



Calaris[®]

syngenta[®]

GROUP 5 | 27 HERBICIDES

PCS No: 06546
UFI: 4P2F-ECN6-K00D-7FRX

PLEASE SEE ACCOMPANYING LEAFLET FOR PRODUCT USE DETAILS.

CALARIS[®] is a suspension concentrate formulation containing 330 g/l terbuthylazine and 70 g/l mesotrione.
A selective herbicide for the control of annual broad-leaved weeds and grasses in forage and grain maize.
FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

SAFETY INFORMATION

FOR PROFESSIONAL USE ONLY

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

CALARIS[®] is a suspension concentrate formulation containing 330 g/l terbuthylazine and 70 g/l mesotrione.

Warning

Harmful if swallowed.

Suspected of damaging the unborn child.

May cause damage to organs (Eyes, Nervous system) through prolonged or repeated exposure.

Very toxic to aquatic life with long lasting effects.

Do not handle until all safety precautions have been read and understood.

Do not breathe spray.

Wash skin thoroughly after handling.

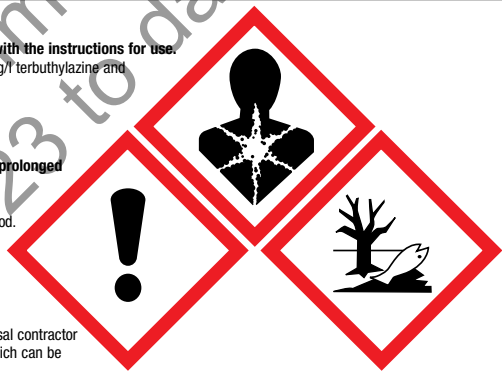
Wear protective gloves/ protective clothing.

IF exposed or concerned: Get medical advice/ attention.

Collect spillage.

Dispose of contents/container to a licensed hazardous waste disposal contractor or collection site except for empty triple rinsed clean containers which can be disposed of as non-hazardous waste.

Contains 1,2-benzisothiazol-3-one. May produce an allergic reaction.



PCS No: 06546 UFI: 4P2F-ECN6-K00D-7FRX

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L1111808 IREL/11B PPE 4196086

5 litres

Additional Safety Information**(a) Operator protection**

WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate.
FOR USE BY TRACTOR MOUNTED/TRAILED SPRAYERS.

(b) Environmental protection

To protect aquatic organisms, respect and unsprayed buffer zone of at least 5m to surface water bodies.
To protect non-target plants, respect an unsprayed buffer zone of 5m to non-agricultural land unless using 90% drift reducing nozzles.
Do not contaminate water with the product or its container. Do not clean application equipment near surface water.
Avoid contamination via drains from farmyards and roads.

(c) Storage and disposal

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.
RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of safely.
DO NOT RE-USE CONTAINER FOR ANY PURPOSE.

CONDITIONS OF USE

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crop	Maximum individual dose (litres/product /ha)	Maximum number of treatments (per crop)	Latest time of application
Forage and grain maize	1.5	1	Up to 8 leaves unfolded (GS18)

Other specific restrictions

Product may only be used from 2 leaves unfolded stage (GS12)
To protect groundwater, no more than one application every three years of any terbuthylazine containing product is permitted in the same field/land parcel.

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

Authorisation Holder	Marketing Company
Syngenta UK Ltd CPC4, Capital Park, Fulbourn, Cambridge, CB21 5XE Tel: +44 (0)1223 883400	Syngenta Ireland Ltd Block 6, Cleaboy Business Park, Old Kilmeaden Road, Waterford Tel: (051) 377203

This leaflet is part of the approved Product Label.

DIRECTIONS FOR USE

IMPORTANT: this information is approved as part of the Product Label. All instructions within this section must be carefully read in order to obtain safe and successful use of this product.

GENERAL INFORMATION

CALARIS contains mesotrione and terbuthylazine. The uptake is through both the leaves and the root system, thus combining contact action with residual weed control. The product controls a broad spectrum of annual broadleaved weeds and certain grasses.

Young weeds are most susceptible to CALARIS.

RESTRICTIONS

Treatment must not be applied on sands or very light soils.

Residual weed control will be reduced on soils with more than 10% organic matter.

RESISTANCE MANAGEMENT

CALARIS contains two active ingredients with different modes of action. Mesotrione is a triketone which disrupts development of plant pigments (4-HPPD inhibitor); terbuthylazine is a triazine which inhibits photosynthesis (photosystem II inhibitor).

Weed control can be reduced if strains of individual weed species develop that are less sensitive to a specific herbicide, or herbicide group.

CALARIS, a formulated mixture of two active ingredients with two different modes of action, will reduce the likelihood of resistance development. There is no known cross resistance between mesotrione or terbuthylazine, or the groups of herbicides to which each belongs.

Furthermore, at the present time, triketones (e.g. mesotrione) are not approved in crops other than maize. There is no similar mode of action in herbicides for other crops and therefore crop rotation will also delay the onset of any resistance to this active ingredient.

CROPS

For use only as a herbicide for the control of weeds in forage and grain maize. Forage and grain maize may be sprayed from two to eight leaves stage on open ground crops. **DO NOT USE** on seed crops or on sweet corn varieties.

Timing

Always inspect crop and weed growth stage immediately before spraying.

For best results on open ground crops treat young weed seedlings. See weed control tables for application details.

For the best results CALARIS should be applied to actively growing weeds. Treatment in poor growing conditions or in dry soil may give less reliable control.

Do not spray when the crop foliage is wet.

It is not recommended to spray crops suffering stress e.g. when in very cold or drought conditions, or when wide temperature fluctuations are expected or excessive rainfall is expected to follow application. Under these adverse conditions mild to moderate chlorosis may be observed on sprayed leaves. This effect is usually transient and does not affect yield.

Take extreme care to avoid drift onto all plants outside the target area, otherwise damage will result.

Ensure that spray swaths are matched accurately and do not overlap.

Rates of Use

CALARIS contains an adjuvant system and the addition of an adjuvant or a tank mix wetting agent is not recommended.

The recommended dose rate is 1.0 to 1.5 litres per hectare depending on the type of weeds present. The preferred forage and grain maize crop stage is when 2-6 leaves have been formed.

Annual Broad-Leaved Weeds	Dose rate l/ha	Weed growth stage
Fat hen	1.0	Emergence to start of branching (GS20)
Common chickweed	1.0	Emergence to start of flowering (GS25-GS30).
Black nightshade	1.0	Emergence to 6 leaves
Field pansy	1.0	Emergence to 10 leaves
Annual grasses		
Annual meadow grass*	1.5	Emergence up to mid tiller

* moderate control

MIXING AND SPRAYING

Application

Good spray cover is essential and care should be taken to ensure that the sprayer has a matched set of nozzles; the machine is correctly calibrated and adjusted to the correct height above the crop.

Preparation of the spray

Shake the CALARIS container before opening.

Half-fill the spray tank with clean water, add the required amount of CALARIS and agitate while filling the tank. RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing 3 times. Add washings to sprayer at time of filling and dispose of container safely. Continue agitation during spraying.

Volume of water

Even cover of the weeds is essential.

Use 200 to 300 litres (maximum) of water per hectare. The lower rate is preferable but the higher volume may be necessary where there are dense or well developed weed populations.

Application methods

Apply through a conventional field crop sprayer using a pressure of 2-3 bars. Ensure the sprayer is correctly calibrated before use.

Do not leave spray liquid in the sprayer for long periods (i.e. overnight).

Apply using a medium quality spray at a pressure of at least 2 bar. Apply through conventional crop spraying equipment.

After Use

It is important to wash equipment thoroughly after use to remove all traces of CALARIS as even small amounts may cause damage to crops. Rinse inside of tank with clean water using at least one tenth of the spray tank volume. After flushing through pump and spray lines, drain and repeat procedure.

Disposal of spray tank washings should be in accordance with local, state or national legislation.

Perform superficial cleaning of spray equipment in the field. Application liquids and their residues, products and their residues, emptied containers or packs as well as cleaning and rinsing fluids must not be allowed to enter the water. This also applies to indirect introduction through the sewage system, farmyard and road drains or rainwater and wastewater pipes.

FOLLOWING CROPS AND RECULTIVATION

Recultivation

Ploughing is recommended prior to reseeding. Some slight crop effects may be seen soon after emergence, but these are usually transitory in nature. Maize can be reseeded in case of crop failure.

Rotational crops

Autumn

Winter wheat (including durum wheat), winter barley and rye grass can follow a maize crop treated with CALARIS.

Deep ploughing (greater than 15cm) followed by cultivation is necessary before drilling oilseed rape.

Spring

Forage and grain maize, ryegrass, spring wheat and spring barley may be sown in the spring following application of CALARIS. Do not sow spinach, sugar and fodder beets, peas, beans, lettuce and cabbages in the year following the application of mesotrione.

Safety Data Sheet v8.3

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

1.1 Product identifier

Trade name: CALARIS

Design code: A13726E

Product Registration Number: PCS No. 06546

Unique Formula Identifier (UFI): 4P2F-ECN6-K00D-7FRX

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

Use of the Substance/Mixture: Herbicide

Recommended restrictions on use: professional use

1.3 Details of the supplier of the safety data sheet Company

Company Syngenta Ireland Limited, Block 6 Cleaboy Business Park, Old Kilmeaden Road, Waterford, Ireland

Telephone (051) 377203

Telefax 051) 354748

E-mail address of person responsible for the SDS: cropsales.ie@syngenta.com

1.4 Emergency telephone number

Emergency telephone number: Syngenta +44 1484 538444

Poisons Information Centre of Ireland

Members of Public: +353 (1) 809 2166. (8.00 a.m. to 10.00 p.m. 7 days a week)

Healthcare Professionals: +353 (1) 809 2566 (24-hour service)

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4 - H302: Harmful if swallowed.

Reproductive toxicity, Category 2 - H361d: Suspected of damaging the unborn child.

Specific target organ toxicity - repeated exposure, Category 2 - H373: May cause damage to organs through pro-longed or repeated exposure.

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

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal Word

Warning

Hazard Statements	H302	Harmful if swallowed.
	H361d	Suspected of damaging the unborn child.
	H373	May cause damage to organs (Eyes, Nervous system) through prolonged or repeated exposure.
Precautionary Statements	H410	Very toxic to aquatic life with long lasting effects
	P202	Do not handle until all safety precautions have been read and understood.
	P260	Do not breathe spray.
	P264	Wash skin thoroughly after handling.
	P280	Wear protective gloves/ protective clothing.
	P308 + P313	IF exposed or concerned: Get medical advice/ attention.
	P391	Collect spillage.
	P501	Dispose of contents/container to a licensed hazardous waste disposal contractor or collection site except for empty triple rinsed clean containers which can be disposed of as non-hazardous waste.

Hazardous components which must be listed on the label:

terbutylazine (ISO), C16-18 alcohols, ethoxylated, mesotriene (ISO), phosphoric acid

Additional Labelling

EUH208 Contains 1,2-benzisothiazol-3(2H)-one. May produce an allergic reaction.

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

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.

Ecological information: 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.

Toxicological information: 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.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Components

Chemical Name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
terbutylazine (ISO)	5915-41-3 227-637-9 613-323-00-2	Acute Tox. 4; H302 STOT RE 2; H373 (hematopoietic sys-tem) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10 Acute toxicity esti-mate Acute oral toxicity: 1,590 mg/kg	>= 30 - < 50
C16-18 alcohols, ethoxylated	68439-49-6 500-212-8	Acute Tox. 4; H302 Eye Dam. 1; H318	>= 3 - < 10

Chemical Name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
mesotrione (ISO)	104206-82-8 609-064-00-X	Repr. 2; H361d STOT RE 2; H373 (Nervous system, Eyes) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	>= 3 - < 10
phosphoric acid	7664-38-2 231-633-2 015-011-00-6 01-2119485924- 24-xxxx	Met. Corr. 1; H290 Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 specific concentration limit Skin Corr. 1B; H314 >= 25 % Skin Irrit. 2; H315 >= 10 - < 25 % Eye Irrit. 2; H319 >= 10 - < 25 % Acute toxicity estimate Acute oral toxicity: 301 mg/kg	>= 3 - < 5
1,2-benzisothiazol-3(2H)-one	2634-33-5 220-120-9 613-088-00-6 01-2120761540- 60-xxxx	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 2; H411 M-Factor (Acute aquatic toxicity): 1 specific concentration limit Skin Sens. 1; H317 >= 0.05 %	>= 0.0025 - < 0.025

For explanation of abbreviations see section 16.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice: Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control centre or physician, or going for treatment.

If inhaled: Move the victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or poison control centre immediately.

In case of skin contact: Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

In case of eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

If swallowed: If swallowed, seek medical advice immediately and show this container or label. Do **NOT** induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Nonspecific. No symptoms known or expected.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: There is no specific antidote available. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:

Extinguishing media - small fires: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media - large fires: Use alcohol-resistant foam or water spray.

Unsuitable extinguishing media: Do not use a solid water stream as it may scatter and spread fire.

5.2 Specific hazards arising from the substance or mixture

Specific hazards during firefighting: As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

Special protective equipment for firefighters: Wear full protective clothing and self-contained breathing apparatus.

Further information: Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

6.4 Reference to other sections

For disposal considerations see section 13., Refer to protective measures listed in sections 7 and 8.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling: No special protective measures against fire required. Avoid contact with skin and eyes. When using, do not eat, drink or smoke. For personal protection see section 8.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs. Further information on storage stability: Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

7.3 Specific end use(s)

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
terbutylazine (ISO)	5915-41-3	TWA	0.8 mg/m ³	Syngenta
mesotrione (ISO)	104206-82-8	TWA	5 mg/m ³	Syngenta
phosphoric acid	7664-38-2	TWA	1 mg/m ³	2000/39/EC
	Further information: Indicative			
		STEL	2 mg/m ³	2000/39/EC
	Further information: Indicative			
		OELV - 8 hrs (TWA)	1 mg/m ³	IE OEL
		OELV - 15 min (STEL)	2 mg/m ³	IE OEL

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 effects	10.7 mg/m ³
	Consumers	Inhalation	Long-term local effects	0.36 mg/m ³
	Workers	Inhalation	Acute local effects	2 mg/m ³
	Workers	Inhalation	Long-term local effects	1 mg/m ³
1,2-benzisothiazol-3(2H)-one	Consumers	Inhalation	Long-term systemic effects	4.57 mg/m ³
	Workers	Inhalation	Long-term systemic effects	6.81 mg/m ³
	Workers	Dermal	Long-term systemic effects	0.966 mg/kg
	Consumers	Inhalation	Long-term systemic effects	1.2 mg/m ³
	Consumers	Dermal	Long-term systemic effects	0.345 mg/kg

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

Substance name	Environmental Compartment	Value
sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.	Fresh water	0.2 mg/l
	Marine water	0.02 mg/l
	Fresh water sediment	1.141 mg/kg dry weight (d.w.)
	Marine sediment	1000 mg/kg dry weight (d.w.)
1,2-benzisothiazol-3(2H)-one	Fresh water	0.00403 mg/l
	Marine water	0.000403 mg/l
	Sewage treatment plant	1.03 mg/l
	Fresh water sediment	0.0499 mg/kg
	Marine sediment	0.00499 mg/kg
	Freshwater - intermittent	0.0011 mg/l
	Marine water - intermittent	0.0011 mg/l
	Soil	3 mg/kg

8.2 Exposure controls**Engineering measures**

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. Maintain air concentrations below occupational exposure standards. Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Eye protection : No special protective equipment required.

Hand protection

Material : Nitrile rubber

Break through time : > 480 min

Glove thickness : 0.5 mm

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. 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. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Remove and wash contaminated clothing before re-use.

Wear as appropriate: Impervious clothing

Respiratory protection : No personal respiratory protective equipment normally required. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Protective measures : The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice.

Environmental exposure controls

Water: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state: liquid

Colour: white to light brown

Odour: characteristic

Odour Threshold: No data available

Melting point/range: No data available

Boiling point/boiling range: No data available

Flammability: No data available

Upper explosion limit / Upper flammability limit: No data available

Lower explosion limit / Lower flammability limit: No data available

Flash point:Method: Seta closed cup, does not flash

Auto-ignition temperature: 450 °C

Decomposition temperature: No data available

pH: 2 - 5, Concentration: 1 %w/v

Viscosity, dynamic: 109 - 238 mPa.s (40 °C), 225 - 383 mPa.s (20 °C)

Viscosity, kinematic: No data available

Solubility in other solvents: No data available

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

Vapour pressure: No data available

Density: 1.1 g/cm³ (25 °C)

Relative vapour density: No data available

Particle size: No data available

9.2 Other information

Explosives: Not explosive

Oxidizing properties: The substance or mixture is not classified as oxidizing.

Evaporation rate: No data available

Miscibility with water: Miscible

Surface tension: 35.4 mN/m, 0.1 %

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

None reasonably foreseeable.

10.2 Chemical stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

Hazardous reactions: No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid : None known

10.6 Hazardous decomposition products

Hazardous decomposition products: No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Information on likely routes of exposure: Ingestion, Inhalation, Skin contact, Eye contact

Acute toxicity

Product:

Acute oral toxicity: LD50 (Rat, female): 310 mg/kg
Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Components:

terbuthylazine (ISO):

Acute oral toxicity: LD50 (Rat, male and female): 1,590 mg/kg
Acute inhalation toxicity: LC50 (Rat, male and female): > 5.3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

C16-18 alcohols, ethoxylated:

Acute oral toxicity: Assessment: The component/mixture is moderately toxic after single ingestion.

mesotrione (ISO):

Acute oral toxicity: LD50 (Rat, male and female): > 5,000 mg/kg
Acute inhalation toxicity: LC50 (Rat, male and female): > 4.75 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

phosphoric acid:

Acute oral toxicity: LD50 (Rat): 301 mg/kg
Acute dermal toxicity: LD50 (Rabbit): 2,750 mg/kg
1,2-benzisothiazol-3(2H)-one:
Acute oral toxicity: LD50 (Rat, male): 670 mg/kg
Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Species: Rabbit
Result: No skin irritation

terbuthylazine (ISO):

Species: Rabbit
Result: No skin irritation

mesotrione (ISO):

Species: Rabbit
Result: No skin irritation

phosphoric acid:

Result: Corrosive after 3 minutes to 1 hour of exposure

1,2-benzisothiazol-3(2H)-one:

Species: Rabbit
Result: Mild skin irritation

Serious eye damage/eye irritation

Product:

Species: Rabbit
Result: No eye irritation

Components:**terbuthylazine (ISO):**

Species: Rabbit

Result: No eye irritation

C16-18 alcohols, ethoxylated:

Result: Irreversible effects on the eye

mesotrione (ISO):

Species: Rabbit

Result: No eye irritation

1,2-benzisothiazol-3(2H)-one:

Species: Rabbit

Result: Risk of serious damage to eyes.

Respiratory or skin sensitisation**Product:**

Test Type: Buehler Test

Species: Guinea pig

Result: Did not cause sensitisation on laboratory animals.

Components:**terbuthylazine (ISO):**

Species: Guinea pig

Result: Did not cause sensitisation on laboratory animals.

mesotrione (ISO):

Species: Guinea pig

Result: Does not cause skin sensitisation.

1,2-benzisothiazol-3(2H)-one:

Result: Probability or evidence of skin sensitisation in humans

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

Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects.

mesotrione (ISO):

Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects.

phosphoric acid:

Germ cell mutagenicity- Assessment: In vitro tests did not show mutagenic effects

1,2-benzisothiazol-3(2H)-one:

Germ cell mutagenicity- Assessment: Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity**Components:****terbuthylazine (ISO):**

Carcinogenicity - Assessment: No evidence of carcinogenicity in animal studies.

mesotrione (ISO):

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

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

Reproductive toxicity - Assessment: No toxicity to reproduction

mesotrione (ISO):

Reproductive toxicity - Assessment: Weight of evidence does not support classification for reproductive toxicity

phosphoric acid:

Reproductive toxicity - Assessment: No toxicity to reproduction

STOT - repeated exposure

Components:

terbuthylazine (ISO):

Target Organs: hematopoietic system

Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

mesotrione (ISO):

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

11.2 Information on other hazards

Endocrine disrupting properties

Assessment: 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.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Product:

Toxicity to fish: LC50 (*Oncorhynchus mykiss* (rainbow trout)): 6.7 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (*Daphnia magna* (Water flea)): 53 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants: ErC50 (*Raphidocelis subcapitata* (freshwater green alga)): 0.087 mg/l
Exposure time: 72 h
NOEC (*Raphidocelis subcapitata* (freshwater green alga)): 0.0039 mg/l
End point: Growth rate
Exposure time: 72 h
EC50 (*Lemna gibba* (gibbous duckweed)): 0.114 mg/l
Exposure time: 7 d
NOEC (*Lemna gibba* (gibbous duckweed)): 0.063 mg/l
Exposure time: 7 h

Components:

terbuthylazine (ISO):

Toxicity to fish: LC50 (*Oncorhynchus mykiss* (rainbow trout)): 2.2 mg/l
Exposure time: 96 h
LC50 (*Lebistes reticulatus* (Guppy)): 1.6 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (*Americamysis*): 0.092 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants: ErC50 (*Desmodesmus subspicatus* (green algae)): > 0.03 mg/l
Exposure time: 72 h
NOEC (*Desmodesmus subspicatus* (green algae)): 0.0011 mg/l
End point: Growth rate
Exposure time: 72 h
ErC50 (*Microcystis aeruginosa* (blue-green algae)): 0.018 mg/l
Exposure time: 96 h
NOEC (*Microcystis aeruginosa* (blue-green algae)): 0.0037 mg/l
End point: Growth rate
Exposure time: 96 h

M-Factor (Acute aquatic toxicity): 10

Toxicity to microorganisms: EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

Toxicity to fish (Chronic toxicity):	NOEC: 0.045 mg/l Exposure time: 90 d Species: <i>Oncorhynchus mykiss</i> (rainbow trout)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):	NOEC: 0.019 mg/l Exposure time: 21 d Species: <i>Daphnia magna</i> (Water flea)
M-Factor (Chronic aquatic toxicity):	10
mesotrione (ISO):	
Toxicity to fish:	LC50 (<i>Oncorhynchus mykiss</i> (rainbow trout)): > 120 mg/l Exposure time: 96 h LC50 (<i>Cyprinus carpio</i> (Carp)): > 97.1 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates:	EC50 (<i>Daphnia magna</i> (Water flea)): 900 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants:	ErC50 (<i>Raphidocelis subcapitata</i> (freshwater green alga)): 12 mg/l Exposure time: 96 h NOEC (<i>Raphidocelis subcapitata</i> (freshwater green alga)): 0.75 mg/l End point: Growth rate Exposure time: 96 h ErC50 (<i>Lemna gibba</i> (gibbous duckweed)): 0.0301 mg/l Exposure time: 7 d EC10 (<i>Lemna gibba</i> (gibbous duckweed)): 0.00187 mg/l End point: Growth rate Exposure time: 7 d
M-Factor (Acute aquatic toxicity):	10
Toxicity to fish (Chronic toxicity):	NOEC: 12.5 mg/l Exposure time: 36 d Species: <i>Pimephales promelas</i> (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):	NOEC: 180 mg/l Exposure time: 21 d Species: <i>Daphnia magna</i> (Water flea)
M-Factor (Chronic aquatic toxicity):	10
phosphoric acid:	
Toxicity to fish:	LC50 (<i>Lepomis macrochirus</i> (Bluegill sunfish)): 3 - 3.25 mg/l Exposure time: 96 h
Ecotoxicology Assessment	
Chronic aquatic toxicity:	This product has no known ecotoxicological effects.
1,2-benzisothiazol-3(2H)-one:	
Toxicity to fish:	LC50 (<i>Oncorhynchus mykiss</i> (rainbow trout)): 2.18 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates:	EC50 (<i>Daphnia magna</i> (Water flea)): 2.94 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants:	ErC50 (<i>Raphidocelis subcapitata</i> (freshwater green alga)): 0.15 mg/l Exposure time: 72 h EC10 (<i>Raphidocelis subcapitata</i> (freshwater green alga)): 0.04 mg/l End point: Growth rate Exposure time: 72 h
M-Factor (Acute aquatic toxicity):	1

Toxicity to fish (Chronic toxicity): NOEC: 0.3 mg/l
Exposure time: 28 d
Species: *Oncorhynchus mykiss* (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 1.7 mg/l
Exposure time: 21 d
Species: *Daphnia* (water flea)

12.2 Persistence and degradability

Components:

terbuthylazine (ISO):

Biodegradability: Result: Not readily biodegradable.

Stability in water: Degradation half life: 6 d

Remarks: Product is not persistent.

mesotrione (ISO):

Stability in water: Degradation half life: > 30 d (25 °C)

Remarks: Persistent in water.

1,2-benzisothiazol-3(2H)-one:

Biodegradability: Result: rapidly degradable

12.3 Bioaccumulative potential

Components:

terbuthylazine (ISO):

Bioaccumulation: Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water: log Pow: 3.4 (25 °C)

mesotrione (ISO):

Bioaccumulation: Remarks: Low bioaccumulation potential.

1,2-benzisothiazol-3(2H)-one:

Bioaccumulation: Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

Components:

terbuthylazine (ISO):

Distribution among environmental compartments: Remarks: Moderately mobile in soils

Stability in soil: Dissipation time: 77 - 169 d

Percentage dissipation: 50 % (DT50)

Remarks: Product is not persistent.

mesotrione (ISO):

Distribution among environmental compartments: Remarks: Highly mobile in soils

Stability in soil: Dissipation time: 6 - 105 d

Percentage dissipation: 50 % (DT50)

Remarks: Product is not persistent.

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:

terbuthylazine (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).

mesotrione (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).

phosphoric 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).

1,2-benzisothiazol-3(2H)-one:

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 Endocrine disrupting properties

Assessment: 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.

12.7 Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Empty remaining contents. Triple rinse containers. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Waste Code: uncleaned packagings 15 01 10, packaging containing residues of or contaminated by hazardous substances

SECTION 14. TRANSPORT INFORMATION

14.1 UN number

ADR	RID	IMDG	IATA
UN 3082	UN 3082	UN 3082	UN 3082

14.2 UN proper shipping name

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TERBUTHYLAZINE)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TERBUTHYLAZINE)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TERBUTHYLAZINE)

IATA : Environmentally hazardous substance, liquid, n.o.s. (TERBUTHYLAZINE)

14.3 Transport hazard class(es)

ADR	RID	IMDG	IATA
9	9	9	9

14.4 Packing group

ADR

Packing group : III

Classification Code : M6

Hazard Identification Number : 90

Labels : 9

Tunnel restriction code : (-)

Remarks: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

RID

Packing group : III

Classification Code : M6

Hazard Identification Number : 90

Labels : 9

Remarks: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IMDG

Packing group : III

Labels : 9

EmS Code : F-A, S-F

Remarks: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA (Cargo)

Packing instruction (cargo aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Class 9 - Miscellaneous dangerous substances and articles

Remarks: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA (Passenger)

Packing instruction (passenger aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Class 9 - Miscellaneous dangerous substances and articles

Remarks: This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

14.5 Environmental hazards

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger)

Environmentally hazardous: yes

IATA (Cargo)

Environmentally hazardous: yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15. REGULATORY INFORMATION

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII): Conditions of restriction for the following entries should be considered: Number on list 3

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast): Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable

REACH - List of substances subject to authorisation (Annex XIV): Not applicable

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:

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. Use plant protection products safely. Always read the label and product information before use.

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical Safety Assessment

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

SECTION 16. OTHER INFORMATION

Full text of H-Statements

H290: May be corrosive to metals.
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H361d: Suspected of damaging the unborn child.
H373: May cause damage to organs through prolonged or repeated exposure.
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: Acute aquatic toxicity
Aquatic Chronic: Chronic aquatic toxicity
Eye Dam.: Serious eye damage
Met. Corr.: Corrosive to metals
Repr.: Reproductive toxicity
Skin Corr.: Skin corrosion
Skin Irrit.: Skin irritation
Skin Sens.: Skin sensitisation
STOT RE: Specific target organ toxicity - repeated exposure
2000/39/EC: Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
IE OEL: Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1
Syngenta: Syngenta Occupational Exposure Limit
2000/39/EC / TWA: Limit Value - eight hours
2000/39/EC / STEL: Short term exposure limit
IE OEL / OELV - 8 hrs (TWA): Occupational exposure limit value (8-hour reference period)
IE OEL / OELV - 15 min (STEL): Occupational exposure limit value (15-minute reference period)
Syngenta / TWA: Time weighted average

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; AICS - Australian Inventory of Chemical Substances; 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; IECS - 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; KECl - 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

Further information

Classification of the mixture:

Acute Tox. 4	H302
Repr. 2	H361d
STOT RE 2	H373
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

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

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.

Specimen-
2023 to date