



SAFETY DATA SHEET

Corteva Agriscience UK Limited

Safety Data Sheet according to Reg. (EU) No 2015/830

Product name: QUESTAR

Revision Date: 10.12.2020

Version: 1.0

Date of last issue: -

Print Date: 18.12.2020

Corteva Agriscience UK Limited 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.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name: QUESTAR

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

Identified uses: Plant Protection Product Fungicide

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

Corteva Agriscience UK Limited

CPC2 CAPITAL PARK

FULBOURN CAMBRIDGE - England - CB21 5XE

UNITED KINGDOM

Customer Information Number : +44 8006 89 8899

E-mail address : SDS@corteva.com

1.4 EMERGENCY TELEPHONE

24-Hour Emergency Contact : +353 76 680 5288

Local Emergency Contact : +353 76 680 5288

:

National Poisons Information Centre (Beaumont Hospital): 01 809 2166 (8 AM - 10 PM)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:

Skin irritation - Category 2 - H315

Serious eye damage - Category 1 - H318

Specific target organ toxicity - single exposure - Category 3 - H335

Short-term (acute) aquatic hazard - Category 1 - H400

Long-term (chronic) aquatic hazard - Category 1 - H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

Hazard pictograms



Signal Word: **DANGER**

Hazard statements

- H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H335 May cause respiratory irritation.
 H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P302 + P352 IF ON SKIN: Wash with plenty of water.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P314 Get medical advice/ attention if you feel unwell.
 P501 Dispose of contents/container to a licensed waste disposal contractor or collection site except for empty clean triple rinsed containers which can be disposed of as non-hazardous waste.

Supplemental information

- EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

Contains Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide; cyclohexanone; Ethoxylated Alcohols, C12 to C15; Ethylhexanol

2.3 Other hazards

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008

CASRN 517875-34-2 EC-No. Not available Index-No. -	-	4.92%	Fenpicoxamid	Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN 140-11-4 EC-No. 205-399-7 Index-No. -	-	>= 40.0 - < 50.0 %	Benzyl acetate	Aquatic Chronic - 3 - H412
CASRN Not available EC-No. 909-125-3 Index-No. -	01-2119974115-37	>= 10.0 - < 20.0 %	Reaction mass of N,N-dimethyldecan- 1-amide and N,N- dimethyloctanamide	Skin Irrit. - 2 - H315 Eye Dam. - 1 - H318 STOT SE - 3 - H335
CASRN 108-94-1 EC-No. 203-631-1 Index-No. 606-010-00-7	01-2119453616-35	>= 3.0 - < 10.0 %	cyclohexanone	Flam. Liq. - 3 - H226 Acute Tox. - 4 - H302 Acute Tox. - 4 - H332 Acute Tox. - 3 - H311 Skin Irrit. - 2 - H315 Eye Dam. - 1 - H318
CASRN 134180-76-0 EC-No. 603-798-4 Index-No. -	-	>= 3.0 - < 10.0 %	Polyether modified trisiloxane	Acute Tox. - 4 - H332 Eye Irrit. - 2 - H319
CASRN 78330-21-9 EC-No. - Index-No. -	-	>= 3.0 - < 10.0 %	Ethoxylated Alcohols, C12 to C15	Acute Tox. - 4 - H302 Eye Dam. - 1 - H318
CASRN 104-76-7 EC-No. 203-234-3 Index-No. -	01-2119487289-20	>= 3.0 - < 10.0 %	Ethylhexanol	Acute Tox. - 4 - H332 Skin Irrit. - 2 - H315 Eye Irrit. - 2 - H319 STOT SE - 3 - H335
CASRN Not available EC-No. 932-231-6 Index-No. -	01-2119560592-37	>= 3.0 - < 10.0 %	Benzenesulfonic acid, C10-13-alkyl derivs., calcium salt	Skin Irrit. - 2 - H315 Eye Dam. - 1 - H318 Aquatic Chronic - 3 - H412

If present in this product, any not classified components disclosed above for which no country specific OEL value(s) is(are) indicated under Section 8, are being disclosed as voluntarily disclosed components.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: 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. If breathing is difficult, oxygen should be administered by qualified personnel.

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.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. 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. Repeated excessive exposure may aggravate preexisting lung disease.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: No data available

5.2 Special hazards arising from the substance or mixture

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. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Evacuate area. Refer to section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact the company for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections: References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Keep away from heat, sparks and flame. Keep out of reach of children. Do not swallow. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage, including any incompatibilities: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

7.3 Specific end use(s): Refer to product label.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
cyclohexanone	ACGIH	TWA	20 ppm
	ACGIH	STEL	50 ppm
	ACGIH	TWA	SKIN
	ACGIH	STEL	SKIN
	2000/39/EC	TWA	40.8 mg/m3 10 ppm
	2000/39/EC	TWA	SKIN
	2000/39/EC	STEL	81.6 mg/m3 20 ppm
	2000/39/EC	STEL	SKIN
	IE OEL	OELV - 8 hrs (TWA)	SKIN
	IE OEL	OELV - 15 min (STEL)	SKIN
	IE OEL	OELV - 15 min (STEL)	81.6 mg/m3 20 ppm
	IE OEL	OELV - 8 hrs (TWA)	40.8 mg/m3 10 ppm
Ethylhexanol	Corteva OEL	TWA	2 ppm SKIN
	2017/164/EU	TWA	5.4 mg/m3 1 ppm
	IE OEL	OELV - 8 hrs (TWA)	5.4 mg/m3 1 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
cyclohexanone	108-94-1	1,2-Cyclohexanediol	Urine	End of shift at end of workweek	80 mg/l	ACGIH BEI

Cyclohexanol Urine End of shift (As soon as possible after exposure ceases) 8 mg/l ACGIH BEI

Derived No Effect Level

cyclohexanone

Workers

Acute systemic effects		Acute local effects		Long-term systemic effects		Long-term local effects	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
4 mg/kg bw/day	80 mg/m3	n.a.	80 mg/m3	4 mg/kg bw/day	40 mg/m3	n.a.	40 mg/m3

Consumers

Acute systemic effects			Acute local effects		Long-term systemic effects			Long-term local effects	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
1 mg/kg bw/day	20 mg/m3	1.5 mg/kg bw/day	n.a.	40 mg/m3	1 mg/kg bw/day	10 mg/m3	1.5 mg/kg bw/day	n.a.	20 mg/m3

Ethylhexanol

Workers

Acute systemic effects		Acute local effects		Long-term systemic effects		Long-term local effects	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	53.2 mg/m3 106.4 mg/m3	23 mg/kg bw/day	12.8 mg/m3	n.a.	53.2 mg/m3

Consumers

Acute systemic effects			Acute local effects		Long-term systemic effects			Long-term local effects	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	26.6 mg/m3	11.4 mg/kg bw/day	2.3 mg/m3	1.1 mg/kg bw/day	n.a.	26.6 mg/m3

Predicted No Effect Concentration

cyclohexanone

Compartment	PNEC
Fresh water	0.0329 mg/l
Marine water	0.00329 mg/l
Intermittent use/release	0.329 mg/l
Sewage treatment plant	10 mg/l
Fresh water sediment	0.168 mg/kg

Marine sediment	0.0168 mg/kg
Soil	0.0143 mg/kg

Ethylhexanol

Compartment	PNEC
Fresh water	0.017 mg/l
Intermittent use/release	0.17 mg/l
Marine water	0.002 mg/l
Sewage treatment plant	10 mg/l
Fresh water sediment	0.284 mg/kg dry weight (d.w.)
Marine sediment	0.028 mg/kg dry weight (d.w.)
Soil	0.047 mg/kg dry weight (d.w.)
Oral (Secondary Poisoning)	55 mg/kg food

8.2 Exposure controls

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

Individual protection measures

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

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. 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.

Other 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, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.
Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2 (meeting standard EN 14387).

Environmental exposure controls

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Color	Clear light yellow
Odor	Fruity
Odor Threshold	No data available
pH	4.35 <i>pH Electrode</i> 1% solution
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	80.5 °C <i>Pensky-Martens Closed Cup ASTM D 93</i>
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	emulsifies in water
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	382 °C <i>EC Method A15</i>
Decomposition temperature	No data available
Dynamic Viscosity	7.52 mPa.s at 20 °C <i>OECD Test Guideline 114</i>
Kinematic Viscosity	4.53 mm ² /s at 40 °C
Explosive properties	Not explosive <i>EC Method A.14</i>
Oxidizing properties	No <i>EC Method A.21</i>

9.2 Other information

Molecular weight Not applicable

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No dangerous reaction known under conditions of normal use.

10.2 Chemical stability: Thermally stable at typical use temperatures.

10.3 Possibility of hazardous reactions: Polymerization will not occur.

10.4 Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

10.5 Incompatible materials: Avoid contact with: Acids. Bases. Reducing agents. Strong oxidizers.

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: Carbon monoxide. Carbon dioxide. Nitrogen oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Swallowing may result in gastrointestinal irritation.

As product: Single dose oral LD50 has not been determined. Based on information for component(s):

LD50, Rat, > 5,000 mg/kg Estimated.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined. Based on information for component(s): LD50, Rat, > 5,000 mg/kg Estimated.

Acute inhalation toxicity

Prolonged excessive exposure to mist may cause adverse effects. Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause moderate skin irritation with local redness.
Prolonged contact may cause severe skin irritation with local redness and discomfort.

Serious eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Sensitization

For the active ingredient(s):
Did not demonstrate the potential for contact allergy in mice.

For the solvent(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.
Route of Exposure: Inhalation

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):
In animals, effects have been reported on the following organs:
Liver.
Kidney.

Based on information for component(s):
In animals, effects have been reported on the following organs:
Blood.
Kidney.
Liver.
Spleen.
Central nervous system.

Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals. For the minor component(s): In laboratory animals, evidence of carcinogenic activity was observed. The observed tumors do not appear to be relevant for men.

Teratogenicity

For the active ingredient(s): Did not cause birth defects or any other fetal effects in laboratory animals. For the minor component(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction. For the minor component(s): Cyclohexanone caused reduced growth and survival of offspring in an animal reproduction study. Dose levels producing this effect also caused central nervous system effects in parental animals. In

animal studies, has been shown to interfere with reproduction in males. Effects have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were inconclusive

Aspiration Hazard

May be harmful if swallowed and enters airways.

COMPONENTS INFLUENCING TOXICOLOGY:**Fenpicoxamid****Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to dust. Based on the available data, respiratory irritation was not observed.

Maximum attainable concentration. LC50, Rat, male and female, 4 Hour, dust/mist, > 0.53 mg/l No deaths occurred at this concentration.

Benzyl acetate**Acute inhalation toxicity**

LC0, Rat, male and female, 4 Hour, > 0.766 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide**Acute inhalation toxicity**

Prolonged excessive exposure to mist may cause adverse effects. Mist may cause irritation of upper respiratory tract (nose and throat).

LC50, Rat, 4 Hour, dust/mist, > 3.551 mg/l

cyclohexanone**Acute inhalation toxicity**

Vapor concentrations are attainable which could be hazardous on single exposure. May cause central nervous system effects. Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs.

LC50, Rat, 4 Hour, vapour, > 6.2 mg/l No deaths occurred at this concentration.

Polyether modified trisiloxane**Acute inhalation toxicity**

Prolonged excessive exposure to mist may cause serious adverse effects, even death. Mist may cause irritation of upper respiratory tract (nose and throat).

As product: LC50, Rat, 4 Hour, dust/mist, 1.08 mg/l OECD Test Guideline 403

Ethoxylated Alcohols, C12 to C15**Acute inhalation toxicity**

Vapor may cause irritation of the upper respiratory tract (nose and throat). Mist may cause irritation of upper respiratory tract (nose and throat).

Ethylhexanol

Acute inhalation toxicity

Prolonged excessive exposure may cause adverse effects. May cause respiratory irritation and central nervous system depression. If material is heated or aerosol/mist is produced, concentrations may be attained that are sufficient to cause respiratory irritation and other effects.

LC50, Rat, 4 Hour, dust/mist, 2.17 mg/l

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salt

Acute inhalation toxicity

Prolonged excessive exposure to dust may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

The LC50 has not been determined.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

12.1 Toxicity

Acute toxicity to fish

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 0.078 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

EC50, Daphnia magna (Water flea), static test, 48 Hour, 0.048 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 30 mg/l, OECD Test Guideline 201

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, Colinus virginianus (Bobwhite quail), > 2000mg/kg bodyweight.

contact LD50, Apis mellifera (bees), 48 Hour, 53.4µg/bee

oral LD50, Apis mellifera (bees), 48 Hour, > 205.6µg/bee

12.2 Persistence and degradability

Fenpicoxamid

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. Chemical degradation (hydrolysis) is expected in the environment within days to weeks.

10-day Window: Fail

Biodegradation: 12.5 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Stability in Water (1/2-life)

Hydrolysis, DT50, 7.1 d, pH 4

Hydrolysis, DT50, 0.92 d, pH 7

Hydrolysis, DT50, 0.024 d, pH 9

Benzyl acetate

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 100 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

10-day Window: Not applicable

Biodegradation: 92 - 96 %

Exposure time: 28 d

Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 2.24 mg/mg

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: > 80 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Chemical Oxygen Demand: 2.890 mg/g

cyclohexanone

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 87 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

10-day Window: Pass

Biodegradation: 90 - 100 %

Exposure time: 28 d

Method: OECD Test Guideline 301F

Polyether modified trisiloxane

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradation: > 60 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Ethoxylated Alcohols, C12 to C15

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: > 90 %

Exposure time: 28 d

Method: OECD Test Guideline 301E or Equivalent

10-day Window: Pass

Biodegradation: > 60 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Ethylhexanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Not applicable

Biodegradation: > 95 %

Exposure time: 5 d

Method: OECD Test Guideline 302B or Equivalent

10-day Window: Pass

Biodegradation: 68 %

Exposure time: 17 d

Method: OECD Test Guideline 301B or Equivalent

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salt

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 100 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

12.3 Bioaccumulative potential

Fenpicoxamid

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

Partition coefficient: n-octanol/water(log Pow): 4.4 at 20 °C

Benzyl acetate

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

Partition coefficient: n-octanol/water(log Pow): 1.96 Measured

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide

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

Partition coefficient: n-octanol/water(log Pow): <3.44 at 20 °C

cyclohexanone

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

Partition coefficient: n-octanol/water(log Pow): 0.81 Measured

Polyether modified trisiloxane

Bioaccumulation: No relevant data found.

Ethoxylated Alcohols, C12 to C15

Bioaccumulation: No relevant data found.

Ethylhexanol

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

Partition coefficient: n-octanol/water(log Pow): 3.1 Measured

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salt

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

Partition coefficient: n-octanol/water(log Pow): 2.89

Bioconcentration factor (BCF): 2 - 1,000

12.4 Mobility in soil**Fenpicoxamid**

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient (Koc): > 5000

Benzyl acetate

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient (Koc): 277 Estimated.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 527.3

cyclohexanone

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 15 Estimated.

Polyether modified trisiloxane

No relevant data found.

Ethoxylated Alcohols, C12 to C15

No relevant data found.

Ethylhexanol

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 800 Estimated.

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salt

No relevant data found.

12.5 Results of PBT and vPvB assessment

Fenpicoxamid

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).

Benzyl acetate

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

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide

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).

cyclohexanone

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).

Polyether modified trisiloxane

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

Ethoxylated Alcohols, C12 to C15

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).

Ethylhexanol

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).

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salt

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**Fenpicoxamid**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Benzyl acetate

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

cyclohexanone

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Polyether modified trisiloxane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Ethoxylated Alcohols, C12 to C15

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Ethylhexanol

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salt

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

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.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1 UN number	UN 3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fenpicoxamid)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environmental hazards	Fenpicoxamid
14.6 Special precautions for user	Hazard Identification Number: 90

Classification for SEA transport (IMO-IMDG):

14.1 UN number	UN 3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fenpicoxamid)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environmental hazards	Fenpicoxamid
14.6 Special precautions for user	EmS: F-A, S-F
14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1 UN number	UN 3082
14.2 UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Fenpicoxamid)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	No data available.

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 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.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**REACH Regulation (EC) No 1907/2006**

This product contains only components that have been either pre-registered, registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH). The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

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

Listed in Regulation: ENVIRONMENTAL HAZARDS

Number in Regulation: E1

100 t

200 t

15.2 Chemical safety assessment

For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008

Skin Irrit. - 2 - H315 - On basis of test data.

Eye Dam. - 1 - H318 - On basis of test data.

STOT SE - 3 - H335 - Calculation method

Aquatic Acute - 1 - H400 - On basis of test data.

Aquatic Chronic - 1 - H410 - Calculation method

Revision

Identification Number: / Issue Date: 10.12.2020 / Version: 1.0

DAS Code: GF-3308

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

2000/39/EC	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2017/164/EU	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
Corteva OEL	Corteva Occupational Exposure Limit
IE OEL	Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1
OELV - 15 min (STEL)	Occupational exposure limit value (15-minute reference period)
OELV - 8 hrs (TWA)	Occupational exposure limit value (8-hour reference period)
SKIN	Absorbed via skin
STEL	Short term exposure limit
TWA	Limit Value - eight hours
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

Flam. Liq.	Flammable liquids
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European 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; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

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.

Corteva Agriscience UK Limited urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

IE

