

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Trade name : Diflubenzuron (2%) Formulation

Other means of identification : COOPERS STAMPEDE POUR-ON LOUSICIDE FOR CATTLE AND SHEEP (61351)

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

Use of the Sub-stance/Mixture : Veterinary product

Recommended restrictions on use : Not applicable

1.3 Details of the supplier of the safety data sheet

Company : MSD
20 Spartan Road
1619 Spartan, South Africa

Telephone : +27119239300

E-mail address of person responsible for the SDS : EHSDATASTEWARD@msd.com

1.4 Emergency telephone number

+1-908-423-6000


SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Reproductive toxicity, Category 1B	H360D: May damage the unborn child.
Specific target organ toxicity - single exposure, Category 3	H335: May cause respiratory irritation.
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)**

Diflubenzuron (2%) Formulation

Version 2.0 Revision Date: 15.08.2025 SDS Number: 11556147-00002 Date of last issue: 11.07.2025
 Date of first issue: 11.07.2025

- Hazard pictograms : 
- Signal word : Danger
- Hazard statements : H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.
 H360D May damage the unborn child.
 H410 Very toxic to aquatic life with long lasting effects.
- Precautionary statements : **Prevention:**
 P201 Obtain special instructions before use.
 P264 Wash skin thoroughly after handling.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- Response:**
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P391 Collect spillage.

Hazardous components which must be listed on the label:

N-Methyl-2-pyrrolidone

Additional Labelling

Restricted to professional users.

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)
N-Methyl-2-pyrrolidone	872-50-4 212-828-1 606-021-00-7	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Repr. 1B; H360D STOT SE 3; H335	>= 30 - < 50
Hydrocarbons, C10, aromatics, <1% naphthalene	64742-94-5	STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Chronic 2;	>= 2,5 - < 10

Diflubenzuron (2%) Formulation

Version 2.0 Revision Date: 15.08.2025 SDS Number: 11556147-00002 Date of last issue: 11.07.2025
 Date of first issue: 11.07.2025

N-[[[4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide	35367-38-5 252-529-3	H411 STOT RE 2; H373 (Blood, spleen, Liver) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1.000 M-Factor (Chronic aquatic toxicity): 1.000	>= 1 - < 2,5
4-[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one	4702-90-3 225-184-1	Repr. 2; H361fd Aquatic Chronic 4; H413	>= 0,1 - < 0,25
Substances with a workplace exposure limit :			
(2-Methoxymethylethoxy)propanol	34590-94-8 252-104-2		>= 50 - < 70

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- If inhaled : If inhaled, remove to fresh air.
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention.

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May damage the unborn child.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Carbon oxides
Chlorine compounds
Nitrogen oxides (NO_x)
Fluorine compounds

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Personal precautions : Use personal protective equipment.
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

6.2 Environmental precautions

Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation	:	If sufficient ventilation is unavailable, use with local exhaust ventilation.
Advice on safe handling	:	Do not get on skin or clothing. Do not breathe mist or vapours. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Keep container tightly closed. Already sensitised individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitisers. Take care to prevent spills, waste and minimize release to the environment.
Hygiene measures	:	If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contami-

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

nated clothing before re-use.

The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations.

Advice on common storage : Do not store with the following product types:
 Strong oxidizing agents
 Self-reactive substances and mixtures
 Organic peroxides
 Explosives
 Gases

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
(2-Methoxymethylethoxy)propanol	34590-94-8	TWA	50 ppm 308 mg/m ³	2000/39/EC
N-Methyl-2-pyrrolidone	872-50-4	TWA	10 ppm 40 mg/m ³	2009/161/EU
		STEL	20 ppm 80 mg/m ³	2009/161/EU
		TWA	10 ppm 40 mg/m ³	2004/37/EC
		STEL	20 ppm 80 mg/m ³	2004/37/EC
N-[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide	35367-38-5	TWA	400 µg/m ³ (OEB 2)	Internal

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
N-Methyl-2-pyrrolidone	Workers	Inhalation	Long-term systemic effects	14,4 mg/m ³

Diflubenzuron (2%) Formulation

Version 2.0 Revision Date: 15.08.2025 SDS Number: 11556147-00002 Date of last issue: 11.07.2025
 Date of first issue: 11.07.2025

	Workers	Inhalation	Long-term local effects	40 mg/m3
	Workers	Skin contact	Long-term systemic effects	4,8 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	3,6 mg/m3
	Consumers	Inhalation	Long-term local effects	4,5 mg/m3
	Consumers	Skin contact	Long-term systemic effects	2,4 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0,85 mg/kg bw/day
(2-Methoxymethylethoxy)propanol	Workers	Inhalation	Long-term systemic effects	308 mg/m3
	Workers	Skin contact	Long-term systemic effects	238 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	37,2 mg/m3
	Consumers	Skin contact	Long-term systemic effects	121 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	36 mg/kg bw/day
Hydrocarbons, C10, aromatics, <1% naphthalene	Workers	Inhalation	Long-term systemic effects	151 mg/m3
	Workers	Skin contact	Long-term systemic effects	12,5 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	32 mg/m3
	Consumers	Skin contact	Long-term systemic effects	7,5 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	7,5 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
N-[[[4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide	Fresh water	0,004 µg/l
N-Methyl-2-pyrrolidone	Fresh water	0,25 mg/l
	Freshwater - intermittent	5 mg/l
	Marine water	0,025 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	1,09 mg/kg dry weight (d.w.)
	Marine sediment	0,109 mg/kg dry weight (d.w.)
	Soil	0,07 mg/kg dry weight (d.w.)
(2-Methoxymethylethoxy)propanol	Fresh water	19 mg/l
	Freshwater - intermittent	190 mg/l
	Marine sediment	1,9 mg/l

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

	Sewage treatment plant	4168 mg/l
	Fresh water sediment	70,2 mg/kg dry weight (d.w.)
	Marine sediment	7,02 mg/kg dry weight (d.w.)
	Soil	2,74 mg/kg dry weight (d.w.)

8.2 Exposure controls**Engineering measures**

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

Laboratory operations do not require special containment.

Personal protective equipment

Eye/face protection	:	Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
Hand protection	:	
Material	:	Chemical-resistant gloves
Skin and body protection	:	Work uniform or laboratory coat.
Respiratory protection	:	If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Filter type	:	Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Appearance	:	liquid
Colour	:	yellow
Odour	:	No data available
Odour Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	> 150 °C (1000 hPa)
Flash point	:	> 100 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	Ignitable (see flash point)

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

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
Relative density	:	No data available
Density	:	No data available
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

9.2 Other information

Molecular weight	:	No data available
Particle size	:	No data available

SECTION 10: Stability and reactivity**10.1 Reactivity**

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Can react with strong oxidizing agents.
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10.4 Conditions to avoid

Conditions to avoid	:	None known.
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10.5 Incompatible materials

Materials to avoid	:	Oxidizing agents
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Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

10.6 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 : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Components:**N-Methyl-2-pyrrolidone:**

Acute oral toxicity : LD50 (Rat): 4.150 mg/kg
Method: OECD Test Guideline 401
Remarks: The test was conducted equivalent or similar to guideline

Acute inhalation toxicity : LC50 (Rat): > 5,1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: The test was conducted according to guideline

Acute dermal toxicity : LD50 (Rat): > 5.000 mg/kg
Method: OECD Test Guideline 402
Remarks: The test was conducted equivalent or similar to guideline

Hydrocarbons, C10, aromatics, <1% naphthalene:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg
Method: OECD Test Guideline 420
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 4,778 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

N-[[4-chlorophenyl]amino]carbonyl]-2,6-difluorobenzamide:

Acute oral toxicity : LD50 (Rat): 4.640 mg/kg

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Acute inhalation toxicity : LC50 (Rat): > 2,49 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Method: OECD Test Guideline 402

4-[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 7,39 mg/l
Exposure time: 8 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2.500 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

(2-Methoxymethylethoxy)propanol:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 1,667 mg/l
Exposure time: 7 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 9.510 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Components:**N-Methyl-2-pyrrolidone:**

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: Skin irritation
Remarks	: The test was conducted equivalent or similar to guideline

Hydrocarbons, C10, aromatics, <1% naphthalene:

Assessment : Repeated exposure may cause skin dryness or cracking.

N-[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation

4-[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one:

Species : Rabbit

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Result : No skin irritation

(2-Methoxymethylethoxy)propanol:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:**N-Methyl-2-pyrrolidone:**

Species : Rabbit
Method : OECD Test Guideline 405
Result : Irritation to eyes, reversing within 21 days
Remarks : The test was conducted equivalent or similar to guideline

Hydrocarbons, C10, aromatics, <1% naphthalene:

Species : Rabbit
Result : No eye irritation
Remarks : Based on data from similar materials

N-[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation

4-[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one:

Species : Rabbit
Result : No eye irritation

(2-Methoxymethylethoxy)propanol:

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitisation**Skin sensitisation**

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:**N-Methyl-2-pyrrolidone:**

Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin contact
Species : Mouse
Method : OECD Test Guideline 429

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Result : negative
 Remarks : Based on data from similar materials

Hydrocarbons, C10, aromatics, <1% naphthalene:

Test Type : Maximisation Test
 Exposure routes : Skin contact
 Species : Guinea pig
 Result : negative
 Remarks : Based on data from similar materials

N-[[[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide:

Test Type : Buehler Test
 Exposure routes : Skin contact
 Species : Guinea pig
 Method : OECD Test Guideline 406
 Result : negative

4-[[[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one:

Species : Guinea pig
 Result : negative

(2-Methoxymethylethoxy)propanol:

Test Type : Human repeat insult patch test (HRIPT)
 Exposure routes : Skin contact
 Species : Humans
 Result : negative

Germ cell mutagenicity

Not classified based on available information.

Components:**N-Methyl-2-pyrrolidone:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
 Method: OECD Test Guideline 471
 Result: negative
 Remarks: The test was conducted according to guideline

Test Type: In vitro mammalian cell gene mutation test
 Method: OECD Test Guideline 476
 Result: negative
 Remarks: The test was conducted according to guideline

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
 Method: OECD Test Guideline 482
 Result: negative
 Remarks: The test was conducted equivalent or similar to guideline

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo)

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative
Remarks: The test was conducted according to guideline

Hydrocarbons, C10, aromatics, <1% naphthalene:

Genotoxicity in vitro : Test Type: In vitro sister chromatid exchange assay in mammalian cells
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Rat
Application Route: inhalation (vapour)
Result: negative
Remarks: Based on data from similar materials

N-[[[4-chlorophenyl]amino]carbonyl]-2,6-difluorobenzamide:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

(2-Methoxymethylethoxy)propanol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative

Test Type: *Saacharomyces cerevisiae*, mitotic recombination assay (in vitro)
Result: negative

Carcinogenicity

Not classified based on available information.

Components:**N-Methyl-2-pyrrolidone:**

Species : Rat

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Application Route	:	Ingestion
Exposure time	:	2 Years
Method	:	OECD Test Guideline 451
Result	:	negative
Remarks	:	The test was conducted according to guideline

Species	:	Rat
Application Route	:	Inhalation
Exposure time	:	2 Years
Method	:	OECD Test Guideline 453
Result	:	negative
Remarks	:	The test was conducted equivalent or similar to guideline

N-[[4-chlorophenyl]amino]carbonyl]-2,6-difluorobenzamide:

Species	:	Rat
Application Route	:	Ingestion
Exposure time	:	104 weeks
Result	:	negative

(2-Methoxymethylethoxy)propanol:

Species	:	Rat
Application Route	:	inhalation (vapour)
Exposure time	:	2 Years
Method	:	OECD Test Guideline 453
Result	:	negative
Remarks	:	Based on data from similar materials

Reproductive toxicity

May damage the unborn child.

Components:**N-Methyl-2-pyrrolidone:**

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Method: OECD Test Guideline 416 Result: negative Remarks: The test was conducted according to guideline
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Method: OECD Test Guideline 414 Result: positive Remarks: The test was conducted according to guideline
	:	Test Type: Fertility/early embryonic development Species: Rat Application Route: inhalation (vapour) Method: OECD Test Guideline 414 Result: positive Remarks: The test was conducted equivalent or similar to

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

guideline

Test Type: Embryo-foetal development

Species: Rabbit

Application Route: Ingestion

Method: OECD Test Guideline 414

Result: positive

Remarks: The test was conducted equivalent or similar to guideline

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments.

Hydrocarbons, C10, aromatics, <1% naphthalene:

Effects on fertility : Test Type: Three-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

N-[[[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rabbit
Application Route: Ingestion
Result: negative

4-[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: positive

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: positive

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, based on animal experiments., Some evidence of adverse effects on development, based on animal experiments.

(2-Methoxymethylethoxy)propanol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Method: OECD Test Guideline 416
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (vapour)
Result: negative

STOT - single exposure

May cause respiratory irritation.

Components:**N-Methyl-2-pyrrolidone:**

Assessment : May cause respiratory irritation.

Hydrocarbons, C10, aromatics, <1% naphthalene:

Assessment : May cause drowsiness or dizziness.
Remarks : Based on data from similar materials

STOT - repeated exposure

Not classified based on available information.

Components:**N-[[4-chlorophenyl]amino]carbonyl]-2,6-difluorobenzamide:**

Exposure routes : Ingestion
Target Organs : Blood, spleen, Liver
Assessment : Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

Exposure routes : inhalation (dust/mist/fume)
Target Organs : Blood, spleen, Liver
Assessment : Shown to produce significant health effects in animals at concentrations of >0.02 to 0.2 mg/l/6h/d.

Exposure routes : Skin contact
Target Organs : Blood, spleen, Liver
Assessment : Shown to produce significant health effects in animals at concentrations of >20 to 200 mg/kg bw.

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Repeated dose toxicity**Components:****N-Methyl-2-pyrrolidone:**

Species	: Rat, male
NOAEL	: 169 mg/kg
LOAEL	: 433 mg/kg
Application Route	: Ingestion
Exposure time	: 90 Days
Method	: OECD Test Guideline 408
Remarks	: The test was conducted according to guideline

Species	: Rat
NOAEL	: 0,5 mg/l
LOAEL	: 1 mg/l
Application Route	: inhalation (dust/mist/fume)
Exposure time	: 96 Days
Method	: OECD Test Guideline 413
Remarks	: The test was conducted according to guideline

Species	: Rabbit, male
NOAEL	: 826 mg/kg
LOAEL	: 1.653 mg/kg
Application Route	: Skin contact
Exposure time	: 20 Days
Method	: OECD Test Guideline 410
Remarks	: The test was conducted equivalent or similar to guideline

Hydrocarbons, C10, aromatics, <1% naphthalene:

Species	: Rat
NOAEL	: 300 mg/kg
Application Route	: Ingestion
Exposure time	: 13 Weeks
Remarks	: Based on data from similar materials

N-[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide:

Species	: Rat
LOAEL	: 81 mg/kg
Application Route	: Ingestion
Exposure time	: 28 Days

Species	: Rabbit
NOAEL	: > 322 mg/kg
Application Route	: Skin contact
Exposure time	: 28 Days

Species	: Rat
NOAEL	: > 0,1 mg/l
Application Route	: inhalation (dust/mist/fume)
Exposure time	: 28 Days

(2-Methoxymethylethoxy)propanol:

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Species	: Rat
NOAEL	: 1,21 mg/l
Application Route	: inhalation (vapour)
Exposure time	: 13 Weeks

Species	: Rat
NOAEL	: 1.000 mg/kg
Application Route	: Ingestion
Exposure time	: 4 Weeks

Species	: Rabbit
NOAEL	: 2.850 mg/kg
Application Route	: Skin contact
Exposure time	: 90 Days

Aspiration toxicity

Not classified based on available information.

Components:**Hydrocarbons, C10, aromatics, <1% naphthalene:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure**Components:****N-Methyl-2-pyrrolidone:**

Skin contact	: Symptoms: Skin irritation
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SECTION 12: Ecological information**12.1 Toxicity****Components:****N-Methyl-2-pyrrolidone:**

Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): > 500 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 1.000 mg/l Exposure time: 24 h Method: DIN 38412 Remarks: The test was conducted according to guideline
Toxicity to algae/aquatic plants	: ErC50 (Desmodesmus subspicatus (green algae)): 600,5 mg/l Exposure time: 72 h EC10 (Desmodesmus subspicatus (green algae)): 92,6 mg/l Exposure time: 72 h
Toxicity to microorganisms	: EC50 (activated sludge): > 600 mg/l Exposure time: 30 min

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Method: ISO 8192

Remarks: The test was conducted according to guideline

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 12,5 mg/l
 Exposure time: 21 d
 Species: Daphnia magna (Water flea)
 Method: OECD Test Guideline 211
 Remarks: The test was conducted according to guideline

Hydrocarbons, C10, aromatics, <1% naphthalene:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l
 Exposure time: 96 h
 Test substance: Water Accommodated Fraction
 Method: OECD Test Guideline 203
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 3 - 10 mg/l
 Exposure time: 48 h
 Test substance: Water Accommodated Fraction
 Method: OECD Test Guideline 202
 Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): > 1 - 3 mg/l
 Exposure time: 72 h
 Test substance: Water Accommodated Fraction
 Method: OECD Test Guideline 201
 Remarks: Based on data from similar materials

N-[[4-chlorophenyl]amino]carbonyl]-2,6-difluorobenzamide:

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): > 0,13 mg/l
 Exposure time: 96 h
 Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,00026 mg/l
 Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): > 0,2 mg/l
 Exposure time: 72 h
 Remarks: No toxicity at the limit of solubility

M-Factor (Acute aquatic toxicity) : 1.000

Toxicity to microorganisms : NOEC (activated sludge): 1.000 mg/l
 Exposure time: 3 h
 Method: OECD Test Guideline 209
 Remarks: The test was conducted according to guideline

Toxicity to fish (Chronic toxicity) : NOEC: 0,1 mg/l
 Exposure time: 35 d
 Species: Pimephales promelas (fathead minnow)

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,00004 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity) : 1.000

4-[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 22,7 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0,407 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: No toxicity at the limit of solubility

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility

EL10 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility

Toxicity to microorganisms : EC50 : > 1.000 mg/l
Exposure time: 30 min
Method: OECD Test Guideline 209

(2-Methoxymethylethoxy)propanol:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 1.000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.919 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 969 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 969 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 (Pseudomonas putida): 4.168 mg/l
Exposure time: 18 h

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: $\geq 0,5$ mg/l
Exposure time: 22 d
Species: Daphnia magna (Water flea)

12.2 Persistence and degradability

Components:**N-Methyl-2-pyrrolidone:**

Biodegradability : Result: Readily biodegradable.
Biodegradation: 73 %
Exposure time: 28 d
Method: OECD Test Guideline 301C
Remarks: The test was conducted according to guideline

Biodegradation Simulation Tests :

Environmental Compartment: Soil
Value type: DT50
Value: 11,5 d
Temperature: 20 °C
Remarks: No test guideline followed

Hydrocarbons, C10, aromatics, <1% naphthalene:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 49,56 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

N-[[[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide:

Biodegradability : Result: Not readily biodegradable.
Method: OECD Test Guideline 301

Biodegradation Simulation Tests :

Environmental Compartment: Soil
Value type: DT50
Value: 2,2 - 6,2 d
Measurement method: OECD Test Guideline 307
Remarks: The test was conducted according to guideline

4-[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

(2-Methoxymethylethoxy)propanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 76 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Remarks: The test was conducted according to guideline

12.3 Bioaccumulative potential

Components:**N-Methyl-2-pyrrolidone:**

Partition coefficient: n-octanol/water	:	log Pow: -0,46
		Method: OECD Test Guideline 107
		Remarks: The test was conducted according to guideline

N-[[4-(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide:

Bioaccumulation	:	Species: Lepomis macrochirus (Bluegill sunfish)
		Bioconcentration factor (BCF): 78 - 360

Partition coefficient: n-octanol/water	:	log Pow: 3,7
		Method: OECD Test Guideline 107

4-[(1,5-Dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene)methyl]-2,4-dihydro-5-methyl-2-phenyl-3H-pyrazol-3-one:

Partition coefficient: n-octanol/water	:	log Pow: 5,02
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(2-Methoxymethylethoxy)propanol:

Partition coefficient: n-octanol/water	:	log Pow: 0,004
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12.4 Mobility in soil

Components:**N-[[4-(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide:**

Distribution among environmental compartments	:	log Koc: 3,5
		Method: OECD Test Guideline 106
		Remarks: The test was conducted according to guideline

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.
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12.6 Other adverse effects

Product:

Endocrine disrupting potential	:	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.
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Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	:	Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities. Do not dispose of waste into sewer.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADN	:	UN 3082
ADR	:	UN 3082
RID	:	UN 3082
IMDG	:	UN 3082
IATA	:	UN 3082

14.2 UN proper shipping name

ADN	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (N-[[[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide)
ADR	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (N-[[[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide)
RID	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (N-[[[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (N-[[[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide)
IATA	:	Environmentally hazardous substance, liquid, n.o.s. (N-[[[(4-chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide)

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADN	:	9
ADR	:	9
RID	:	9
IMDG	:	9
IATA	:	9

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

14.4 Packing group**ADN**

Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9

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**ADN**

Environmentally hazardous	: yes
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ADR

Environmentally hazardous	: yes
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RID

Environmentally hazardous	: yes
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IMDG

Marine pollutant	: yes
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IATA (Passenger)

Environmentally hazardous	: yes
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IATA (Cargo)

Environmentally hazardous	: yes
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Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

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 and the IBC Code

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

The components of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

IECSC : not determined

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information : Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements

H304	: May be fatal if swallowed and enters airways.
H315	: Causes skin irritation.
H319	: Causes serious eye irritation.
H335	: May cause respiratory irritation.
H336	: May cause drowsiness or dizziness.
H360D	: May damage the unborn child.
H361fd	: Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	: May cause damage to organs through prolonged or repeated exposure.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H411	: Toxic to aquatic life with long lasting effects.
H413	: May cause long lasting harmful effects to aquatic life.

Full text of other abbreviations

Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Asp. Tox.	: Aspiration hazard
Eye Irrit.	: Eye irritation

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single 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, mutagens or reprotoxic substances at work - Annex III
2009/161/EU	:	Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
2000/39/EC / TWA	:	Limit Value - eight hours
2004/37/EC / STEL	:	Short term exposure limit
2004/37/EC / TWA	:	Long term exposure limit
2009/161/EU / TWA	:	Limit Value - eight hours
2009/161/EU / STEL	:	Short term exposure limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - Australian Inventory of Industrial Chemicals; 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; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Sources of key data used to compile the Safety Data : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

Diflubenzuron (2%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 11.07.2025
2.0	15.08.2025	11556147-00002	Date of first issue: 11.07.2025

Sheet cy, <http://echa.europa.eu/>**Classification of the mixture:**

Skin Irrit. 2	H315
Eye Irrit. 2	H319
Repr. 1B	H360D
STOT SE 3	H335
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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