



Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product Name: MAROPE

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

Relevant identified uses of the substance or mixture

Plant protection product for professional use. Agriculture.

Herbicide

1.3 Details of the supplier of the safety data sheet

Address

YC Agro Limited- United Kingdom

Located at Mynshull House, 78 Churchgate, Stockport, Cheshire, England SK1 1YJ, UK

Tel No.: +44 7548 954737

E-mail: business@ycagro.com, ycagro@yanchengchem.com

1.4 Emergency telephone number

For further advice for medical professionals:

The National Poisons Information Service: +44 7548 954737

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity: Category 4

H302 Harmful if swallowed.

Specific target organ toxicity - repeated exposure: Category 2

H373 May cause damage to organs (Nervous system) through prolonged or repeated exposure if swallowed.

Acute aquatic toxicity: Category 1

H400 Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1

H410 Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labeling according to Regulation (EC) No 1272/2008 [CLP]

Pictograms



Signal word

Warning

Hazard Statement (s)

- | | |
|------|--|
| H302 | Harmful if swallowed. |
| H373 | May cause damage to organs (Nervous system) through prolonged or repeated exposure if swallowed. |
| H410 | Very toxic to aquatic life with long lasting effects. |

Precautionary statement(s)

- | | |
|-----------|--|
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P308+P311 | IF exposed or concerned, please call POISON CENTRE or doctor/physician |
| 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 nonhazardous waste. |

EUH-statements

- | | |
|--------|--|
| EUH208 | Contains Flufenacet, 1,2-Benzisothiazolin-3-one, 5-chloro-2-methylisothiazol-3-one/2-methyl-isothiazol-3-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

Flufenacet: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB). Diflufenican: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

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.

3. COMPOSITION INFORMATION

3.1 Substances

Not applicable.

3.2 Mixtures

Chemical nature

Suspension concentrate (=flowable concentrate)(SC)

Flufenacet 400 g/l, Diflufenican 100 g/l

Hazardous components

Hazard statements according to Regulation (EC) No. 1272/2008

No	Name	Product identifier	Classification (EC)1272/2008 (CLP)	Concentration (%)
1	Flufenacet	142459-58-3		33.60
2	Diflufenican	83164-33-4		8.4
3	reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)	55965-84-9	Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Corr. 1C, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	> 0.00015 – < 0.0015
4	Glycerine	56-81-5 01-2119471987-18-XXXX	Not classified	> 1
5	Pyrogenic (fumed) amorphous silica	112945-52-5 01-2119379499-16-XXXX	Not classified	<= 0.5

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely..

If inhaled

Move to fresh air. Keep patient warm and at rest. Call a physician or poison control center immediately.

In case of skin contact

Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water. If symptoms persist, call a physician.

In case of eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.

First-aid measures after ingestion

Call a physician or poison control center immediately. Rinse mouth. Induce vomiting only, if: 1. patient is fully conscious, 2. medical aid is not readily available, 3. a significant amount (more than a mouthful) has been ingested and 4. time since ingestion is less than 1 hour. (Vomit should not get into the respiratory tract.)

4.2 Most important symptoms and effects, both acute and delayed

Symptoms

If large amounts are ingested, the following symptoms may occur:

Shortness of breath, Drowsiness, Headache, Tiredness, Dizziness, Nausea, Breathing difficulties, tachycardia
Symptoms and hazards refer to effects observed after intake of significant amounts of the active ingredient(s).

The absorption of this product into the body may lead to the formation of methaemoglobine that, in sufficient concentration, causes cyanosis.

4.3 Indication of any immediate medical attention and special treatment needed

Risks

Danger of formation of methaemoglobin.

Treatment

Treat symptomatically. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. In case of methaemoglobinemia, oxygen and specific antidotes (methylene blue/toluidine blue) should be given.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

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

Unsuitable extinguishing media

High volume water jet.

5.2 Special hazards arising from the substance or mixture

In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid), Hydrogen fluoride, Carbon monoxide (CO), Nitrogen oxides (NOx), Sulphur oxides

5.3 Advice for firefighters

Special protective equipment for firefighters:

Company No. 07731821 | Registered Add: Mynshull House, 78 Churchgate, Stockport, Cheshire, England SK1 1YJ, UK | VAT No.:405 8426 03

E-mail: director@ycagro.com market@ycagro.com tech@ycagro.com Phone: +44 7548 954737 URL: <http://www.ycagro.com>

In the event of fire and/or explosion do not breathe fumes. Wear self-contained breathing apparatus and protective suit.

Further information:

Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Precautions

Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.

6.2 Environmental precautions

If spillage enters drains leading to sewage works inform local water company immediately. If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060). Do not allow to get into surface water, drains and ground water.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice

Check also for any local site procedures.

6.4 Reference to other sections

Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Ensure adequate ventilation.

Advice on protection against fire and explosion

Keep away from heat and sources of ignition.

Hygiene measures

Avoid contact with skin, eyes and clothing. Keep working clothes separately. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt). Wash hands before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Store in a place accessible by authorized persons only. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from frost. Keep away from direct sunlight.

Advice on common storage

Keep away from food, drink and animal feedingstuffs.

Suitable materials

HDPE (high density polyethylene)

7.3 Specific end use(s)

Refer to the label and/or leaflet.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components	CAS-No.	Control parameters
Flufenacet	142459-58-3	0.3 mg/m ³ (SK-SEN)
Dilufenican	83164-33-4	5.5 mg/m ³ (TWA)
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)

8.2 Exposure controls

8.2.1. Appropriate engineering controls

Refer to COSHH assessment (Control of Substances Hazardous to Health (Amendment) Regulations 2004).

Engineering controls should be used in preference to personal protective equipment wherever practicable.

Refer also to COSHH Essentials.

Personal protection equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection

Respiratory protection is not required under anticipated circumstances of exposure.

Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation.

Always follow respirator manufacturer's instructions regarding wearing and maintenance.

Hand protection

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.

Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.

Material: Nitrile rubber

Rate of permeability: > 480 min

Glove thickness: > 0.4 mm

Protective index: Class 6

Directive: Protective gloves complying with EN 374.

Eye protection

Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).

Skin and body protection

Wear standard coveralls and Category 3 Type 4 suit.

Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently.

If there is a risk of significant exposure, consider a higher protective type suit.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid (suspension concentrate)
Colour	White to beige
Odour	Weak, characteristic
Odour threshold	No data available
pH	4.0 – 6.5 (100 %) (23 °C)
Melting point	Not applicable
Freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	> 100 °C No flash point - Determination conducted up to the boiling point.
Evaporation rate	No data available
Flammability (solid,gas)	Not applicable
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	Not Applicable
Density	ca. 1.19 g/cm ³ (20 °C)
Solubility (ies)	No data available.
Partition coefficient: n-octanol/water	No data available.
Auto-ignition temperature	No self-igniting
Decomposition temperature	No data available
Viscosity	
Viscosity, dynamic	250 - 400 mPa.s (20 °C) Velocity gradient 20 /s
Viscosity, kinematic	No data available
Explosive properties	Not explosive
Oxidizing properties	Non oxidizing.

10. STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions when stored and handled according to prescribed instructions.

10.4 Conditions to avoid

Extremes of temperatures and direct sunlight.

10.5 Incompatible materials

Store only in the original container.

10.6 Hazardous decomposition products

No decomposition products expected under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity

LD50 (Rat) > 500 - < 2,000 mg/kg

Test conducted with a similar formulation.

Acute inhalation toxicity

LC50 (Rat) > 2.078 mg/l

Exposure time: 4 h

Highest attainable concentration.

Test conducted with a similar formulation.

Skin corrosion/irritation

No skin irritation (Rabbit)

Test conducted with a similar formulation.

Serious eye damage/eye irritation

No eye irritation (Rabbit)

Test conducted with a similar formulation.

Respiratory or skin sensitisation

Skin: Non-sensitizing. (Mouse)

OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – single exposure

Flufenacet: Based on available data, the classification criteria are not met.

Diflufenican: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

Flufenacet caused neurobehavioral effects and/or neuropathological changes in animal studies.

Diflufenican did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Flufenacet was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Diflufenican was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Flufenacet was not carcinogenic in lifetime feeding studies in rats and mice.
Diflufenican was not carcinogenic in lifetime feeding studies in rats and mice.

Assessment toxicity to reproduction

Flufenacet did not cause reproductive toxicity in a two-generation study in rats.
Diflufenican did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Flufenacet caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Flufenacet are related to maternal toxicity.
Diflufenican did not cause developmental toxicity in rats and rabbits.

Aspiration hazard

Based on available data, the classification criteria are not met.

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.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish

LC50 (Cyprinus carpio (Carp)) 54.9 mg/l
Exposure time: 96 h

Chronic toxicity to fish

Cyprinus carpio (Carp)
NOEC: 12.5 mg/l
Exposure time: 96 h

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) 68.2 mg/l
Exposure time: 48 h

Toxicity to aquatic plants

EC50 (Raphidocelis subcapitata (freshwater green alga)) 0.00885 mg/l

Growth rate; Exposure time: 72 h

ErC50 (Raphidocelis subcapitata (freshwater green alga)) 8.85 µg/l

Growth rate; Exposure time: 72 h

NOEC (Raphidocelis subcapitata (freshwater green alga)) 0.916 µg/l

Growth rate; Exposure time: 72 h

ErC50 (Lemna gibba (gibbous duckweed)) 129 µg/l

Growth rate; Exposure time: 7 d

NOEC (Lemna gibba (gibbous duckweed)) < 25.0 µg/l

Growth rate; Exposure time: 7 d

12.2 Persistence and degradability

Biodegradability

Flufenacet: Not rapidly biodegradable

Diflufenican: Not rapidly biodegradable

Koc

Flufenacet: Koc: 202

Diflufenican: Koc: 3417

12.3 Bioaccumulative potential

Bioaccumulation

Flufenacet: Bioconcentration factor (BCF) 71

Does not bioaccumulate.

Diflufenican: Bioconcentration factor (BCF) 1,596

Does not bioaccumulate.

12.4 Mobility in soil

Flufenacet: Moderately mobile in soils

Diflufenican: Slightly mobile in soils

12.5 Results of PBT and vPvB assessment

Flufenacet: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

Diflufenican: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This

substance is not considered to be very persistent and very bioaccumulative (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 additional information available

13. DISPOSAL CONSIDERATION

13.1 Waste treatment methods

Product

In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant.

Advice may be obtained from the local waste regulation authority (part of the Environment Agency in the UK).

Contaminated packaging

Small containers (< 10 l or < 10 kg) should be rinsed thoroughly using an integrated pressure rinsing device, or, by manually rinsing three times.

Add washings to sprayer at time of filling.

Dispose of empty and cleaned packaging safely.

Follow advice on product label and/or leaflet.

14. TRANSPORT INFORMATION

ADR/RID/ADN

14.1 UN number: 3082

14.2 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FLUFENACET, DIFLUFENICAN SOLUTION)

14.3 Transport hazard class(es): 9

14.4 Packaging Group: III

14.5 Environm. Hazardous Mark: YES

Hazard no.: 90

Tunnel Code -

This classification is in principle not valid for carriage by tank vessel on inland waterways. Please refer to the manufacturer for further information.

IMDG

14.1 UN number: 3082

14.2 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FLUFENACET, DIFLUFENICAN SOLUTION)

14.3 Transport hazard class(es): 9

14.4 Packaging Group: III

14.5 Marine pollutant: YES

IATA

14.1 UN number: 3082

14.2 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FLUFENACET, DIFLUFENICAN SOLUTION)

14.3 Transport hazard class(es): 9

14.4 Packaging Group: III

14.5 Environm. Hazardous Mark: YES

UK 'Carriage' Regulations

14.1 UN number: 3082

14.2 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FLUFENACET, DIFLUFENICAN SOLUTION)

14.3 Transport hazard class(es): 9

14.4 Packaging Group: III

14.5 Environm. Hazardous Mark: YES

Emergency action code: 3Z

14.6 Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

14.7. Transport in bulk according to IMO instruments

No transport in bulk according to the IBC Code.

15. REGULATORY INFORMATION

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

UK and Northern Ireland Regulatory References

This material may be subject to some or all of the following regulations (and any subsequent amendments). Users must ensure that any uses and restrictions as indicated on the label and/or leaflet are followed.

Transport

Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No 1348)

Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No 2367)

Air Navigation Dangerous Goods Regulations 2002 (SI 2002 No 2786)

Supply and Use

Chemical (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No 716)
 Chemical (Hazard Information and Packaging for Supply) (Northern Ireland) Regulations 2009
 Control of Substances Hazardous to Health Regulations 2002 (SI 2002 No 2677)
 EH40 Occupational Exposure Limits - Table 1 List of approved workplace exposure limits
 Control of Pesticide Regulations 1986
 Dangerous Substances and Explosive Atmospheres Regulations 2002

Waste Treatment

Environmental Protection Act 1990, Part II
 Environmental Protection (Duty of Care) Regulations 1991
 The Waste Management Licensing Regulations 1994 (as amended)
 Hazardous Waste Regulations 2005 (Replacing Special Waste Regulations 1996 as amended)
 Landfill Directive
 Regulation on Substances That Deplete the Ozone Layer 1994 (EEC/3093/94)
 Water Resources Act 1991
 Anti-Pollution Works Regulations 1999

Further information

WHO-classification: II (Moderately hazardous)

16. OTHER INFORMATION

Disclaimer:

The manufacture provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. The manufacture makes no representations or express or implied, including without limitation any warranties of merchantability fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, the manufacture will not be responsible for damages resulting from use of or reliance upon this information.
