



Callisto®

syngenta®

GROUP **27** HERBICIDE



SAFETY PRECAUTIONS

(a) Operator protection

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

WEAR SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate. However engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.
WHEN USING DO NOT EAT, DRINK OR SMOKE.
WASH SPLASHES from skin immediately.
WASH HANDS AND EXPOSED SKIN before meals and after work.

(b) Environmental protection

Do not contaminate water with the product or it's container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

(c) Storage and disposal

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. **KEEP IN ORIGINAL CONTAINER**, tightly closed, in a safe place. **EMPTY CONTAINER COMPLETELY**, and dispose of safely.

Product reg. no: MAPP 19756
UFI: V1RK-XD99-1000-VQCK

A suspension concentrate containing 100 g/l (9.1% w/w) mesotrione.

A foliar applied herbicide for the selective control of annual broad-leaved weeds in forage and grain maize.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work.

In case of toxic or transport emergency ring
+44 (0)1484 538444 any time.

SHAKE WELL BEFORE USE. PROTECT FROM FROST

Syngenta UK Ltd.,
CPC4, Capital Park, Fulbourn, Cambridge, CB21 5XE
Tel: +44 (0)1223 883400

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The
Voluntary
Initiative

This product label is compliant with the
CPA Voluntary Initiative (VI) guidance

L1093425 GBRI/09A PPE 4169873

5 litres

Product names marked ® or ™, the ALLIANCE FRAME
the SYNGENTA Logo and the PURPOSE ICON
are Trademarks of a Syngenta Group Company



A suspension concentrate containing 100 g/l (9.1% w/w) mesotrione.



Warning

Causes serious eye irritation.

Suspected of damaging the unborn child.

Very toxic to aquatic life with long lasting effects.

Keep out of reach of children.

Obtain special instructions before use.

Wear protective gloves/ protective clothing/ eye protection/ face protection.

IF exposed or concerned: Get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Collect spillage.

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

To protect aquatic organisms respect an unsprayed buffer zone of 5m to surface water bodies.

Direct spray away from water.

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

MAPP 19756 UFI: V1RK-XD99-1000-VQCK

IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS A HERBICIDE.

For use on:	Forage maize and grain maize.
Maximum individual dose:	0.75 litres per hectare.
Maximum number of treatments:	One per crop.
Latest time of application:	Eight leaf stage.

Other specific restrictions:

Do not apply by handheld equipment.

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.

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

CALLISTO contains mesotrione a foliar applied herbicide for selective control of annual broad-leaved weeds. The activity of CALLISTO is mostly by foliar uptake and to some extent by soil uptake. CALLISTO is rapidly absorbed through the leaves and moves to the growing point.

Crops

For use only as a herbicide for the control of weeds in forage maize and grain maize. **DO NOT USE** on forage maize and grain maize seed crops or on sweet corn varieties.

Spray timing

Always inspect crop and weed growth stage immediately before spraying.
For the best results treat young weed seedlings. See weed control tables for application details.

CONDITIONS FOR USE

Crops

Forage maize and grain maize may be sprayed any time from the two to eight leaf stage.

Weather

For the best results CALLISTO should be applied when the weeds are actively growing i.e. in warm humid weather with adequate soil moisture. Treatment in poor growing conditions or in dry soil may give less reliable control.

Do not spray when weed or crop foliage is wet.

AGRICULTURAL PRACTICE

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 dicotyledonous plants outside the target area.

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

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

RESISTANCE MANAGEMENT

CALLISTO is a 4-HPPD inhibitor, disrupting development of plant pigments which are essential for photosynthesis. This inhibition causes leaf chlorosis and eventual death of sensitive weed species. It's mode of action is different from other herbicide groups, and there is no known cross resistance in weeds which exhibit reduced sensitivity to other herbicides. Weed control may be reduced if strains of individual species less sensitive to CALLISTO develop.

The use of CALLISTO in programmes or tank mixtures with a broad-leaved herbicide possessing a different mode of action will reduce the likelihood of resistance developing in broad-leaved weeds e.g. Fat hen, Black nightshade, Common amaranth. At the present time there is no similar mode of action in herbicides for crops other than maize and therefore crop rotation will also delay the onset of any resistance. Where continuous maize is grown the use of CALLISTO for more than two seasons should be avoided.

WEED CONTROL - RATE OF USE

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

The recommended dose rate is 0.75 litres per hectare depending on the type of weeds present.

Annual Broad-Leaved Weeds	Dose rate l/ha	Weed growth stage
Fat hen	0.75	Emergence to 12 leaves (or 20 cm)
Black nightshade	0.75	Emergence to 10 leaves (or 15 cm)
Common amaranth	0.75	Emergence to 8 leaves (or 10 cm)
Redshank	0.75	Emergence to 6 leaves (or 10 cm)
Common chickweed	0.75	Emergence to 10 cm diameter
Oilseed rape volunteers	0.75	Emergence to 6 leaves
Charlock	0.75	Emergence to flowering
Field pansy	0.75	Emergence to 6 leaves

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.

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

Preparation of the spray

Shake the CALLISTO container before opening.

Half-fill the spray tank with clean water, add the required amount of CALLISTO and agitate while filling the tank. On emptying the container, 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 container safely. Continue agitation during spraying.

Volume of water

Even cover of the weeds is essential.

Use in 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).

After Use

It is important to wash equipment thoroughly after use to remove all traces of CALLISTO 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.

FOLLOWING CROPS AND RECULTIVATION

Recultivation

Ploughing is recommended prior to reseeded. Some slight crop effects may be seen soon after emergence, but these are usually transitory in nature. Forage and grain maize can be re-seeded immediately 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 CALLISTO.

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 CALLISTO, do not sow any other crop at this time.

PROTECT CALLISTO FROM FROST.

Section 6 of the Health and Safety at Work Act **Additional Product Safety Information**

(This section does not form part of the product label under the Plant Protection Products Regulations 1995)

The product label provides information on a specific pesticidal use of the product; do not use otherwise, unless you have assessed any potential hazard involved, the safety measures required and that the particular use has 'Extension of Use' approval or is otherwise permitted under the Plant Protection Products Regulations.

The information on this label is based on the best available information including data from test results.

Safety Data Sheet v18.1

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

1.1 Product Identifier

Trade name: CALLISTO

Design code: A12739A

Product Registration Number: MAPP19756

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: Syngenta UK Ltd

CPC4, Capital Park, Fulbourn, Cambridge, CB21 5XE

Telephone : +44 (0) 1223 883400

Telefax : +44 (0) 1223 882195

E-mail address of person responsible for the SDS: customer.services@syngenta.com

1.4 Emergency telephone number

Emergency phone No.: +44 (0) 1484 538444

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Eye irritation, Category 2 - H319: Causes serious eye irritation.


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

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

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

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms		
Signal Word	Warning	
Hazard Statements	H319 H361d H410	Causes serious eye irritation. Suspected of damaging the unborn child. Very toxic to aquatic life with long lasting effects.
Precautionary Statements	P201 P280 P308+P313 P337+P313 P391 P501	Obtain special instructions before use. Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection. IF exposed or concerned: Get medical advice/attention. If eye irritation persists: 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 containers which can be disposed of as non-hazardous waste.

Hazardous components which must be listed on the label:

- mesotriolone (ISO)

Additional Labelling

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.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixtures

Components

Chemical Name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
alcohols, C9-11-iso-, C10-rich, ethoxylated	78330-20-8	Acute Tox. 4; H302 Eye Dam. 1; H318	>= 20 - < 30

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
Octan-1-ol	111-87-5 203-917-6 01-2119486978-10	Eye Irrit. 2; H319 Aquatic Chronic 3; H412	>= 2.5 - < 10
phosphoric acid	7664-38-2 231-633-2 015-011-00-6 01-2119485924-24	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 %	>= 1 - < 3
Substances with a workplace exposure limit :			
silica	7631-86-9 231-545-4		>= 1 - < 10

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 Safety Data Sheet with you when calling the emergency number, a poison control center 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

Extinguishing media - small fires

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media - large fires

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 Special 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 fire-fighters

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 feeding stuffs.

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
mesotrione (ISO)	104206-82-8	TWA	5 mg/m ³	Syngenta
silica	7631-86-9	TWA (inhalable dust)	6 mg/m ³ (Silica)	GB EH40

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
		Further information: For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/4 General methods for sampling and gravimetric analysis or respirable, thoracic and inhalable aerosols., The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system, and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/4., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.		
		TWA (Respirable dust)	2.4 mg/m ³ (Silica)	GB EH40
		Further information: For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/4 General methods for sampling and gravimetric analysis or respirable, thoracic and inhalable aerosols., The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system, and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/4., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.		
		TWA (Respirable dust)	0.1 mg/m ³ (Silica)	2004/37/EC
	Further information: Carcinogens or mutagens			
phosphoric acid	7664-38-2	TWA	1 mg/m ³	GB EH40
		STEL	2 mg/m ³	GB EH40
		TWA	1 mg/m ³	2000/39/EC
	Further information: Indicative			

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
		STEL	2 mg/m ³	2000/39/EC
Further information: Indicative				

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
octan-1-ol	Workers	Dermal	Short-term exposure, Systemic effects	125 mg/kg
	Workers	Inhalation	Short-term exposure, Systemic effects	220 mg/m ³
	Workers	Dermal	Long-term systemic effects	125 mg/kg
	Workers	Inhalation	Long-term systemic effects	220 mg/m ³
	Consumers	Dermal	Short-term exposure, Systemic effects	75 mg/kg
	Consumers	Inhalation	Short-term exposure, Systemic effects	65 mg/m ³
	Consumers	Oral	Short-term exposure, Systemic effects	75 mg/kg
	Consumers	Dermal	Long-term systemic effects	75 mg/kg
	Consumers	Inhalation	Long-term systemic effects	65 mg/m ³
	Consumers	Oral	Long-term systemic effects	75 mg/kg
phosphoric acid	Workers	Inhalation	Long-term systemic effects	2.92 mg/m ³
	Consumers	Inhalation	Long-term local effects	0.73 mg/m ³

Predicted No Effect Concentration (PNEC):

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.)
octan-1-ol	Fresh water	0.2 mg/l
	Marine water	0.02 mg/l
	Fresh water sediment	2.1 mg/kg
	Marine sediment	0.21 mg/kg
	Soil	1.6 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 : Tightly fitting safety goggles. Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.

Hand protection

Remarks : No special protective equipment required.

Skin and body protection : No special protective equipment required. Select skin and body protection based on the physical job requirements.

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance :	liquid
Colour :	yellow brown to brown
Odour:	Like octanol
Odour Threshold:	No data available.
pH :	2 - 6 (20 °C). Concentration: 1 % w/v
Melting point/range :	< -5 °C
Boiling point/boiling range :	> 100 °C
Flash point :	Method: Pensky-Martens closed cup does not flash
Evaporation rate :	No data available
Flammability (solid, gas) :	No data available
Upper explosion limit / Upper flammability limit:	No data available
Lower explosion limit / Lower flammability limit:	No data available
Vapour pressure :	No data available
Relative vapour density :	No data available
Density :	1.09 g/cm ³ (25 °C)
Water solubility :	No data available
Solubility in other solvents :	No data available
Partition coefficient: noctanol/water:	No data available
Auto-ignition temperature :	420 °C
Decomposition temperature :	No data available
Viscosity, dynamic :	1,990 mPa.s (20 °C), 1,060 mPa.s (40 °C)
Viscosity, kinematic :	No data available
Explosive properties :	Not explosive
Oxidizing properties :	The substance or mixture is not classified as oxidizing.
9.2 Other Information	
Surface tension :	29.1 mN/m, 1 % w/v, 21 °C
Particle size :	No data available

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): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

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

Components:

alcohols, C9-11-iso-, C10-rich, ethoxylated:

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

mesotriene (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

Skin corrosion/irritation

Product:

Species : Rabbit
Result : No skin irritation

Components:

mesotriene (ISO):

Species : Rabbit
Result : No skin irritation

phosphoric acid:

Result : Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation

Product:

Species : Rabbit
Result : Eye irritation

Components:

alcohols, C9-11-iso-, C10-rich, ethoxylated:

Species : Rabbit
Result : Risk of serious damage to eyes.

mesotriene (ISO):

Species : Rabbit

Result : No eye irritation

octan-1-ol:

Species : Rabbit

Result : Irritation to eyes, reversing within 21 days

Respiratory or skin sensitisation

Product:

Test Type : Buehler Test

Species : Guinea pig

Result : Did not cause sensitisation on laboratory animals.

Components:

mesotrione (ISO):

Species : Guinea pig

Result : Does not cause skin sensitisation.

Germ cell mutagenicity

Components:

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

Carcinogenicity

Components:

mesotrione (ISO):

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

Reproductive toxicity

Components:

mesotrione (ISO):

Reproductive toxicity - Assessment: Animal testing did not show any effects on fertility.

phosphoric acid:

Reproductive toxicity - Assessment: No toxicity to reproduction

Repeated dose toxicity

Components:

mesotrione (ISO):

Remarks : No adverse effect has been observed in chronic toxicity tests.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Product:

Toxicity to fish : LC50 (*Cyprinus carpio* (Carp)): 71 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (*Daphnia magna* (Water flea)): 49 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants: ErC50 (*Raphidocelis subcapitata* (freshwater green alga)): > 100 mg/l
Exposure time: 96 h
EC10 (*Raphidocelis subcapitata* (freshwater green alga)): 5.8 mg/l

End point: Growth rate
Exposure time: 96 h
NOEC (*Raphidocelis subcapitata* (freshwater green alga)): 10 mg/l
End point: Growth rate
Exposure time: 96 h
ErC50 (*Lemna gibba* (gibbous duckweed)): 0.279 mg/l
Exposure time: 7 d
EC10 (*Lemna gibba* (gibbous duckweed)): 0.023 mg/l
End point: Growth rate
Exposure time: 7 d
NOEC (*Lemna gibba* (gibbous duckweed)): 0.011 mg/l
End point: Growth rate
Exposure time: 7 d

Ecotoxicology Assessment

Acute aquatic toxicity :

Components:

mesotrione (ISO):

Toxicity to fish :

Very toxic to aquatic life.

LC50 (*Oncorhynchus mykiss* (rainbow trout)): > 120 mg/l
Exposure time: 96 h
LC50 (*Cyprinus carpio* (Carp)): > 97.1 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:

EC50 (*Daphnia magna* (Water flea)): 900 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants:

ErC50 (*Raphidocelis subcapitata* (freshwater green alga)): 12 mg/l
Exposure time: 96 h
NOEC (*Raphidocelis subcapitata* (freshwater green alga)): 0.75 mg/l
End point: Growth rate
Exposure time: 96 h
ErC50 (*Lemna gibba* (gibbous duckweed)): 0.0301 mg/l
Exposure time: 7 d
EC10 (*Lemna gibba* (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: *Pimephales promelas* (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates

(Chronic toxicity):

NOEC: 180 mg/l
Exposure time: 21 d
Species: *Daphnia magna* (Water flea)

M-Factor (Chronic aquatic toxicity): 10

Ecotoxicology Assessment

Acute aquatic toxicity :

octan-1-ol:

Toxicity to fish :

Very toxic to aquatic life.

LC50 (*Pimephales promelas* (fathead minnow)): 13.3 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:	EC50 (<i>Daphnia magna</i> (Water flea)): 20 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants:	ErC50 (<i>Raphidocelis subcapitata</i> (freshwater green alga)): 14 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):	NOEC: 1 mg/l Exposure time: 21 d Species: <i>Daphnia magna</i> (Water flea)

phosphoric acid:

Toxicity to fish :	LC50 (<i>Lepomis macrochirus</i> (Bluegill sunfish)): 3 - 3.25 mg/l Exposure time: 96 h
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Ecotoxicology Assessment

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

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

12.2 Persistence and degradability

Components:

mesotrione (ISO):

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

Remarks: Persistent in water.

octan-1-ol:

Biodegradability : Result: Readily biodegradable.

12.3 Bioaccumulative potential

Components:

mesotrione (ISO):

Bioaccumulation : Remarks: Low bioaccumulation potential.

12.4 Mobility in soil

Components:

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.

12.5 Results of PBT and vPvB assessment

Product:

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

Components:

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).

octan-1-ol:

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).

12.6 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.

14. TRANSPORT INFORMATION

14.1 UN Number:

ADR : UN 3082

RID : UN 3082

IMDG : UN 3082

IATA : UN 3082

14.2 UN proper shipping name

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

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

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

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

14.3 Transport hazard class(es)

ADR : 9

RID : 9

IMDG : 9

IATA : 9

14.4 Packing group

ADR

Packing group : III

Classification Code : M6

Hazard Identification Number : 90

Labels : 9

Tunnel restriction code : (-)

RID

Packing group : III

Classification Code : M6

Hazard Identification Number : 90

Labels : 9

IMDG

Packing group : III

Labels : 9

EmS Code : F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Miscellaneous

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 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

15. REGULATORY INFORMATION

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

UK REACH List of restrictions (Annex 17) : Conditions of restriction for the following entries should be considered: Number on list 3

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

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

GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation: Not applicable

Control of Major Accident Hazards Regulations 2015 (COMAH)

E1 ENVIRONMENTAL HAZARDS

15.2 Chemical Safety Assessment

A chemical safety assessment is not required for this substance when it is used in the specified applications.

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.

H318: Causes serious eye damage.

H319: Causes serious eye irritation.

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.

H412: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.:	Acute toxicity
Aquatic Acute:	Short-term (acute) aquatic hazard
Aquatic Chronic:	Long-term (chronic) aquatic hazard
Eye Dam.:	Serious eye damage
Eye Irrit. :	Eye irritation
Met. Corr. :	Corrosive to metals
Repr. :	Reproductive toxicity
Skin Corr. :	Skin corrosion
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
2004/37/EC :	Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
GB EH40 :	UK. EH40 WEL - Workplace Exposure Limits
2000/39/EC / TWA:	Limit Value - eight hours
2000/39/EC / STEL:	Short term exposure limit
2004/37/EC / TWA:	Long term exposure limit
GB EH40 / TWA:	Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL:	Short-term exposure limit (15-minute reference period)

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; 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; 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

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.

A suspension concentrate containing 100 g/l (9.1% w/w) mesotrione.



Warning

Causes serious eye irritation.

Suspected of damaging the unborn child.

Very toxic to aquatic life with long lasting effects.

Keep out of reach of children.

Obtain special instructions before use.

Wear protective gloves/ protective clothing/ eye protection/ face protection.

IF exposed or concerned: Get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Collect spillage.

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

To protect aquatic organisms respect an unsprayed buffer zone of 5m to surface water bodies.

Direct spray away from water.

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

MAPP 19756 UFI: V1RK-XD99-1000-VQCK

IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS A HERBICIDE.

For use on: Forage maize and grain maize.

Maximum individual dose: 0.75 litres per hectare.

Maximum number of treatments: One per crop.

Latest time of application: Eight leaf stage.

Other specific restrictions:

Do not apply by handheld equipment.

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.

