

SAFETY DATA SHEET



STRONGARM™ 840 WG

Version	Revision Date:	SDS Number:	Date of last issue: -
0.0	30.05.2023	800080004043	Date of first issue: 30.05.2023

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 South Africa and may not meet the regulatory requirements in other countries.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : STRONGARM™ 840 WG

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Sub-stance/Mixture : Plant Protection Product, Herbicide

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

Manufacturer/importer

Corteva Agriscience RSA Proprietary Limited
Block A, 2nd Floor, Lakefield Office Park, 272 West Avenue
Centurion, Gauteng, 1063
SOUTH AFRICA

Customer Information Number : +27 (0) 12 683 5700

E-mail address : SDS@corteva.com

1.4 Emergency telephone number

24-Hour Local Emergency Contact: +27 82 895 0621

24-Hour Emergency Contact: +32 3 575 55 55

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture


Short-term (acute) aquatic hazard, Category 1 H400: Very toxic to aquatic life.

Long-term (chronic) aquatic hazard, Category 1 H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

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Hazard pictograms : 

Signal word : Warning

Hazard statements : H410 Very toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements : EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

Precautionary statements : **Response:**
P391 Collect spillage.
Disposal:
P501 Dispose of contents/container in accordance with applicable regulations.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Diclosulam	145701-21-9	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 100 M-Factor (Chronic aquatic toxicity): 100	84
Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts	1258274-08-6 01-2119980591-31	Skin Irrit. 2; H315 Eye Dam. 1; H318	>= 1 - < 3
dichloromethane	75-09-2 200-838-9 602-004-00-3	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Carc. 2; H351	>= 0,3 - < 1

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		STOT SE 3; H336 (Central nervous system)	
Quinoline Hydrochloride	530-64-3 208-489-4	Acute Tox. 3; H301 Acute Tox. 3; H311 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Muta. 2; H341 Carc. 1B; H350 Aquatic Chronic 2; H411	>= 0,25 - < 0,3
methanol	67-56-1 200-659-6 603-001-00-X 01-2119433307-44	Flam. Liq. 2; H225 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 STOT SE 1; H370 (Eyes, Central nervous system)	>= 0,1 - < 0,3

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Protection of first-aiders : If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- If inhaled : Move person to fresh air; if effects occur, consult a physician.
- 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.
Suitable emergency safety shower facility should be available in work area.
- 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.
Suitable emergency eye wash facility should be available in work area.
- If swallowed : No emergency medical treatment necessary.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : 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 con-

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tainer or label with you when calling a poison control center or doctor, or going for treatment.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health. 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:
Nitrogen oxides (NO_x)
Hydrogen chloride gas
Carbon oxides

5.3 Advice for firefighters

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

Specific extinguishing methods : 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.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions : Avoid dust formation.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

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6.2 Environmental precautions

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.

6.3 Methods and material for containment and cleaning up

Methods for 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.

6.4 Reference to other sections

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Advice on safe handling : 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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in a closed container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers. Store in accordance with the particular national regulations.

Advice on common storage : Strong oxidizing agents

Packaging material : Unsuitable material: None known.

7.3 Specific end use(s)

Specific use(s) : Plant protection products subject to Regulation (EC) No

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1107/2009.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Starch	9005-25-8	OEL-RL	10 mg/m ³	ZA OEL
Further information: Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents				
dichloromethane	75-09-2	OEL- ML	100 ppm	ZA OEL
Further information: Occupational Exposure Limits - Maximum Limits For Hazardous Chemical Agents, danger of cutaneous absorption, denotes carcinogenicity, which is based on GHS categorisation, including category 1A, 1B				
		TWA	100 ppm 353 mg/m ³	2017/164/EU
		STEL	200 ppm 706 mg/m ³	2017/164/EU
		TWA	25 ppm	Corteva OEL
		STEL	125 ppm	Corteva OEL
methanol	67-56-1	OEL-RL	400 ppm	ZA OEL
Further information: danger of cutaneous absorption, Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents				
		OEL- RL STEL/C	500 ppm	ZA OEL
Further information: danger of cutaneous absorption, Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents				
		TWA	200 ppm 260 mg/m ³	2006/15/EC

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
methanol	67-56-1	Methanol: 15 mg/l (Urine)	End of shift	ZA BEI

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
dichloromethane	Workers	Skin contact	Acute systemic effects	
Remarks:No data available				
	Workers	Inhalation	Acute systemic effects	706 mg/m ³
	Workers	Skin contact	Acute local effects	
Remarks:No data available				
	Workers	Inhalation	Acute local effects	
Remarks:No data available				
	Workers	Skin contact	Long-term systemic effects	12 mg/kg bw/day
	Workers	Inhalation	Long-term systemic	353 mg/m ³

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			effects	
	Workers	Skin contact	Long-term local effects	
	Remarks: No data available			
	Workers	Inhalation	Long-term local effects	
	Remarks: No data available			
	Consumers	Skin contact	Acute systemic effects	
	Remarks: No data available			
	Consumers	Inhalation	Acute systemic effects	353 mg/m ³
	Consumers	Skin contact	Acute local effects	
	Consumers	Skin contact	Long-term systemic effects	
	Consumers	Skin contact	Long-term systemic effects	5,82 mg/kg bw/day
	Consumers	Skin contact	Long-term local effects	88,3 mg/m ³
	Consumers	Inhalation	Long-term local effects	0,06 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
dichloromethane	Fresh water	0,54 mg/l
	Marine water	0,194 mg/l
	Intermittent use/release	0,27 mg/l
	Fresh water sediment	4,47 mg/kg dry weight (d.w.)
	Marine sediment	1,61 mg/kg dry weight (d.w.)
	Soil	0,583 mg/kg dry weight (d.w.)
	Sewage treatment plant	26 mg/l

8.2 Exposure controls

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

Eye/face protection : Use chemical goggles.
Chemical goggles should be consistent with EN 166 or equivalent.

Hand protection

Remarks : Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Neoprene. When prolonged or

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frequently repeated contact may occur, a glove is recommended to prevent contact with the solid material. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. 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.

- 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.
- 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, in dusty atmospheres, use an approved particulate respirator.

SECTION 9: Physical and chemical properties
9.1 Information on basic physical and chemical properties

- | | |
|-----------------------------|---|
| Appearance | : Granules. |
| Colour | : Brown |
| Odour | : Fragrant |
| Odour Threshold | : No data available |
| pH | : 7,28 (23 °C)
Concentration: 10
(10% mixture in water) |
| Melting point/range | : No data available |
| Freezing point | : Not applicable |
| Boiling point/boiling range | : Not applicable |

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Flash point	:	Method: closed cup 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
Vapour pressure	:	Not applicable
Relative vapour density	:	Not applicable
Density	:	Not applicable
Bulk density	:	0,55 g/cm ³ Method: Loose Volumetric (Room Temperature)
Solubility(ies)		
Water solubility	:	Disperses in water
Partition coefficient: n-octanol/water	:	No data available.
Auto-ignition temperature	:	Not applicable
Viscosity		
Viscosity, kinematic	:	Not applicable
Explosive properties	:	No
Oxidizing properties	:	No significant increase (>5C) in temperature.

Reference substance: Monoammonium phosphate

9.2 Other information

No data available

SECTION 10: Stability and reactivity**10.1 Reactivity**

Not classified as a reactivity hazard.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Hazardous reactions : Stable under recommended storage conditions.

10.4 Conditions to avoid

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Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Strong acids
Strong bases

10.6 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 chloride gas
Carbon oxides

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity****Product:**

Acute oral toxicity : LD50 (Rat, male and female): > 5.000 mg/kg
Method: OECD Test Guideline 423

Acute inhalation toxicity : LC50 (Rat, male and female): > 6,7 mg/l
Exposure time: 4 h
Test atmosphere: Aerosol
Method: OECD Test Guideline 403
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: OECD Test Guideline 402
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

Components:**Diclosulam:**

Acute oral toxicity : LD50 (Rat, male and female): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,04 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, male and female): > 2.000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

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toxicity

Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:

Acute oral toxicity : LD50 (Rat): > 2.000 - 5.000 mg/kg
Method: OECD Test Guideline 401

dichloromethane:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg

Acute inhalation toxicity : Remarks: In confined or poorly ventilated areas, vapor can readily accumulate and can cause unconsciousness and death.
Vapor may cause irritation of the upper respiratory tract (nose and throat).
May cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen.
Minimal anesthetic or narcotic effects may be seen in the range of 500-1000 ppm methylene chloride. Progressively higher levels over 1000 ppm may cause dizziness, drunkenness, and as low as 10,000 ppm, unconsciousness and death. These high levels may also cause cardiac arrhythmias (irregular heartbeats).

LC50 (Mouse): 86 mg/l

Exposure time: 4 h

Test atmosphere: vapour

Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

Quinoline Hydrochloride:

Acute oral toxicity : LD50 (Rat, male and female): 262 mg/kg
Method: OECD Test Guideline 401
Remarks: For similar material(s):

Acute dermal toxicity : LD50 (Rabbit): 590 mg/kg
Remarks: For similar material(s):

methanol:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg
Assessment: The component/mixture is toxic after single ingestion.
Remarks: Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

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Effects may be delayed.

Lethal Dose (Humans): 340 mg/kg
Method: Estimated.

Lethal Dose (Humans): Method: Estimated.

Acute inhalation toxicity : LC50 (Rat): 3 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): 15.800 mg/kg
Assessment: The component/mixture is toxic after single contact with skin.
Remarks: Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death.

Skin corrosion/irritation

Product:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Components:

Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:

Species : Rabbit
Result : Skin irritation

dichloromethane:

Result : Skin irritation

Quinoline Hydrochloride:

Result : Skin irritation

methanol:

Result : No skin irritation

Serious eye damage/eye irritation

Product:

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

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Components:**Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:**

Species : Rabbit
Result : Corrosive

dichloromethane:

Result : Eye irritation

Quinoline Hydrochloride:

Result : Eye irritation

methanol:

Result : No eye irritation

Respiratory or skin sensitisation**Product:**

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

Components:**Diclosulam:**

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

Remarks : For respiratory sensitization:
No relevant data found.

dichloromethane:

Assessment : Does not cause skin sensitisation.

Quinoline Hydrochloride:

Remarks : Did not demonstrate the potential for contact allergy in mice.

Remarks : For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity**Components:****Diclosulam:**

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

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dichloromethane:

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative in some cases and positive in other cases., Negative or equivocal results have been obtained in genetic toxicity tests with methylene chloride using mammalian cells or animals. This is consistent with the lack of interaction with DNA in rats and hamsters. Although results of Ames bacterial tests have generally been positive, overall the data suggest that genotoxic potential does not appear to be a significant factor in the toxicity of methylene chloride.

Quinoline Hydrochloride:

Germ cell mutagenicity- Assessment : In vitro tests showed mutagenic effects

For similar material(s):, In vitro genetic toxicity studies were positive., Animal genetic toxicity studies were positive.

methanol:

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

Animal 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:**Diclosulam:**

Carcinogenicity - Assessment : For the active ingredient(s):, Did not cause cancer in laboratory animals.

dichloromethane:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Methylene chloride has been shown to increase the incidence of malignant tumors in mice and benign tumors in rats. Other animal studies on methylene chloride alone, as well as several human epidemiology studies, failed to show a tumorigenic response. Methylene chloride is not believed to pose a measurable carcinogenic risk to humans when handled as recommended.

Quinoline Hydrochloride:

Carcinogenicity - Assessment : Possible human carcinogen

For similar material(s):, Has caused cancer in laboratory animals.

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methanol:

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

Reproductive toxicity

Components:

Diclosulam:

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.

dichloromethane:

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., Did not cause birth defects in laboratory animals.

methanol:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Methanol has caused birth defects in mice at doses nontoxic to the mother as well as slight behavioral effects in offspring of rats.

STOT - single exposure

Product:

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

Components:

Diclosulam:

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

Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:

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

dichloromethane:

Exposure routes : Inhalation
Target Organs : Central nervous system
Assessment : May cause drowsiness or dizziness.

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Quinoline Hydrochloride:

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

methanol:

Target Organs : Eyes, Central nervous system
Assessment : Causes damage to organs.

STOT - repeated exposure**Product:**

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

Repeated dose toxicity**Components:****Diclosulam:**

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

dichloromethane:

Remarks : In animals, effects have been reported on the following organs:
Kidney.
Liver.
Blood.
May cause carboxyhemoglobinemia, thereby impairing the blood's ability to transport oxygen.

Quinoline Hydrochloride:

Remarks : For similar material(s):
In animals, effects have been reported on the following organs:
Liver.

methanol:

Remarks : Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

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Aspiration toxicity**Product:**

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

Components:**Diclosulam:**

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

Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:

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

dichloromethane:

Aspiration into the lungs may occur during ingestion or vomiting, resulting in rapid absorption and injury to other body systems.

Quinoline Hydrochloride:

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

methanol:

May be harmful if swallowed and enters airways.

SECTION 12: Ecological information
12.1 Toxicity**Product:**

Toxicity to algae/aquatic plants : Remarks: Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0,0136 mg/l
Exposure time: 72 h
Test Type: static test

Components:**Diclosulam:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 110 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)): 55 mg/l
Exposure time: 48 h

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Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 0,0016 mg/l
End point: Biomass
Exposure time: 120 h
Method: OECD Test Guideline 201 or Equivalent

EC50 (Lemna minor (duckweed)): 0,00116 mg/l
End point: Biomass

M-Factor (Acute aquatic toxicity) : 100

Toxicity to fish (Chronic toxicity) : NOEC: 9,36 mg/l
Exposure time: 33 d
Species: Pimephales promelas (fathead minnow)
Test Type: flow-through

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 5,66 mg/l
End point: growth
Exposure time: 21 d
Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity) : 100

Toxicity to soil dwelling organisms : LC50:
>991 mg/kg dry weight (d.w.)
Exposure time: 14 d
Species: Eisenia fetida (earthworms)

Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50: > 2250 mg/kg bodyweight.
Species: Colinus virginianus (Bobwhite quail)

dietary LC50: > 5620 mg/kg diet.
Species: Colinus virginianus (Bobwhite quail)

contact LD50: > 25 µg/bee
Exposure time: 48 h
Species: Apis mellifera (bees)

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

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Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 10 - 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): > 100 mg/l
Exposure time: 48 h

dichloromethane:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 193 mg/l
Exposure time: 96 h
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 27 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): > 662 mg/l
End point: Biomass
Exposure time: 96 h
Method: OECD Test Guideline 201 or Equivalent

Toxicity to microorganisms : EC50 (activated sludge): 2.590 mg/l
Exposure time: 40 min
Test Type: static test
Method: OECD 209 Test

Toxicity to fish (Chronic toxicity) : NOEC: 83 mg/l
End point: growth
Exposure time: 28 d
Species: Pimephales promelas (fathead minnow)
Test Type: flow-through test

Ecotoxicology Assessment

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

Quinoline Hydrochloride:

Toxicity to fish : Remarks: Based on information for a similar material:
Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).

LC50 (Poecilia reticulata (guppy)): 29,9 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
Remarks: For similar material(s):

Toxicity to daphnia and other aquatic invertebrates (Chronic) : NOEC: 0,8 mg/l
Exposure time: 21 d

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test(s) for ready biodegradability.

Result: Readily biodegradable.
 Biodegradation: 99 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301D or Equivalent
 Remarks: 10-day Window: Pass

ThOD : 1,50 kg/kg

12.3 Bioaccumulative potential**Components:****Diclosulam:**

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
 Exposure time: 21 d
 Bioconcentration factor (BCF): 1,05

Partition coefficient: n-octanol/water : log Pow: 1,282
 Method: Estimated.
 Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:

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

dichloromethane:

Bioaccumulation : Species: Fish
 Bioconcentration factor (BCF): 2 - 40
 Method: Measured

Partition coefficient: n-octanol/water : log Pow: 1,25 (20 °C)
 Method: Measured
 Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Quinoline Hydrochloride:

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

methanol:

Bioaccumulation : Species: Fish
 Bioconcentration factor (BCF): < 10
 Method: Measured

Partition coefficient: n-octanol/water : log Pow: -0,77
 Method: Measured
 Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

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12.4 Mobility in soil**Components:****Diclosulam:**

Distribution among environmental compartments : Koc: 90
Remarks: Potential for mobility in soil is high (Koc between 50 and 150).

dichloromethane:

Distribution among environmental compartments : Koc: 46,8
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Quinoline Hydrochloride:

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

methanol:

Distribution among environmental compartments : Koc: 0,44
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

12.5 Results of PBT and vPvB assessment**Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:**Diclosulam:**

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).

Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:

Assessment : This substance is not considered to be very persistent and very bioaccumulating (vPvB).

dichloromethane:

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).

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Quinoline Hydrochloride:

Assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

methanol:

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).

12.6 Other adverse effects**Product:**

Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Components:**Diclosulam:**

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

Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts:

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

dichloromethane:

Ozone-Depletion Potential : Regulation: (Update: 11/24/2010 KS)
Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Quinoline Hydrochloride:

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

methanol:

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

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

Product : If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must

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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
14.1 UN number

UNRTDG	:	UN 3077
IMDG	:	UN 3077
IATA	:	UN 3077

14.2 UN proper shipping name

UNRTDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Diclosulam)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Diclosulam)
IATA	:	Environmentally hazardous substance, solid, n.o.s. (Diclosulam)

14.3 Transport hazard class(es)

UNRTDG	:	9
IMDG	:	9
IATA	:	9

14.4 Packing group

UNRTDG		
Packing group	:	III
Labels	:	9
IMDG		
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Remarks	:	Stowage category A

IATA (Cargo)		
Packing instruction (cargo aircraft)	:	956

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Packing instruction (LQ) : Y956
Packing group : III
Labels : Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft) : 956
Packing instruction (LQ) : Y956
Packing group : III
Labels : Miscellaneous

14.5 Environmental hazards

IMDG

Marine pollutant : yes(Diclosulam)

14.6 Special precautions for user

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

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.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. E1 ENVIRONMENTAL HAZARDS

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

The mixture is evaluated within the frame of the provisions of Regulation (EC) No. 1107/2009. Refer to the label for exposure assessment information.

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.

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Classification was done in accordance with UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Purple Book and complies with the Regulations for Hazardous Chemical Agents, 2021.

Full text of H-Statements

H225	: Highly flammable liquid and vapour.
H301	: Toxic if swallowed.
H311	: Toxic in contact with skin.
H315	: Causes skin irritation.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H331	: Toxic if inhaled.
H336	: May cause drowsiness or dizziness.
H341	: Suspected of causing genetic defects.
H350	: May cause cancer.
H351	: Suspected of causing cancer.
H370	: Causes damage to organs if swallowed.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H411	: Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Carc.	: Carcinogenicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Muta.	: Germ cell mutagenicity
Skin Irrit.	: Skin irritation
STOT SE	: Specific target organ toxicity - single exposure
2006/15/EC	: Europe. Indicative occupational exposure limit values
2017/164/EU	: Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
Corteva OEL	: Corteva Occupational Exposure Limit
ZA BEI	: South Africa. The Regulations for Hazardous Chemical Agents, Biological Exposure Indices
ZA OEL	: South Africa. The Regulations for Hazardous Chemical Agents, Occupational Exposure Limits
2006/15/EC / TWA	: Limit Value - eight hours
2017/164/EU / STEL	: Short term exposure limit
2017/164/EU / TWA	: Limit Value - eight hours
Corteva OEL / STEL	: Short term exposure limit
Corteva OEL / TWA	: Time weighted average
ZA OEL / OEL- ML	: Occupational Exposure Limit Maximum limit - 8- hour exposure or equivalent (12 hour shifts).
ZA OEL / OEL-RL	: Occupational Exposure Limit Restricted limit - 8- hour exposure or equivalent (12 hour shifts)
ZA OEL / OEL- RL STEL/C	: Occupational Exposure Limit Restricted limit - Short term occupational exposure limits / ceiling limits

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ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; 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; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; 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

Further information**Classification of the mixture:**

Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Based on product data or assessment
Calculation method

Product code: BF-309

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.

ZA / 6N