

SAFETY DATA SHEET



TANOS®

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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 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 : TANOS®

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

Use of the Sub-stance/Mixture : Fungicide

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

Manufacturer/importer

Corteva Agriscience RSA Proprietary Limited ("Corteva Agriscience RSA")
Block A, 2nd Floor, Lakefield Office Park, 272 West Avenue
Centurion, Gauteng, 0163
South Africa

Customer Information : +27 (0) 12 683 5700

Number

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

Acute toxicity, Category 4	H302: Harmful if swallowed.
Skin sensitisation, Sub-category 1B	H317: May cause an allergic skin reaction.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Reproductive toxicity, Category 2	H361: Suspected of damaging fertility or the unborn child.
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.

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egory 1

effects.

2.2 Label elements

Hazard pictograms

:



Signal word

:

Warning

Hazard statements

:

H302 Harmful if swallowed.
 H317 May cause an allergic skin reaction.
 H361 Suspected of damaging fertility or the unborn child.
 H373 May cause damage to organs through prolonged or repeated exposure.
 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

:

Prevention:

P201 Obtain special instructions before use.
 P260 Do not breathe dust.
 P264 Wash skin thoroughly after handling.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P391 Collect spillage.

Hazardous components which must be listed on the label:

famoxadone (ISO)

cymoxanil (ISO)

2.3 Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).
 This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
famoxadone (ISO)	131807-57-3 612-206-00-3	STOT RE 2; H373 (Eyes) Aquatic Acute 1;	25

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		H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	
cymoxanil (ISO)	57966-95-7 261-043-0 616-035-00-5	Acute Tox. 4; H302 Repr. 2; H361 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 Skin Sens. 1B; H317 STOT RE 2; H373 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	24,25
Sodium lignosulfonate, sulfomethylated	68512-34-5	Eye Irrit. 2; H319	>= 20 - < 25
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	>= 3 - < 10
fumaric acid	110-17-8 203-743-0 607-146-00-X	Eye Irrit. 2; H319	>= 1 - < 3
Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde	105859-97-0	Eye Irrit. 2; H319	>= 1 - < 3

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Never give anything by mouth to an unconscious person.
- If inhaled : Move to fresh air.
Consult a physician after significant exposure.
Artificial respiration and/or oxygen may be necessary.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off immediately with soap and plenty of water.
In the case of skin irritation or allergic reactions see a physician.
Wash contaminated clothing before re-use.
- In case of eye contact : If easy to do, remove contact lens, if worn.

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Hold eye open and rinse slowly and gently with water for 15-20 minutes.

If eye irritation persists, consult a specialist.

If swallowed : Obtain medical attention.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.
If victim is conscious:
Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Skin contact may provoke the following symptoms:
Erythema
Dermatitis
Sensitisation
Irritation

Ingestion may provoke the following symptoms:

Nausea
Vomiting
Diarrhoea
Gastrointestinal discomfort

Inhalation may provoke the following symptoms:

Asthmatic appearance
Irritation
sensitising effects

Central nervous system depression

Headache
Lack of coordination
Disorientation
More severe effects if alcohol is consumed.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

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

Suitable extinguishing media : Water spray
Alcohol-resistant foam

Unsuitable extinguishing media : Dry chemical

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.
Applying foam will release significant amounts of hydrogen gas that can be trapped under the foam blanket.

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Hazardous combustion products : During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.

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 : 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.
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.

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.

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.
Sweep up and shovel.

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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.
- Hygiene measures : Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing. Keep working clothes separately. Contaminated work clothing should not be allowed out of the workplace. For environmental protection remove and wash all contaminated protective equipment before re-use. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing. Dispose of rinse water in accordance with local and national regulations. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Store in a closed container. 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 1107/2009.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Phosphoric acid,	Workers	Inhalation	Long-term systemic	4,07 mg/m3

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monosodium salt			effects	
	Consumers	Inhalation	Long-term systemic effects	3,04 mg/m3
Sodium chloride	Consumers	Ingestion	Long-term systemic effects	126,65 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	443,28 mg/m3
	Consumers	Skin contact	Long-term systemic effects	126,65 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	126,65 mg/kg bw/day
	Consumers	Inhalation	Acute systemic effects	443,28 mg/m3
	Consumers	Skin contact	Acute systemic effects	126,65 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	2068,62 mg/m3
	Workers	Skin contact	Long-term systemic effects	295,52 mg/kg bw/day
	Workers	Inhalation	Acute systemic effects	2068,62 mg/m3
	Workers	Skin contact	Acute systemic effects	295,52 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
Phosphoric acid, monosodium salt	Fresh water	0,05 mg/l
	Marine water	0,005 mg/l
	Intermittent use/release	0,5 mg/l
	Sewage treatment plant	50 mg/l
Sodium chloride	Fresh water	5 mg/l
	Intermittent use/release	19 mg/l
	Sewage treatment plant	500 mg/l
	Soil	4,86 mg/kg

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Provide for appropriate exhaust ventilation and dust collection at machinery.

Personal protective equipment

Eye/face protection : Use safety glasses (with side shields).
Safety glasses with side-shields conforming to EN166

Hand protection

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

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The suitability for a specific workplace should be discussed with the producers of the protective gloves. Gloves must be inspected prior to use. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Gauntlets of 35 cm long or longer shall be worn over the combination sleeve. Before removing gloves clean them with soap and water.

Skin and body protection :

- Manufacturing and processing work:
- Full protective clothing Type 5 (EN 13982-2)
- Tractor / sprayer without hood:
- Full protective clothing Type 4 (EN 14605)
- Nitrile rubber boots (EN 13832-3 / EN ISO 20345).
- Backpack / knapsack sprayer:
- Full protective clothing Type 4 (EN 14605)
- Nitrile rubber boots (EN 13832-3 / EN ISO 20345).
- Mechanical automatized spray application in closed tunnel:
- No personal body protection normally required during the application. However, gloves and a long sleeved shirt shall be worn when handling the treated plants after the application.
- Personal protection through wearing a tightly closed chemical protection suit and a self-contained breathing apparatus.
- To optimize the ergonomics it may be recommended to use cotton underwear when wearing some fabrics. Take advice from supplier.
- Garment materials that are resistant to both water vapour and air will maximise wearing comfort. Materials should be robust to maintain the integrity and barrier in use.
- The permeation resistance of the fabric must be verified independently of the « type » protection recommended, to ensure an appropriate performance level of the material adequate to the corresponding agent and type of exposure.
- No personal body protection normally required.
- Tractor / sprayer with hood:
- Spray application - outdoor:
- When exceptional circumstances require an access to the treated area before the end of re-entry periods, wear full protective clothing Type 6 (EN 13034), nitrile rubber gloves class 3 (EN 374) and nitrile rubber boots (EN 13832-3 / EN ISO 20345).
- Mixer and loaders must wear:
- Full protective clothing Type 5 + 6 (EN ISO 13982-2 / EN 13034)
- Rubber apron
- Nitrile rubber boots (EN 13832-3 / EN ISO 20345).

Respiratory protection :

- Manufacturing and processing work:
- Half mask with a particle filter FFP1 (EN149)

Protective measures :

- The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
- All chemical protective clothing should be visually inspected prior to use. Clothing and gloves should be replaced in case of chemical or physical damage or if contaminated.
- Only protected handlers may be in the area during application.

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

Appearance	: solid
Colour	: brown
Odour	: sweet
Odour Threshold	: not determined
pH	: ca. 6 (20 °C) Concentration: 10 g/L
Melting point/range	: No data available
Freezing point	: Not applicable
Boiling point/boiling range	: Not applicable
Flash point	: Not applicable
Evaporation rate	: No data available
Flammability (solid, gas)	: Does not sustain combustion.
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
Relative density	: No data available
Density	: Not applicable
Bulk density	: 600 kg/m ³
Solubility(ies)	
Water solubility	: dispersible
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: > 360 °C
Viscosity	
Viscosity, dynamic	: No data available
Viscosity, kinematic	: Not applicable
Explosive properties	: Not explosive
Oxidizing properties	: Oxidizing properties (solids)

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9.2 Other information

Self-ignition : 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.
No hazards to be specially mentioned.
None known.

10.4 Conditions to avoid

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.

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

Acute oral toxicity : LD50 (Rat, male): 1.732 mg/kg
Method: OECD Test Guideline 401

LD50 (Rat, female): 566 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 5,1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: Lethargy

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg
Method: OECD Test Guideline 402

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Components:**famoxadone (ISO):**

Acute oral toxicity	: LD50 (Rat, Male and female): > 5.000 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	: LC50 (Rat, male and female): > 5,3 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403
Acute dermal toxicity	: LD50 (Rat, Male and female): > 2.000 mg/kg Method: OECD Test Guideline 402

cymoxanil (ISO):

Acute oral toxicity	: LD50 (Rat): 960 mg/kg
Acute inhalation toxicity	: LC50 (Rat): > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403
Acute dermal toxicity	: LD50 (Rabbit): > 2.000 mg/kg

Sodium lignosulfonate, sulfomethylated:

Acute oral toxicity	: LD50 (Rat, female): > 2.000 mg/kg Assessment: The substance or mixture has no acute oral toxicity Remarks: For similar material(s):
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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
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fumaric acid:

Acute oral toxicity	: LD50 (Rat, male): 10.700 mg/kg
Acute inhalation toxicity	: LC50 (Rat, male and female): > 1,306 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute inhalation toxicity Remarks: The LC50 value is greater than the Maximum Attainable Concentration.
Acute dermal toxicity	: LD50 (Rabbit): > 20.000 mg/kg

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Skin corrosion/irritation**Product:**

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

Components:**famoxadone (ISO):**

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

cymoxanil (ISO):

Species	:	Rabbit
Result	:	Mild skin irritation

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

Species	:	Rabbit
Result	:	Skin irritation

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

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

Components:**famoxadone (ISO):**

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

Sodium lignosulfonate, sulfomethylated:

Species	:	Rabbit
Result	:	Eye irritation

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

Species	:	Rabbit
Result	:	Corrosive

fumaric acid:

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Species : Rabbit
Result : Eye irritation

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

Species : Rabbit
Result : Eye irritation

Respiratory or skin sensitisation**Product:**

Test Type : Buehler Test
Species : Guinea pig
Assessment : The product is a skin sensitiser, sub-category 1B.
Method : OECD Test Guideline 406

Components:**famoxadone (ISO):**

Test Type : Maximisation Test
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Did not cause sensitisation on laboratory animals.

cymoxanil (ISO):

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

fumaric acid:

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

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

Germ cell mutagenicity- Assessment : Did not show mutagenic effects in animal experiments.

cymoxanil (ISO):

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.

fumaric acid:

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

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Carcinogenicity**Components:****famoxadone (ISO):**

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

cymoxanil (ISO):

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

fumaric acid:

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

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

Reproductive toxicity - Assessment : Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Did not show mutagenic or teratogenic effects in animal experiments.

cymoxanil (ISO):

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

fumaric 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.

STOT - single exposure**Product:**

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

Components:**famoxadone (ISO):**

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

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.

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fumaric acid:

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

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

Exposure routes : Oral
Target Organs : Eyes
Assessment : May cause damage to organs through prolonged or repeated exposure.

cymoxanil (ISO):

Exposure routes : Oral
Target Organs : Blood, thymus
Assessment : May cause damage to organs through prolonged or repeated exposure.

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

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

cymoxanil (ISO):

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

Sodium lignosulfonate, sulfomethylated:

Remarks : For similar material(s):
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

fumaric acid:

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

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Aspiration toxicity**Product:**

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

Components:**famoxadone (ISO):**

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

cymoxanil (ISO):

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

Sodium lignosulfonate, sulfomethylated:

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.

fumaric acid:

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

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

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,0287 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,055 mg/l
Exposure time: 48 h
Test Type: flow-through test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 9 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Components:**famoxadone (ISO):**

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Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): 0,011 mg/l Exposure time: 96 h Test Type: flow-through test Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 0,0157 mg/l Exposure time: 48 h Test Type: flow-through test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0,048 mg/l Exposure time: 72 h Method: Directive 67/548/EEC, Annex V, C.3. GLP: yes Remarks: Information source: Internal study report
M-Factor (Acute aquatic toxicity)	: 10
Toxicity to fish (Chronic toxicity)	: NOEC: 0,0014 mg/l Exposure time: 90 d Species: Oncorhynchus mykiss (rainbow trout) Method: OECD Test Guideline 210 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC: 0,0037 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: flow-through test Method: OECD Test Guideline 202 GLP: yes
M-Factor (Chronic aquatic toxicity)	: 10
Toxicity to soil dwelling organisms	: LC50: 470 mg/kg Exposure time: 14 d Species: Eisenia fetida (earthworms) Method: OECD Test Guideline 207 GLP:yes
Toxicity to terrestrial organisms	: LC50: > 5.620 mg/kg Exposure time: 8 d Species: Colinus virginianus (Bobwhite quail) Method: OECD Test Guideline 205 GLP:yes LC50: > 5.620 mg/kg Exposure time: 8 d Species: Anas platyrhynchos (Mallard duck) Method: OECD Test Guideline 205 GLP:yes

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LD50: > 0,025 mg/kg
Exposure time: 48 h
Species: Apis mellifera (bees)
Method: OEPP/EPPO Test Guideline 170
GLP: yes
Remarks: Contact

LC50: > 1.000 mg/kg
Exposure time: 48 h
Species: Apis mellifera (bees)
Method: OEPP/EPPO Test Guideline 170
Remarks: Oral

oral LD50: > 2.250 mg/kg
Species: Colinus virginianus (Bobwhite quail)
Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

cymoxanil (ISO):

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 13,5 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 27 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EbC50 (Pseudokirchneriella subcapitata (green algae)): 0,35 mg/l End point: Biomass Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,067 mg/l End point: number of offspring Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 or Equivalent LOEC: 0,15 mg/l End point: number of offspring Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 or Equivalent
M-Factor (Chronic aquatic toxicity)	:	1
Toxicity to soil dwelling organisms	:	NOEC: < 500 mg/kg Exposure time: 14 d End point: mortality Species: Eisenia fetida (earthworms) Method: Other guidelines

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Toxicity to terrestrial organisms : oral LD50: > 2.250 mg/kg
Species: *Anas platyrhynchos* (Mallard duck)

LC50: > 2.250 mg/kg
Exposure time: 1 d
End point: mortality
Species: *Colinus virginianus* (Bobwhite quail)

NOEC: 25 micrograms/bee
Exposure time: 1 d
End point: mortality
Species: *Apis mellifera* (bees)

LC50: 2.847 ppm
Exposure time: 5 d
End point: mortality
Species: *Colinus virginianus* (Bobwhite quail)

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

fumaric acid:

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

Toxicity to daphnia and other aquatic invertebrates : EC50 (water flea *Daphnia magna*): 212 mg/l
Exposure time: 48 h
Test Type: semi-static test
Method: EPA-660/3-75-009

Toxicity to algae/aquatic plants : ErC50 (*Pseudokirchneriella subcapitata* (green algae)): > 100 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

NOEC (*Pseudokirchneriella subcapitata* (green algae)): 100 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

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Toxicity to microorganisms : EC50 (activated sludge): > 300 mg/l
End point: Respiration rates.
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209

12.2 Persistence and degradability**Components:****famoxadone (ISO):**

Biodegradability : Result: Not readily biodegradable.

cymoxanil (ISO):

Biodegradability : Test Type: aerobic
Inoculum: activated sludge, domestic, non-adapted
Concentration: 20 mg/l
Result: Readily biodegradable.
Biodegradation: 11 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Fail

Test Type: aerobic
Inoculum: activated sludge, domestic, non-adapted
Concentration: 2 mg/l
Result: Readily biodegradable.
Biodegradation: 14 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Fail

Sodium lignosulfonate, sulfomethylated:

Biodegradability : Result: Not readily biodegradable.

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

Biodegradability : Remarks: Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

fumaric acid:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 67,5 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
Remarks: 10-day Window: Pass

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12.3 Bioaccumulative potential

Components:**famoxadone (ISO):**

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 2.950
Method: OECD Test Guideline 305
GLP: yes
Remarks: Does not bioaccumulate.

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

cymoxanil (ISO):

Partition coefficient: n-octanol/water : log Pow: 4,7 (20 °C)
pH: 7
Method: OECD Test Guideline 107 or Equivalent
GLP: yes
Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Sodium lignosulfonate, sulfomethylated:

Partition coefficient: n-octanol/water :
Remarks: For similar material(s):
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.

fumaric acid:

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

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

log Pow: 4,02
Method: OECD Test Guideline 107

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

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

12.4 Mobility in soil

Components:**cymoxanil (ISO):**

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Distribution among environmental compartments : Koc: 2,7 - 87,1

Sodium lignosulfonate, sulfomethylated:

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

fumaric acid:

Distribution among environmental compartments : Koc: 7,33
Method: Estimated.

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

Assessment : This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).. This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

Components:**famoxadone (ISO):**

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).

cymoxanil (ISO):

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).

Sodium lignosulfonate, sulfomethylated:

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

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).

fumaric acid:

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).

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

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

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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:**cymoxanil (ISO):**

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

Sodium lignosulfonate, sulfomethylated:

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.

fumaric acid:

Ozone-Depletion Potential : Regulation: (Update: 07/27/2012, DJ)
Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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

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 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.

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

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
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

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IMDG

Marine pollutant : yes(Famoxadone, Cymoxanil)

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

Other regulations:

The product is classified as dangerous in accordance with Regulation (EC) No. 1272/2008.

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance.

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.

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

H302	: Harmful if swallowed.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.

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H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H361	:	Suspected of damaging fertility or the unborn child.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H373	:	May cause damage to organs through prolonged or repeated exposure if swallowed.
H400	:	Very toxic to aquatic life.
H410	:	Very 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
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - 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; TECI - 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

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Further information

Other information : Take notice of the directions of use on the label.

Classification of the mixture:

Acute Tox. 4	H302
Skin Sens. 1B	H317
STOT RE 2	H373
Repr. 2	H361
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Based on product data or assessment
Based on product data or assessment
Calculation method
Calculation method
Based on product data or assessment
Calculation method

Product code: GF-3867

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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