concentration. GLP: yes Assessment: The substance or mixture has no acute inhalation toxicity Remarks: Maximum attainable concentration.

Sapphire®

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2022	800080005021	Date of first issue: 03/22/2022

Acute dermal toxicity : LD50 (Rabbit, male and female): > 5,000 mg/kg
GLP: yes

Propylene glycol:

Acute oral toxicity : LD50 (Rat): > 20,000 mg/kg

Acute inhalation toxicity : LC50 (Rabbit): 317.042 mg/l
Exposure time: 2 h
Test atmosphere: dust/mist
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Mist may cause irritation of upper respiratory tract (nose and throat).

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

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

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

Skin corrosion/irritation**Product:**

Species : Rabbit
Result : No skin irritation

Components:**Propylene glycol:**

Species : Rabbit
Result : No skin irritation

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

Species : Rabbit
Result : No skin irritation

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

Species : Rabbit
Result : No eye irritation

Components:**Propylene glycol:**

Species : Rabbit
Result : No eye irritation

Sapphire®

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Species : Rabbit
Result : Eye irritation

Respiratory or skin sensitization**Product:**

Species : Guinea pig
Result : Does not cause skin sensitization.
Remarks : For similar material(s):

Components:**Penoxsulam:**

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

Propylene glycol:

Species : human
Assessment : Does not cause skin sensitization.

Germ cell mutagenicity**Components:****Penoxsulam:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., The following information is based on limited data and/or screening studies., Animal genetic toxicity studies were negative.

Propylene glycol:

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

Carcinogenicity**Components:****Penoxsulam:**

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

Propylene glycol:

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

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

SAFETY DATA SHEET



Sapphire®

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components:

Penoxsulam:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Propylene glycol:

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

Propylene glycol:

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

Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

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

Repeated dose toxicity

Components:

Penoxsulam:

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

Propylene glycol:

Remarks : In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Sapphire®

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

Aspiration toxicity**Product:**

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

Components:**Penoxsulam:**

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

Propylene glycol:

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.

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

- | | | |
|---|---|--|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202 |
| Toxicity to algae/aquatic plants | : | ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.126 mg/l
End point: Growth rate inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

EbC50 (Lemna minor (duckweed)): 0.00329 mg/l
End point: Biomass
Exposure time: 14 d
Method: OECD 221. |
| M-Factor (Acute aquatic toxicity) | : | 100 |
| M-Factor (Chronic aquatic toxicity) | : | 100 |
| Toxicity to microorganisms | : | EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h |

Sapphire®

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2022	800080005021	Date of first issue: 03/22/2022

Toxicity to soil dwelling organisms : LC50 (*Eisenia fetida* (earthworms)): > 1,000 mg/kg
Exposure time: 14 d
GLP: yes

NOEC (*Eisenia fetida* (earthworms)): 1,000 mg/kg
Exposure time: 56 d

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

dietary LC50 (*Colinus virginianus* (Bobwhite quail)): > 5063 mg/kg diet.
Exposure time: 8 d
End point: mortality
GLP: yes

contact LD50 (*Apis mellifera* (bees)): > 100 µg/bee
Exposure time: 48 h
End point: mortality
GLP: yes

oral LD50 (*Apis mellifera* (bees)): > 100 µg/bee
Exposure time: 48 h
End point: mortality
GLP: yes

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

Propylene glycol:

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): 40,613 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : LC50 (*Ceriodaphnia dubia* (water flea)): 18,340 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (*Pseudokirchneriella subcapitata* (green algae)): 19,000 mg/l
End point: Growth rate inhibition
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Ceriodaphnia dubia* (water flea)): 13,020 mg/l
End point: number of offspring
Exposure time: 7 d
Test Type: semi-static test

Sapphire®

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2022	800080005021	Date of first issue: 03/22/2022

Toxicity to microorganisms : NOEC (Pseudomonas putida): > 20,000 mg/l
Exposure time: 18 h

Persistence and degradability**Components:****Penoxsulam:**

Biodegradability : Result: Not biodegradable.
Remarks: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Biodegradation: 14.7 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Fail

Photodegradation : Sensitizer: OH radicals
Rate constant: 6.03E-11 cm³/s
Method: Estimated.

Propylene glycol:

Biodegradability : aerobic
Result: Readily biodegradable.
Biodegradation: 81 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
Remarks: 10-day Window: Pass

Biodegradation: 96 %
Exposure time: 64 d
Method: OECD Test Guideline 306 or Equivalent
Remarks: 10-day Window: Not applicable

Biochemical Oxygen Demand (BOD) : 69.000 %
Incubation time: 5 d

70.000 %
Incubation time: 10 d

86.000 %
Incubation time: 20 d

Chemical Oxygen Demand (COD) : 1.53 kg/kg

ThOD : 1.68 kg/kg

Photodegradation : Rate constant: 1.28E-11 cm³/s
Method: Estimated.

Sapphire[®]

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

Bioaccumulative potential**Components:****Penoxsulam:**

Partition coefficient: n-octanol/water :
log Pow: -0.602
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Propylene glycol:

Bioaccumulation : Bioconcentration factor (BCF): 0.09
Method: Estimated.

Partition coefficient: n-octanol/water : log Pow: -1.07
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

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

Balance:

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

Mobility in soil**Components:****Penoxsulam:**

Distribution among environmental compartments : Koc: 73
Method: Measured
Remarks: Potential for mobility in soil is high (Koc between 50 and 150).

Propylene glycol:

Distribution among environmental compartments : Koc: < 1
Method: Estimated.
Remarks: Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).

Balance:

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

Sapphire®

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2022	800080005021	Date of first issue: 03/22/2022

Other adverse effects**Components:****Penoxsulam:**

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.

Propylene glycol:

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.

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.

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.

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.

Sapphire®

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2022	800080005021	Date of first issue: 03/22/2022

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

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(Penoxsulam)
Class : 9
Packing group : III
Labels : 9

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(Penoxsulam)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo : 964
aircraft)
Packing instruction (passen- : 964
ger aircraft)

IMDG-Code

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(Penoxsulam)
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

SAFETY DATA SHEET



Sapphire®

Version 1.0 Revision Date: 03/22/2022 SDS Number: 800080005021 Date of last issue: -
Date of first issue: 03/22/2022

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 : No SARA Hazards

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

Propylene glycol 57-55-6

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

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

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-547

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 inhaled

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

US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)
US WEEL / TWA : 8-hr TWA

Sapphire®

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	03/22/2022	800080005021	Date of first issue: 03/22/2022

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; 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

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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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