

# Diflubenzuron (25%) Formulation

Version Revision Date: SDS Number: Date of last issue: 2024/07/06 6.1 2024/09/28 10877044-00010 Date of first issue: 2022/10/26

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : Diflubenzuron (25%) Formulation

Other means of identification : Zenith Concentrate (A006102)

Supplier's company name, address and phone number

Company name of supplier : MSD

Address : Kumagaya, Saitama Prefecture , Xicheng 810 MSD Co., Ltd.

Menuma factory

Telephone : 048-588-8411

E-mail address : EHSDATASTEWARD@msd.com

Emergency telephone number: +1-908-423-6000

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product Restrictions on use : Not applicable

#### 2. HAZARDS IDENTIFICATION

GHS classification of chemical product

Skin sensitisation : Category 1

Specific target organ toxicity - :

repeated exposure

Category 2 (Blood, spleen, Liver)

Short-term (acute) aquatic

hazard

Category 1

Long-term (chronic) aquatic

hazard

Category 1

**GHS** label elements

Hazard pictograms



Signal word : Warning

Hazard statements : H317 May cause an allergic skin reaction.

H373 May cause damage to organs (Blood, spleen, Liver)

through prolonged or repeated exposure.



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H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : Prevention:

P260 Do not breathe mist or vapours.

P272 Contaminated work clothing should not be allowed out of

the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water. P314 Get medical advice/ attention if you feel unwell.

P333 + P313 If skin irritation or rash occurs: Get medical ad-

vice/ attention.

P362 + P364 Take off contaminated clothing and wash it before

reuse.

P391 Collect spillage.

Disposal:

P501 Dispose of contents/ container to an approved waste

disposal plant.

Other hazards which do not result in classification

None known.

#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Components

Chemical name	CAS-No.	Concentration (% w/w)	ENCS No.
N-[[(4- chlorophenyl)amino]carbonyl]-2,6- difluorobenzamide	35367-38-5	25	
Propylene glycol	57-55-6	>= 1 - < 10	2-234
Sulfurous acid, monosodium salt, reaction products with (cresol, formaldehyde, nonylphenol) polymer	115535-44-9	>= 2.5 - < 10	-
(R)-p-mentha-1,8-diene	5989-27-5	>= 1 - < 10	3-2245, 7-988, 8-498
N,N"-Methylenebis[N'-[3- (hydroxymethyl)-2,5- dioxoimidazolidin-4-yl]urea]	39236-46-9	>= 0.1 - < 0.25	-
Benzoic acid	65-85-0	>= 0.1 - < 1	3-1397

#### 4. FIRST AID MEASURES



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General advice In the case of accident or if you feel unwell, seek medical ad-

vice immediately.

When symptoms persist or in all cases of doubt seek medical

advice.

If inhaled If inhaled, remove to fresh air.

Get medical attention if symptoms occur.

In case of skin contact In case of contact, immediately flush skin with plenty of water.

Remove contaminated clothing and shoes.

Get medical attention. Wash clothing before reuse.

Thoroughly clean shoes before reuse. Flush eyes with water as a precaution.

In case of eye contact

Get medical attention if irritation develops and persists.

If swallowed If swallowed, DO NOT induce vomiting.

> Get medical attention if symptoms occur. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and

delayed

May cause an allergic skin reaction.

May cause damage to organs through prolonged or repeated

exposure.

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).

Notes to physician Treat symptomatically and supportively.

#### 5. FIREFIGHTING MEASURES

Suitable extinguishing media Water spray

> Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

None known.

Specific hazards during fire-

fighting

Exposure to combustion products may be a hazard to health.

Hazardous combustion prod: :

Carbon oxides

Chlorine compounds Nitrogen oxides (NOx) Fluorine compounds

Metal oxides Sulphur oxides

Specific extinguishing meth-

ods

Use extinguishing measures that are appropriate to local cir-

cumstances 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.

Special protective equipment:

for firefighters

In the event of fire, wear self-contained breathing apparatus.

Use personal protective equipment.



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#### **6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protec- :

tive equipment and emer-

gency procedures

Use personal protective equipment.

Follow safe handling advice (see section 7) and personal pro-

tective equipment recommendations (see section 8).

**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

Retain and dispose of contaminated wash water.

Local authorities should be advised if significant spillages

cannot be contained.

Methods and materials for containment and 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 absor-

bent.

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 deter-

mine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding

certain local or national requirements.

#### 7. HANDLING AND STORAGE

Handling

See Engineering measures under EXPOSURE Technical measures

CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation Advice on safe handling Use only with adequate ventilation. Do not get on skin or clothing.

Do not breathe mist or vapours.

Do not swallow.

Avoid contact with eyes.

Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure as-

sessment

Take care to prevent spills, waste and minimize release to the

environment.

Avoidance of contact

Hygiene measures

Oxidizing agents

If exposure to chemical is likely during typical use, provide eye

flushing systems and safety showers close to the working

When using do not eat, drink or smoke.

Contaminated work clothing should not be allowed out of the



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workplace.

Wash contaminated 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.

**Storage** 

Conditions for safe storage : Keep in properly labelled containers.

Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:

Strong oxidizing agents

Packaging material : Unsuitable material: None known.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

# Threshold limit value and permissible exposure limits for each component in the work environment

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Concentration standard / Permissible concentration	Basis
N-[[(4- chlorophenyl)amino]carbonyl]- 2,6-difluorobenzamide	35367-38-5	TWA	100 μg/m3 (OEB 2)	Internal
Benzoic acid	65-85-0	TWA (Inhalable fraction and vapor)	0.5 mg/m3	ACGIH

**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.

Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face con-

tainment devices).
Minimize open handling.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or expo-

sure assessment demonstrates exposures outside the rec-

ommended guidelines, use respiratory protection.

Filter type Hand protection : Combined particulates and organic vapour type



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Material Chemical-resistant gloves

Remarks Consider double gloving.

Impermeable protective gloves

Wear safety glasses with side shields or goggles. Eye protection

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.

Work uniform or laboratory coat. Skin and body protection

> Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, dis-

posable suits) to avoid exposed skin surfaces.

Use appropriate degowning techniques to remove potentially

contaminated clothing.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state suspension

Colour off-white, to, pink, orange

Odour No data available

Odour Threshold No data available

Melting point/freezing point No data available

Boiling point, initial boiling point and boiling range

No data available

Flammability (solid, gas) Not applicable

Flammability (liquids) No data available

Lower explosion limit and upper explosion limit / flammability limit

Upper explosion limit / Up- : No data available

per flammability limit

Lower explosion limit /

Lower flammability limit

No data available

No data available Flash point

Decomposition temperature No data available

pΗ No data available

No data available Evaporation rate

Auto-ignition temperature No data available



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Viscosity

Viscosity, kinematic : 1300 - 2400 mm2/s

Solubility(ies)

Water solubility : No data available

Partition coefficient: n-

octanol/water

Not applicable

Vapour pressure : No data available

Density and / or relative density

Relative density : 1.09 - 1.19

Density : No data available

Relative vapour density : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle characteristics

Particle size : Not applicable

#### 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reac- : Can react with strong oxidizing agents.

tions

Conditions to avoid : None known. Incompatible materials : Oxidizing agents

Hazardous decomposition : No hazardous decomposition products are known.

products

#### 11. TOXICOLOGICAL INFORMATION

Information on likely routes of:

exposure

Inhalation Skin contact Ingestion Eye contact

## **Acute toxicity**

Not classified based on available information.



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**Components:** 

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

Acute oral toxicity : LD50 (Rat): 4,640 mg/kg

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

Propylene glycol:

Acute oral toxicity : LD50 (Rat): 22,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 44.9 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Assessment: The substance or mixture has no acute dermal

toxicity

(R)-p-mentha-1,8-diene:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Method: OECD Test Guideline 423

Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Remarks: Based on data from similar materials

N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5 mg/l

Exposure time: 1 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 8,000 mg/kg

Benzoic acid:

Acute oral toxicity : LD50 (Rat): 2,250 mg/kg

Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 12.2 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist



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Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Assessment: The substance or mixture has no acute dermal

toxicity

#### Skin corrosion/irritation

Not classified based on available information.

#### **Components:**

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

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

Propylene glycol:

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

(R)-p-mentha-1,8-diene:

Species : Rabbit

Method : OECD Test Guideline 404

Result : Skin irritation

## N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Species : Rabbit

Result : No skin irritation

Benzoic acid:

Species : Guinea pig
Result : Skin irritation

## Serious eye damage/eye irritation

Not classified based on available information.

#### **Components:**

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

Species : Rabbit

Result : No eye irritation

Method : OECD Test Guideline 405

Propylene glycol:

Species : Rabbit

Result : No eve irritation

Method : OECD Test Guideline 405



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(R)-p-mentha-1,8-diene:

Species : Rabbit

Result : No eye irritation

Method : OECD Test Guideline 405

N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Species : Rabbit

Result : No eye irritation

Benzoic acid:

Species : Rabbit

Result : Irreversible effects on the eye

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

**Components:** 

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

Propylene glycol:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

(R)-p-mentha-1,8-diene:

Test Type : Local lymph node assay (LLNA)

Exposure routes : Skin contact Species : Mouse

Method : OECD Test Guideline 429

Result : positive

Assessment : Probability or evidence of low to moderate skin sensitisation

rate in humans

N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Test Type : Maximisation Test



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Exposure routes : Skin contact
Species : Guinea pig
Result : positive

Assessment : Probability or evidence of low to moderate skin sensitisation

rate in humans

Benzoic acid:

Test Type : Local lymph node assay (LLNA)

Exposure routes : Skin contact
Species : Mouse
Result : negative

Germ cell mutagenicity

Not classified based on available information.

**Components:** 

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

Propylene glycol:

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

Result: negative

Test Type: Chromosome aberration test in vitro

Method: OECD Test Guideline 473

Result: negative

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

cytogenetic assay) Species: Mouse

Application Route: Intraperitoneal injection

Result: negative

(R)-p-mentha-1,8-diene:

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

Method: OECD Test Guideline 471

Result: negative



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Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Genotoxicity in vivo : Test Type: In vivo mammalian alkaline comet assay

Species: Rat

Application Route: Ingestion

Result: negative

N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

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

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

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

cytogenetic assay) Species: Mouse

Application Route: Ingestion

Result: negative

Remarks: Based on data from similar materials

Test Type: Unscheduled DNA synthesis (UDS) test with

mammalian liver cells in vivo

Species: Rat

Application Route: Ingestion
Method: OECD Test Guideline 486

Result: negative

Remarks: Based on data from similar materials

Benzoic acid:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro

Result: equivocal

Test Type: in vitro micronucleus test

Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)

Species: Rat

**Application Route: Ingestion** 

Result: negative

Carcinogenicity

Not classified based on available information.



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#### **Components:**

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

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

Propylene glycol:

Species : Rat
Application Route : Ingestion
Exposure time : 2 Years
Result : negative

(R)-p-mentha-1,8-diene:

Species : Mouse
Application Route : Ingestion
Exposure time : 103 weeks
Result : negative

Reproductive toxicity

Not classified based on available information.

**Components:** 

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 develop-

ment

Test Type: Embryo-foetal development

Species: Rabbit

Application Route: Ingestion

Result: negative

Propylene glycol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study

Species: Mouse

Application Route: Ingestion

Result: negative

Effects on foetal develop-

ment

Test Type: Embryo-foetal development

Species: Mouse

Application Route: Ingestion

Result: negative

(R)-p-mentha-1,8-diene:

Effects on foetal develop- : Test Type: Embryo-foetal development



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ment Species: Rat

Application Route: Ingestion

Result: negative

N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Effects on foetal develop-

ment Species: Mouse

opecies. Modse

Application Route: Ingestion

Test Type: Embryo-foetal development

Result: negative

Benzoic acid:

Effects on fertility : Test Type: Four-generation reproduction toxicity study

Species: Rat

**Application Route: Ingestion** 

Result: negative

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

May cause damage to organs (Blood, spleen, Liver) through prolonged or repeated exposure.

**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 con-

centrations 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 con-

centrations 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 con-

centrations of >20 to 200 mg/kg bw.

(R)-p-mentha-1,8-diene:

Assessment : No significant health effects observed in animals at concentra-

tions of 100 mg/kg bw or less.

Benzoic acid:

Exposure routes : inhalation (dust/mist/fume)

Target Organs : Lungs

Assessment : Shown to produce significant health effects in animals at con-

centrations of 0.02 mg/l/6h/d or less.



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#### Repeated dose toxicity

#### **Components:**

## 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

Propylene glycol:

Species : Rat, male

NOAEL : >= 1,700 mg/kg

Application Route : Ingestion

Exposure time : 2 yr

(R)-p-mentha-1,8-diene:

Species : Rat, male
NOAEL : 5 mg/kg
LOAEL : 30 mg/kg
Application Route : Ingestion
Exposure time : 13 Weeks

### N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Species : Rat, male NOAEL : 672 mg/kg Application Route : Ingestion Exposure time : 13 Weeks

Benzoic acid:

Species : Rat

LOAEL : < 0.025 mg/l

Application Route : inhalation (dust/mist/fume)

Exposure time : 28 Days

#### **Aspiration toxicity**

Not classified based on available information.



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#### **Components:**

# (R)-p-mentha-1,8-diene:

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.

#### 12. ECOLOGICAL INFORMATION

#### **Ecotoxicity**

#### **Components:**

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

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): > 0.13

mg/l

1,000

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 tox-

icity)

Toxicity to fish (Chronic tox-

icity)

NOEC (Pimephales promelas (fathead minnow)): 0.1 mg/l

Exposure time: 35 d

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

M-Factor (Chronic aquatic

toxicity)

NOEC (Daphnia magna (Water flea)): 0.00004 mg/l

Exposure time: 21 d

ic : 1,000

Propylene glycol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Ceriodaphnia dubia (water flea)): 18,340 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

'

ErC50 (Skeletonema costatum (marine diatom)): 19,300 mg/l Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

Toxicity to microorganisms

NOEC (Ceriodaphnia dubia (water flea)): 13,020 mg/l

Exposure time: 7 d

NOEC (Pseudomonas putida): > 20,000 mg/l



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Exposure time: 18 h

Sulfurous acid, monosodium salt, reaction products with (cresol, formaldehyde, nonylphenol) polymer:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 10 - 100 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Remarks: Based on data from similar materials

(R)-p-mentha-1,8-diene:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.720 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 307 μg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.25

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

EC10 (Pseudokirchneriella subcapitata (green algae)): 0.14

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

M-Factor (Acute aquatic tox-

icity)

Toxicity to fish (Chronic tox-

icity)

EC10 (Pimephales promelas (fathead minnow)): 0.37 mg/l

Exposure time: 8 d

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

EC10 (Daphnia magna (Water flea)): 0.153 mg/l

Exposure time: 21 d

Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50: > 100 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

Remarks: Based on data from similar materials

N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): > 220 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 10 - 100 mg/l

Exposure time: 48 h

Remarks: Based on data from similar materials

Toxicity to algae/aquatic : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1 -



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plants 10 mg/l

Exposure time: 72 h

Method: Directive 67/548/EEC, Annex V, C.3. Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): > 1 -

10 mg/l

Exposure time: 72 h

Method: Directive 67/548/EEC, Annex V, C.3. Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

Remarks: Based on data from similar materials

Benzoic acid:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 44.6 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 100 mg/l

Exposure time: 48 h

Method: EPA-660/3-75-009

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 33.1

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

EC10 (Pseudokirchneriella subcapitata (green algae)): 3.4

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to daphnia and other

aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 25 mg/l

Exposure time: 21 d

Method: OECD Test Guideline 211

Toxicity to microorganisms : IC50: > 1,000 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

#### Persistence and degradability

#### **Components:**

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

Biodegradability : Result: Not readily biodegradable.

Method: OECD Test Guideline 301

#### Propylene glycol:



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Biodegradability Result: Readily biodegradable.

Biodegradation: 98.3 % Exposure time: 28 d

Method: OECD Test Guideline 301F

(R)-p-mentha-1,8-diene:

Biodegradability Result: Readily biodegradable.

> Biodegradation: 71.4 % Exposure time: 28 d

Method: OECD Test Guideline 301B

N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Biodegradability Result: Not readily biodegradable.

Biodegradation: 37.4 - 42.7 %

Exposure time: 25 d

Benzoic acid:

Biodegradability Result: rapidly degradable

Biodegradation: 89.5 % Exposure time: 35 d

Bioaccumulative potential

Components:

N-[[(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: < 4

Propylene glycol:

Partition coefficient: nlog Pow: -1.07

octanol/water Method: Regulation (EC) No. 440/2008, Annex, A.8

(R)-p-mentha-1,8-diene:

Partition coefficient: nlog Pow: 4.38

octanol/water

N,N"-Methylenebis[N'-[3-(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]urea]:

Partition coefficient: nlog Pow: < 4

octanol/water Remarks: Expert judgement

Benzoic acid:

Partition coefficient: n-

log Pow: 1.88

octanol/water



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## Mobility in soil

No data available

## Hazardous to the ozone layer

Not applicable

#### Other adverse effects

No data available

#### 13. DISPOSAL CONSIDERATIONS

**Disposal methods** 

Waste from residues : Dispose of in accordance with local regulations.

Do not dispose of waste into sewer.

Contaminated packaging : Empty containers should be taken to an approved waste han-

dling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

#### 14. TRANSPORT INFORMATION

# **International Regulations**

**UNRTDG** 

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S

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

(R)-p-mentha-1,8-diene)

Class : 9
Packing group : III
Labels : 9
Environmentally hazardous : yes

IATA-DGR

UN/ID No. : UN 3082

Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.

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

(R)-p-mentha-1,8-diene)

Class : 9 Packing group : III

Labels : Miscellaneous

Packing instruction (cargo :

aircraft)

Packing instruction (passen: 964

ger aircraft)

Environmentally hazardous : yes

**IMDG-Code** 

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

964

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

(R)-p-mentha-1,8-diene)



# Diflubenzuron (25%) Formulation

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Class : 9
Packing group : III
Labels : 9

EmS Code : F-A, S-F Marine pollutant : yes

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

Not applicable for product as supplied.

#### **National Regulations**

Refer to section 15 for specific national regulation.

## 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.

ERG Code : 171

#### 15. REGULATORY INFORMATION

#### **Related Regulations**

#### **Fire Service Law**

Not applicable to dangerous materials / designated flammables.

#### **Chemical Substance Control Law**

**Priority Assessment Chemical Substance** 

Chemical name	Number
Propane-1,2-diol	106

### **Industrial Safety and Health Law**

#### **Harmful Substances Prohibited from Manufacture**

Not applicable

#### **Harmful Substances Required Permission for Manufacture**

Not applicable

#### **Substances Prevented From Impairment of Health**

Not applicable

# Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity

Not applicable

# Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity

Not applicable

#### **Substances Subject to be Notified Names**

Article 57-2 (Enforcement Order Table 9)

Chemical name	Concentration (%)	Domorko
i Chemicai name	Concentration (%)	Remarks



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Propylene glycol	>=1 - <10	From April 1st, 2025
d-Limonene	>=1 - <10	From April 1st, 2025
benzoic acid	>=0.1 - <1	From April 1st, 2025

#### **Substances Subject to be Indicated Names**

Article 57 (Enforcement Order Article 18)

Chemical name	Remarks
Propylene glycol	From April 1st, 2025
d-Limonene	From April 1st, 2025

## Skin and Eye Damage Substances for PPE Requirements (ISHL MO Art. 594-2)

Chemical name	
(4R)-p-Mentha-1,8-diene	

# Carcinogenic Substances (Article 577-2 of the Occupational Health and Safety Regulations)

Not applicable

#### Ordinance on Prevention of Hazards Due to Specified Chemical Substances

Not applicable

## **Ordinance on Prevention of Lead Poisoning**

Not applicable

#### Ordinance on Prevention of Tetraalkyl Lead Poisoning

Not applicable

#### **Ordinance on Prevention of Organic Solvent Poisoning**

Not applicable

# Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)

Not applicable

#### **Poisonous and Deleterious Substances Control Law**

Not applicable

# Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

## **Class II Designated Chemical Substances**

Chemical name	Administration number	Concentration (%)
1-(4-Chlorophenyl)-3-(2,6-	768	25
difluorobenzoyl)urea		

#### **High Pressure Gas Safety Act**

Not applicable

### **Explosive Control Law**

Not applicable

#### **Vessel Safety Law**

Miscellaneous dangerous substances and articles (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)



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#### **Aviation Law**

Miscellaneous dangerous substances and articles (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

#### Marine Pollution and Sea Disaster Prevention etc Law

Bulk transportation Not classified as noxious liquid substance

Pack transportation : Classified as marine pollutant

### Narcotics and Psychotropics Control Act

Narcotic or Psychotropic Raw Material (Export / Import Permission)

Not applicable

Specific Narcotic or Psychotropic Raw Material (Export / Import permission)

Not applicable

#### Waste Disposal and Public Cleansing Law

Industrial waste

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

**AICS** not determined

DSL not determined

**IECSC** not determined

#### 16. OTHER INFORMATION

In this SDS, if the concentration of substances subject to notification under the Industrial Safety and Health Law is indicated as a range, it includes cases where it is a trade secret.

## **Further information**

Sheet

compile the Safety Data

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

cy, http://echa.europa.eu/

Date format yyyy/mm/dd

Full text of other abbreviations

**ACGIH** : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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 con-



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centration; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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.

JP / EN