



SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

Version: 1
Date: 31/7/2023

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

1.1 Product identifier

Trade name SATURN

Product code UK (MAPP) 20644

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

Use Herbicide

1.3 Details of the supplier of the safety data sheet

Nuvaros IP Ltd
Suite 4, Berkeley House,
Whitbarrow Road,
Lymm, Cheshire,
WA13 9AR.
Tel: +44 (0) 1925 202230
Fax: +44 (0) 1925 595801
Email: support@novastarlink.com

1.4 Emergency telephone number

IN CASE OF TOXIC OR TRANSPORT EMERGENCY

National Chemical Emergency Centre: Telephone 01865 407333.

For the emergency information telephone National Poisons Information Service at one of the following numbers:

London 020 7635 9191

Belfast 01232 240503

Birmingham 0121 507 5588

Penarth 01222 709901

Edinburgh 0131 536 2300

Leeds 0113 243 0715

Newcastle 0191 232 5131

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

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.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful, R22

Xn Harmful, R48/22

N Dangerous for the environment, R50/53

2.2 Label elements

Labelling in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Hazard label for supply/use required.

Hazardous components which must be listed on the label:

- Flufenacet
- Diflufenican



Signal word: Warning

Hazard statements

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.

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

EUH208 Contains Flufenacet, 5-chloro-2-methyl-isothiazol-3-one/2-methyl-isothiazol-3-one. May produce an allergic reaction.

Precautionary statements

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor/ physician.

P501 Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

2.3 Other hazards

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature

Suspension concentrate (SC)

Flufenacet/Diflufenican 400:100 g/l

Hazardous components

R-phrases according to EC directive 67/548/EEC

Hazard statements according to Regulation (EC) No. 1907/2006



Name	CAS-No. / EC-No.	Classification		Conc. [%]
		EC Directive 67/548/EEC	Regulation (EC) No 1272/2008	
Flufenacet	142459-58-3	Xn; R22, R48/22 R43 N; R50/53	Acute Tox. 4, H302 STOT RE 2, H373 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	33.60
Diflufenican	83164-33-4	R52/53	Aquatic Chronic 3, H412	8.40

Further information

Flufenacet	142459-58-3	M-Factor: 100 (acute), 100 (chronic)
------------	-------------	--------------------------------------

For the full text of the R-phrases/ Hazard statements mentioned in this Section, see Section 16.

SECTION 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.
Inhalation	Move to fresh air. Keep patient warm and at rest. Call a physician or poison control center immediately.
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.
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.
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	The absorption of this product into the body may cause cyanosis.
-----------------	--

4.3 Indication of any immediate medical attention and special treatment needed

Risks Treatment

Danger of formation of methaemoglobin which may cause cyanosis.

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.



SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

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

Unsuitable 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 (NO_x), Sulphur oxides

5.3 Advice for firefighters

Special protective equipment for fire-fighters In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.

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

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

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 Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

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.

SECTION 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

No special precautions required.

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 uses Refer to the label and/or leaflet.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Flufenacet	142459-58-3	0.47 mg/m ³ (TWA)		BCS*
Diflufenican	83164-33-4	5.5 mg/m ³ (TWA)		BCS*
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)	12 2011	EH40 WEL

*Bayer CropScience "Occupational Exposure Standard"

8.2 Exposure 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 protective 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

Wear CE Marked (or equivalent) nitrile rubber gloves (minimum thickness of 0,4 mm). Wash when contaminated and 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.

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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form	suspension
Colour	white to beige
Odour	weak, characteristic
pH	4.0 - 6.5 at 100 % (23 °C)
Flash point	> 100 °C No flash point - Determination conducted up to the boiling point.
Density	ca. 1.19 g/cm ³ at 20 °C
Water solubility	dispersible
Partition coefficient: n-octanol/water	Flufenacet: log Pow: 3.2 Diflufenican: log Pow: 4.2

9.2 Other information

Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Thermal decomposition 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 temperature 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.



SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

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.
Acute dermal toxicity	LD50 (rat) > 4,000 mg/kg Test conducted with a similar formulation.
Skin irritation	No skin irritation (rabbit) Test conducted with a similar formulation.
Eye irritation	No eye irritation (rabbit) Test conducted with a similar formulation.
Sensitisation	Non-sensitizing. (mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment repeated dose toxicity

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.



SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish LC50 (Cyprinus carpio (Carp)) 54.9 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 (Pseudokirchneriella subcapitata) 0.00885 mg/l
Growth rate; Exposure time: 72 h

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

Mobility in soil Flufenacet: Moderately mobile in soils

Diflufenican: Slightly mobile in soils

12.5 Results of PBT and vPvB assessment

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 Other adverse effects

Additional ecological information No other effects to be mentioned.



SECTION 13: DISPOSAL CONSIDERATIONS

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. Large containers (> 25 l or > 25 kg) should not be rinsed or re-used for any other purpose. Return large containers to supplier. Follow advice on product label and/or leaflet.

Waste key for the unused product

020108 agrochemical waste containing dangerous substances

SECTION 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 Packing group	III
14.5 Environm. Hazardous Mark	YES
Hazard no.	90
Tunnel Code	E

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 Packing 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 Packing 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 Packing 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 Annex II of MARPOL 73/78 and the IBC Code

No transport in bulk according to the IBC Code.

SECTION 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: III (Slightly hazardous)



15.2 Chemical Safety Assessment

A chemical safety assessment is not required.

SECTION 16: OTHER INFORMATION

Text of R-phrases mentioned in Section 3

R22	Harmful if swallowed.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R34	Causes burns.
R43	May cause sensitisation by skin contact.
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Text of the hazard statements mentioned in Section 3

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
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.

The above information is intended to give general health and safety guidance on the storage and transport of the product.

It is not intended to apply to the use of the product for which purposes the product label and any appropriate technical usage literature available should be consulted and any relevant licenses, consents or approvals complied with.

The requirements or recommendations of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given.

The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate.

No liability will be accepted for any injury, loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.