

Material group	BP20101	Page 1 of 16
Product name	Nucleus FLUFENACET 400 g/l + DIFLUFENICAN 100 g/l SC	July 2017
Safety data sheet according to EU Reg. 1907/2006 as amended		Supersedes March 2014

SAFETY DATA SHEET

NUCLEUS

FLUFENACET 400 g/l + DIFLUFENICAN 100 g/l SC

Revision: Sections containing a revision or new information are marked with a ♣.

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

- 1.1. **Product identifier** **NUCLEUS**
FLUFENACET 400 g/l + DIFLUFENICAN 100 g/l SC
 Contains flufenacet
- 1.2. **Relevant identified uses of the substance or mixture and uses advised against** Can be used as herbicide only.
- 1.3. **Details of the supplier of the safety data sheet** **CHEMINOVA A/S**
 Thyborønvej 78
 DK-7673 Harbøre
 Denmark
SDS.Ronland@fmc.com
- 1.4. **Emergency telephone number**
Company (+45) 97 83 53 53 (24 h; for emergencies only)

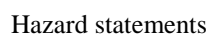
Medical emergencies:

Romania: +40 21318 3606
Slovakia: +421 2 54 77 4 166
Slovenia: +386 41 650 500
Spain: +34 91 562 04 20
Sweden: +46 08-331231
112
Switzerland: 145
England & Wales - 111
Scotland - 08454 24 24 24
Northern Ireland - Local GP or Pharmacist
Republic of Ireland - 01 837 9964
United Kingdom: 0870 600 6266 (in the UK only)
Healthcare professionals seeking poisons information should consult
www.toxbase.org
Contact CHEMTREC help centre
Dialling from the UK and NI 0870 820 0418
Dialling from Ireland 01 901 4670
U.S.A. & Canada: +1 800 / 331-3148 (PROSAR)
All other countries: +1 651 / 632-6793 (PROSAR - Collect)

Specific target organ toxicity – repeated exposure: Category 2 (H373)
Hazards to the aquatic environment, acute: Category 1 (H400)
chronic Category 1 (H410)

Environmental hazards The product is very toxic to aquatic organisms.

Hazard pictograms (GHS08, GHS09)



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H373	May cause damage through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.
Supplementary hazard statements	
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 of use.
Precautionary statements	
P260	Do not breathe vapours.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P314	Get medical attention/advice if you feel unwell.
P391	Collect spillage.
P501	Dispose of contents/container as hazardous waste.
2.3. Other hazards	None of the ingredients in the product meets the criteria for being PBT or vPvB.

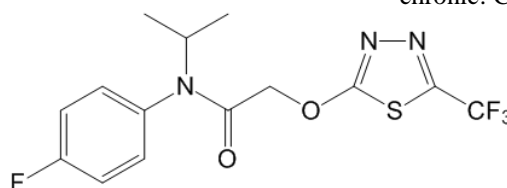
♣ SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances	The product is a mixture, not a substance
3.2. Mixtures	See section 16 for full text of hazard statements.

Active ingredients

Flufenacet	Content: 33% by weight
CAS name	Acetamide, N-(4-fluorophenyl)-N-(1-methylethyl)-2-[[5-(trifluoromethyl)-1,3,4-thiadiazol-2-yl]oxy]-
CAS no.	142459-58-3
IUPAC name(s)	4'-Fluoro-N-isopropyl-2-(5-trifluoromethyl-1,3,4-thiadiazol-2-yloxy)acetanilide
ISO name/EU name	Flufenacet
EC no. (EINECS no.)	None
EU index no.	613-164-00-9
Classification of the ingredient	Acute oral toxicity: Category 4 (H302) Sensitisation – skin: Category 1 (H317) Specific target organ toxicity – repeated exposure: Category 2 (H373) Hazards to the aquatic environment, acute: Category 1 (H400) chronic: Category 1 (H410)

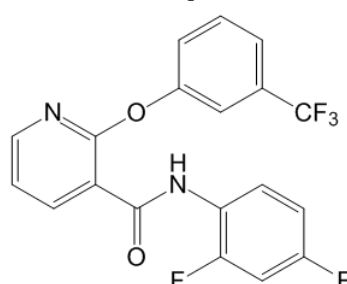
Structural formula



Diflufenican	Content: 8% by weight
CAS name	3-Pyridinecarboxamide, N-(2,4-difluorophenyl)-2-[3-(trifluoromethyl)phenoxy]-

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CAS no. 83164-33-4
 IUPAC name 2',4'-Difluoro-2-(α,α,α -trifluoro-*m*-tolylloxy)nicotinilide
 ISO name/EU name Diflufenican
 EC no. (EINECS no.) None
 EU index no. 616-032-00-9
 Classification of the ingredient Hazards to the aquatic environment, chronic: Category 3 (H412)
 Structural formula



<u>Reportable ingredients</u>	Content (% w/w)	CAS no.	EC no. (EINECS no.)	Classification
Glycerol	10	56-81-5	200-289-5	None
Sodium alkyl naphthalenesulphonate-formaldehyde condensate	2	57773-56-9	None	Eye Irrit. 2 (H319)
1,2-Benzisothiazol-3(2H)-one	0.01	2634-33-5	220-120-9	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1A (H317) Aquatic Acute 1 (H400)

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation	If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.
Skin contact	Immediately remove contaminated clothing and footwear. Flush skin with water. Wash with water and soap. See physician if any symptom develops.
Eye contact	Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. See physician if irritation persists.
Ingestion	Inducing vomiting is not recommended. Rinse mouth and drink water or milk. If vomiting does occur, rinse mouth and drink fluids again. Call a doctor or get medical attention immediately.

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- 4.2. **Most important symptoms and effects, both acute and delayed** In animal tests non-specific symptoms were seen, such as irregular respiration and lowered activity.
- 4.3. **Indication of any immediate medical attention and special treatment needed** Immediate medical attention is required in case of ingestion
 It may be helpful to show this safety data sheet to physician.
- Note to physician A specific antidote against this substance is not known. Treatment is as for a general chemical. Gastric lavage and/or administration of activated charcoal can be considered.

SECTION 5: FIRE-FIGHTING MEASURES

- 5.1. **Extinguishing media** Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.
- 5.2. **Special hazards arising from the substance or mixture** The essential breakdown products are volatile, toxic, irritant and inflammable compounds such as nitrogen oxides, hydrogen fluoride, carbon monoxide, carbon dioxide, sulphur dioxide and various fluorinated organic compounds.
- 5.3. **Advice for firefighters** Use water spray to keep fire-exposed containers cool. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products. Fight fire from protected location or maximum possible distance. Dike area to prevent water runoff. Firemen should wear self-contained breathing apparatus and protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1. **Personal precautions, protective equipment and emergency procedures** It is recommended to have a predetermined plan for the handling of spills. Empty, closable vessels for the collection of spills should be available.
- In case of large spill (involving 10 tonnes of the product or more):
 1. use personal protection equipment; see section 8
 2. call emergency telephone no.; see section 1
 3. alert authorities.
- Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and rubber boots.
- Stop the source of the spill immediately if safe to do so.
- 6.2. **Environmental precautions** Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water

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drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.

6.3. Methods and materials for containment and cleaning up

It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6).

Surface water drains should be covered if appropriate. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, hydrated lime, Fuller's earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with much water and industrial detergent. Absorb wash liquid onto absorbent and transfer to suitable containers. The used containers should be properly closed and labelled.

Large spills which soak into the ground should be dug up and transferred to suitable containers.

Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.

6.4. Reference to other sections

See subsection 8.2. for personal protection.
 See section 13 for disposal.

♣ SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

In an industrial environment it is recommended to avoid all personal contact with the product, if possible by using closed systems with remote system control. The material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.

For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.

Do not wear heavily contaminated clothing. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after use.

Do not discharge to the environment. Do not contaminate water when disposing of equipment wash waters. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.

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7.2. Conditions for safe storage, including any incompatibilities

The product is stable under normal conditions of warehouse storage. Recommended storage temperature 5 - 30°C.

Keep in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.

7.3. Specific end use(s)

The product is a registered pesticide which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Personal exposure limits

To our knowledge, personal exposure limits have not been established for the active ingredients in this product.

		Year	
Glycerol	ACGIH (USA) TLV	2015	Not established
	OSHA (USA) PEL	2015	15 mg/m ³ , total dust (mist)
	EU, 2000/39/EC	2009	5 mg/m ³ , respirable fraction
	as amended		
	Germany, MAK	2014	Not established
	HSE (UK) WEL	2011	Not established

However, other personal exposure limits defined by local regulations may exist and must be observed.

Flufenacet

DNEL	0.017 mg/kg bw/day
PNEC, aquatic	44 ng/l

Diflufenican

DNEL, systemic	0.11 mg/kg bw/day
PNEC, aquatic environment	2.5 ng/l

Glycerol

DNEL, inhalation	56 mg/m ³
PNEC, freshwater	0.885 mg/l
PNEC, marine water	0.088 mg/l

8.2. Exposure controls

When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the

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system. Consider the need to render equipment or piping systems non-hazardous before opening.

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.

In cases of incidental high exposure, maximal personal protection equipment may be necessary, such as respirator, face mask, chemical resistant coveralls.



Respiratory protection

The product does not automatically present an airborne exposure concern during normal handling, but in the event of an accidental discharge of the material which produces a heavy vapour or mist, workers must put on officially approved respiratory protection equipment with a universal filter type including particle filter.



Protective gloves

Wear chemical resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber or viton. The breakthrough times of these materials for the product are unknown, but it is expected that they will give adequate protection.



Eye protection

Wear safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.



Other skin protection

Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure. During most normal work situations where exposure to the material cannot be avoided for a limited time span, waterproof pants and apron of chemical resistant material or coveralls of polyethylene (PE) will be sufficient. Coveralls of PE must be discarded after use if contaminated. In cases of excessive or prolonged exposure, coveralls of barrier laminate may be required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on physical and chemical properties

Appearance	Beige to light brown liquid
Odour	Slight odour of mixed chemicals
Odour threshold	Not determined
pH	Undiluted: 4.3 1% dilution in water: 4.9
Melting point/freezing point	Not determined
Initial boiling point and boiling range	100°C
Flash point	> 100°C if any
Evaporation rate	Not determined
Flammability (solid/gas)	Not applicable (liquid)

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Upper/lower flammability or explosive limits	Not determined
Vapour pressure	Flufenacet : 9×10^{-5} Pa at 20°C Diflufenican : 4.25×10^{-6} Pa at 25°C 8.19×10^{-6} Pa at 35°C
Vapour density	Not determined
Relative density	1.206 at 20°C
Solubility(ies)	Solubility of flufenacet at 25°C in: toluene > 200 g/l hexane 8.7 g/l water 56 mg/l at 20°C Solubility of diflufenican at 20°C in: ethyl acetate 67 - 80 g/l hexane < 10 g/l water < 0.05 mg/l at 25°C
Partition coefficient n-octanol/water	Flufenacet : $\log K_{ow} = 3.2$ Diflufenican : $\log K_{ow} = 4.9$
Autoignition temperature	> 400 °C if any
Decomposition temperature	Decomposition of flufenacet starts at 150°C
Viscosity	2150 mPa.s at 20°C, 1860 mPa.s at 40°C
Explosive properties	Not explosive
Oxidising properties	Not oxidising

9.2. Other information

Miscibility	The product is dispersible in water.
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SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity	To our knowledge, the product has no special reactivities.
10.2. Chemical stability	The product is stable during normal handling and storage at ambient temperatures.
10.3. Possibility of hazardous reactions	None known.
10.4. Conditions to avoid	Heating of the product will evolve harmful and irritant vapours.
10.5. Incompatible materials	None known.
10.6. Hazardous decomposition products	See subsection 5.2.

♣ SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects	* = Based on available data, the classification criteria are not met.
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Product

Acute toxicity	The product is not considered harmful by single exposure. * The acute toxicity, as measured on a similar product, is:
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Route(s) of entry	- ingestion	LD ₅₀ , oral, rat: > 2000 mg/kg (method OECD 425) signs of toxicity at this concentration
	- skin	LD ₅₀ , dermal, rat: > 2000 mg/kg (method OECD 402)
	- inhalation	LC ₅₀ , inhalation, rat: > 5.15 mg/l/4 h (method OECD 403)
Skin corrosion/irritation		Measured on a similar product: minimally irritating to skin (method OECD 404). *
Serious eye damage/irritation		Measured on a similar product: minimally irritating to eyes (method OECD 405). *
Respiratory or skin sensitisation ...		Measured on a similar product: not an allergenic skin sensitizer (method OECD 429). *
Germ cell mutagenicity		The product contains no ingredients known to be mutagenic. *
Carcinogenicity		The product contains no ingredients known to be carcinogenic. *
Reproductive toxicity		The product contains no ingredients found to have adverse effects on reproduction. *
STOT – single exposure		To our knowledge, no specific effects have been observed after single exposure. *
STOT – repeated exposure		The following was found for the active ingredient flufenacet: Target organs: liver, thyroid, eye, kidney LOEL: 25 ppm (1.2 mg/kg bw/day) in a 2-year rat study based on increased incidence of renal pelvic mineralisation.
Aspiration hazard		The product does not present an aspiration pneumonia hazard. *
Symptoms and effects, acute and delayed		In animal tests non-specific symptoms were seen, such as irregular respiration and lowered activity.
<u>Flufenacet</u>		
Toxicokinetics, metabolism and distribution		The substance is rapidly absorbed after oral intake and widely distributed in the body. It is extensively metabolised. The substance and its metabolites are rapidly excreted, almost completely within 72 hours. There is no potential for accumulation.
Acute toxicity		The substance is harmful by ingestion. It is not expected to be harmful by skin contact or inhalation. The acute toxicity is measured as:
Route(s) of entry	- ingestion	LD ₅₀ , oral, rat (male): 1617 mg/kg LD ₅₀ , oral, rat (female): 589 mg/kg
	- skin	LD ₅₀ , dermal, rat: > 2000 mg/kg *
	- inhalation	LC ₅₀ , inhalation, rat: > 3.74 mg/l *

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Skin corrosion/irritation Not irritating to skin. *

Serious eye damage/irritation Not irritating to eyes. *

Respiratory or skin sensitisation ... Skin sensitizer.

Diflufenican

Toxicokinetics, metabolism and distribution

Diflufenican is rapidly absorbed after oral administration. Distribution occurs preferentially to tissues with a high fat content. It is extensively metabolised and rapidly excreted.

Acute toxicity The substance is not harmful by inhalation, in contact with skin or if swallowed. * The acute toxicity is measured as:

Route(s) of entry - ingestion LD₅₀, oral, rat: > 5000 mg/kg (5 studies)
 - skin LD₅₀, dermal, rat: > 2000 mg/kg (method OECD 402)
 - inhalation LC₅₀, inhalation, rat: > 5.12 mg/l/4 h (method US EPA (1985))

Skin corrosion/irritation The substance is not irritating to skin (method US EPA (1985)). *

Serious eye damage/irritation The substance may be slightly irritating to eyes (US EPA (1985)). *

Respiratory or skin sensitisation ... The substance was not sensitising in the Local Lymph Node Assay (method OECD 429). *

Sodium alkyl naphthalenesulphonate-formaldehyde condensate

Acute toxicity The substance is not considered harmful by single exposure. *

Route(s) of entry - ingestion LD₅₀, oral, rat: > 5000 mg/kg
 - skin LD₅₀, dermal, rat: not available
 - inhalation LC₅₀, inhalation, rat: not available

Skin corrosion/irritation May be slightly irritating to skin. *

Serious eye damage/irritation Irritating to eyes.

STOT – single exposure Inhalation of dust can cause irritation of airways. It is not clear if the criteria for classification are met.

1,2-Benzisothiazol-3(2H)-one

Acute toxicity The substance is harmful by ingestion.

Route(s) of entry - ingestion LD₅₀, oral, rat (male): 670 mg/kg
 LD₅₀, oral, rat (female): 784 mg/kg
 (method OPPTS 870.1100, measured on 73% solution)

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- skin	LD ₅₀ , dermal, rat: > 2000 mg/kg * (method OPPTS 870.1200, measured on 73% solution)
- inhalation	LC ₅₀ , inhalation, rat: not available
Skin corrosion/irritation	Slightly irritating to skin (method OPPTS 870.2500).
Serious eye damage/irritation	Severely irritating to eyes (method OPPTS 870.2400).
Respiratory or skin sensitisation ...	Moderate dermal sensitizer to guinea pigs (method OPPTS 870.2600). The substance appears to be significantly more sensitising to humans.

SECTION 12: ECOLOGICAL INFORMATION

- 12.1. **Toxicity** The product is very toxic to aquatic algae and plants. It is less toxic to fish and soil macroorganisms. It is not considered as harmful to birds, insects, aquatic invertebrates and soil microorganisms.

The ecotoxicity, as measured on a similar product, is:

- Fish	Bluegill sunfish (<i>Lepomis macrochirus</i>)	96-h LC ₅₀ : 6.43 mg/l
- Invertebrates	Daphnids (<i>Daphnia magna</i>)	48-h EC ₅₀ : 114 mg/l
- Algae	Green algae (<i>Pseudokirchneriella subcapitata</i>)	72-h EC ₅₀ : 3.06 µg/l
- Plants	Duckweed (<i>Lemna gibba</i>)	7-day EC ₅₀ : 66.7 µg/l 7-day NOEC: 1.0 µg/l
- Earthworms	<i>Eisenia foetida foetida</i>	28-day LC ₅₀ : 81 mg/kg dry substrate
- Bees	Honeybees	48-h LD ₅₀ , acute oral: > 420 µg/bee 48-h LD ₅₀ , contact: > 600 µg/bee

- 12.2. **Persistence and degradability** **Flufenacet** is biodegradable, but does not meet the criteria for being readily biodegradable. It undergoes slow degradation in the environment and in waste water treatment plants. Primary degradation half-lives vary with circumstances from a few weeks to a few months in aerobic soil and water.

Diflufenican is not readily biodegradable. Primary degradation half-lives vary depending on soil type, but are usually several months.

The product contains minor amounts of not readily biodegradable components, which may not be degradable in waste water treatment plants.

- 12.3. **Bioaccumulative potential** See section 9 for octanol-water partition coefficients.

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Flufenacet is not expected to bioaccumulate. The measured bioconcentration factor (BCF) of flufenacet is 71.

Diflufenican has a potential to bioaccumulate. The Bioconcentration Factor (BCF) was measured to be approx. 1500 for whole fish (rainbow trout). It was excreted within 14 days.

- 12.4. **Mobility in soil** Under normal conditions **flufenacet** is of low mobility in soil.
- In the environment **diflufenican** is not mobile, but is readily absorbed by soil particles.
- 12.5. **Results of PBT and vPvB assessment** None of the ingredients meets the criteria for being PBT or vPvB.
- 12.6. **Other adverse effects** Other relevant hazardous effects in the environment are not known.

SECTION 13: DISPOSAL CONSIDERATIONS

- 13.1. **Waste treatment methods** Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste.
- Disposal of waste and packagings must always be in accordance with all applicable local regulations.
- Disposal of product According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.
- Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
- Disposal of packaging It is recommended to consider possible ways of disposal in the following order:
1. Reuse or recycling should first be considered. Reuse is prohibited except by the authorisation holder. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
 2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
 3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
 4. Disposal in a landfill or burning in open air should only occur as a last resort. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

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♣ SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

- 14.1. **UN number** 3082
- 14.2. **UN proper shipping name** Environmentally hazardous substance, liquid, n.o.s. (flufenacet and diflufenican)
- 14.3. **Transport hazard class(es)** 9
- 14.4. **Packing group** III
- 14.5. **Environmental hazards** Marine pollutant
- 14.6. **Special precautions for user** Avoid any unnecessary contact with the product. Misuse can result in damage to health. Do not discharge to the environment.
- 14.7. **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code** The product is not transported in bulk by ship.

SECTION 15: REGULATORY INFORMATION

- 15.1. **Safety, health and environmental regulations/legislation specific for the substance or mixture** Seveso category (Dir. 2012/18/EU): dangerous for the environment.
 Young people under the age of 18 are not allowed to work with the product.
 All ingredients are covered by EU chemical legislation.
- 15.2. **Chemical safety assessment** A chemical safety assessment is not required to be included for this product.

♣ SECTION 16: OTHER INFORMATION

- Relevant changes in the safety data sheet Minor corrections only.
- List of abbreviations
 ACGIH American Conference of Governmental Industrial Hygienists
 CAS Chemical Abstracts Service
 Dir. Directive
 DNEL Derived No Effect Level
 EC European Community
 EC₅₀ 50% Effect Concentration
 EINECS European Inventory of Existing Commercial Chemical Substances

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GHS	Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013
HSE	Health & Safety Executive, UK
IBC	International Bulk Chemical code
ISO	International Organisation for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC ₅₀	50% Lethal Concentration
LD ₅₀	50% Lethal Dose
LOEL	Lowest Observed Effect Level
MAK	Maximale Arbeitsplatz-Konzentration
MARPOL	Set of rules from the International Maritime Organisation (IMO) for prevention of sea pollution
NOEC	No Observed Effect Concentration
n.o.s.	Not otherwise specified
OECD	Organisation for Economic Cooperation and Development
OPPTS	Office of Prevention, Pesticides and Toxic Substances
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulative, Toxic
PEL	Personal Exposure Limit
PNEC	Predicted No Effect Concentration
Reg.	Regulation
SC	Suspension Concentrate
STOT	Specific Target Organ Toxicity
TLV	Threshold Limit Value
US EPA	Environmental Protection Agency (USA)
vPvB	very Persistent, very Bioaccumulative
WEL	Workplace Exposure Limit
WHO	World Health Organisation

References Data measured on a similar product are unpublished company data. Data on ingredients are available from published literature and can be found several places.

Method for classification Specific target organ toxicity – repeated exposure: calculation rules
 Hazards to the aquatic environment: read-across

Used hazard statements
 H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H373 May cause damage 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.
 EUH208 Contains 1,2-benzisothiazol-3(2H)-one. May produce an allergic reaction.
 EUH401 To avoid risks to human health and the environment,



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comply with the instructions of use

Advice on training This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared by: FMC Corporation / Cheminova A/S / GHB