

According to the UN GHS revision 8

Creation Date: May 23, 2024

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1. IDENTIFICATION

1.1 GHS Product identifier

Product name: Diflubenzuron

Catalog Number: T7088

CAS Number: 35367-38-5

1.2 Other means of identification

Other names: -

1.3 Recommended use of the chemical and restrictions on use

Identified uses:

1.4 Supplier's details

Company: Targetmol Chemicals Inc.

Uses advised against: 36 Washington Street, Wellesley Hills, Massachusetts 02481 USA

Tel/Fax: (781) 999-4286

1.5 Emergency phone number

Emergency phone number: 781-999-4286

Service hours: Monday to Friday, 9am-5pm (Standard timezone: UTC/GMT -5hours).

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Dermal

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

2.2 GHS label elements, including precautionary statements

Pictogram(s):



Signal word: Warning

Hazard statement(s):
H312 Harmful in contact with skin
H400 Very toxic to aquatic life

Precautionary statement(s):

Prevention:

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

P273 Avoid release to the environment.

Response:

P302+P352 IF ON SKIN: Wash with plenty of water/...

P317 Get medical help.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P391 Collect spillage.

Storage:

none

Disposal:

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance

with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number
Diflubenzuron	-	35367-38-5	252-529-3

4. FIRST-AID MEASURES

4.1 Description of necessary first-aid measures

General advice

no data available

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

Skin decontamination. Wash skin with soap and water. Eye contamination should be removed by prolonged flushing of the eye with copious amounts of clean water or saline. If irritation persists, obtain specialized medical treatment. Sensitization reactions may require steroid therapy. Haloaromatic substituted ureas

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution. (ERG, 2016)

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Wear self contained breathing apparatus for fire fighting if necessary.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Some may burn but none ignite readily. Containers may explode when heated. Some may be transported hot. For UN3508, be aware of possible short circuiting as this product is transported in a charged state. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Store in a dry location.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Diflubenzuron is a colorless to yellow crystals. Used as a selective insecticide.
Color	Colorless crystals
Odour	no data available
Melting point/ freezing point	230-232°C
Boilingpoint or initial boiling point and boiling range	no data available
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available

Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	H2O: Insoluble, DMSO: 50 mg/mL (160.94 mM),
N-octanol-water partition coefficient	log Kow = 3.89
Vapour pressure	9X10 ⁻¹⁰ mm Hg at 25 deg C /gas saturation method/
Density and/ or relative density	1.57 at 20 deg C
Relative vapour density	no data available
Particle characteristics	no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Hydrolyzed in alkaline solution above pH 9.0.

10.2 Chemical stability

Decomposition: < 0.5% after 1 day storage at 100 deg C; < 0.5% after 7 days at 50 deg C. The solid is stable to sunlight. Decomposition at 20 deg C in aqueous solution after 21 days in the dark is: 4% at pH 5.8, 8% at pH 7, 26% at pH 9.

10.3 Possibility of hazardous reactions

A urea derivative.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Diflubenzuron hydrolyzes in water to p-chlorophenylurea.

10.6 Hazardous decomposition products

When heated to decomp it emits very toxic fumes of NO_x and Cl⁻.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral: LD50 Rat oral > 4640 mg/kg

Inhalation: no data available

Dermal: LD50 Rabbit percutaneous >2000 mg/kg

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Cancer Classification: Group E Evidence of Non-carcinogenicity for humans

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish: LC50; Species: *Oncorhynchus mykiss* (Rainbow trout) juvenile; Concentration: >150 mg/L for 96 hr /Conditions of bioassay not specified

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water Flea) age <24 hr; Conditions: freshwater, static; Concentration: 1.5 ug/L for 48 hr (95% confidence interval: 0.8-2.9 ug/L); Effect: intoxication, immobilization

Toxicity to algae: EC50; Species: *Pseudokirchneriella subcapitata* (Green Algae); Conditions: freshwater, static; Concentration: >124000 ug/L for 72 hr; Effect: population abundance /79.4% purity

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: The ultimate biodegradation rate constant of diflubenzuron at 28 deg C was measured to be 0.037 day⁻¹ in a sandy loam and 0.026 day⁻¹ in muck soil(1) which correspond to half-lives of about 19 and 27 days, respectively(SRC). In the same study, 80-87% diflubenzuron (initial concentration of 10 ppm) remained in sterile soil after 12 weeks; therefore, soil microorganisms play a major role in the disappearance of diflubenzuron(1). Based on several screening tests, the biodegradation half-life averaged 2.4 days using freshwater sediment and 15 days in sterile freshwater sediment(2). Biodegradation half-lives averaged 14 and 32 days using marine-sediment and marine-water, respectively(2). There were no differences in the disappearance of diflubenzuron from sewage water, whether boiled or unboiled; a 14-15% reduction from 0.1 ppm initial concentration was observed immediately following treatment. Reductions of 30% at 6 hr and 42% at 24 hr were probably due to adsorption(3). When applied to a sandy loam soil under aerobic conditions at 24 deg C, diflubenzuron had half-lives ranging from 2-14 days (depending on soil texture) with the major degradates being 4-chlorophenyl urea and CO₂(4); three minor degradates were 2,6-difluorobenzoic acid, 2,6-difluorobenzamide, and 4-chloroaniline(4).

12.3 Bioaccumulative potential

Reported bioconcentration factors for diflubenzuron in bluegill sunfish (*Lepomis macrochirus*) ranged from 34 to 200 for fillet and 78 to 360 for whole fish(1). According to a classification scheme(2), these BCF ranges suggest the potential for bioconcentration in aquatic organisms is moderate to high. Diflubenzuron depurates rapidly in fish tissue(1); the depuration rate indicates a rapid decrease (99%) of accumulated residues in tissue during a 14-day depuration period.

12.4 Mobility in soil

Diflubenzuron has reported Koc values of 6,790 and 10,600(1). According to a classification scheme(2), these Koc values suggest that diflubenzuron is expected to be immobile in soil. Binding to soil is an important transport process for diflubenzuron based on soil Kd values for sand clay, silty clay loam, silt loam, sand loam, sandy clay loam, clay, clay hydrosol, and peat hydrosol of 40, 40, 20, 25, 130, 110, 150, and 3500, respectively(3). Diflubenzuron is classified as relatively immobile in soil based on Rf values were 0.01, 0.07, 0.14, and 0.34 for silty clay loam, clay loam, and two sand loam soils, respectively(3). In field tests, diflubenzuron was not detectable below the 0-15 cm soil depth segment over a 60-day period(3). In water tank studies, diflubenzuron adsorbed to sediment showed no detectable diffusion from the sediment to water over a 204-day observation period(4).

12.5 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods

Product

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.

Contaminated packaging

A DRUG SCREENING EXPERT

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. TRANSPORT INFORMATION

14.1 UN Number

no data available

14.2 UN Proper Shipping Name

no data available

14.3 Transport hazard class(es)

no data available

14.4 Packing group, if applicable

no data available

14.5 Environmental hazards

no data available

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.
EC Inventory	Listed.
United States Toxic Substances Control Act (TSCA) Inventory	Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
New Zealand Inventory of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

16. OTHER INFORMATION

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

no data available

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