

Chemical Safety Data Sheet MSDS / SDS

Diuron

Revision Date:2024-03-30 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name : Diuron
CBnumber : CB4163723
CAS : 330-54-1
EINECS Number : 206-354-4
Synonyms : DIURON,Fomesafen

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.
Uses advised against : none

Company Identification

Company : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 400-158-6606

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Carcinogenicity, Category 2
Specific target organ toxicity – repeated exposure, Category 2
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

Label elements

Pictogram(s)

□□□□

Signal word : Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour
H302 Harmful if swallowed
H319 Causes serious eye irritation
H320 Causes eye irritation

H335 May cause respiratory irritation

H351 Suspected of causing cancer

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

Precautionary statement(s)

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

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

P391 Collect spillage. Hazardous to the aquatic environment

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container to.....

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P203 Obtain, read and follow all safety instructions before use.

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

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P318 IF exposed or concerned, get medical advice.

P319 Get medical help if you feel unwell.

P391 Collect spillage.

Storage

P405 Store locked up.

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.

Other hazards

SECTION 3: Composition/information on ingredients

Substance

Product name	: Diuron
Synonyms	: DIURON,Fomesafen
CAS	: 330-54-1
EC number	: 206-354-4
MF	: C ₉ H ₁₀ Cl ₂ N ₂ O
MW	: 233.09

SECTION 4: First aid measures

Description of first aid measures

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.

Most important symptoms and effects, both acute and delayed

INHALATION: May cause irritation of nose and throat. EYES: Irritation. SKIN: Moderately irritating to skin. (USCG, 1999)

Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

SECTION 5: Firefighting measures

Extinguishing media

Use dry chemical, CO₂, water spray, or foam extinguishers ... If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Notify local health and fire officials and pollution control agencies. From a secure, explosion-proof location,

use water spray to cool exposed containers. If cooling streams are ineffective (venting sound increases in volume and pitch, tank discolors or shows any signs of deforming), withdraw immediately to a secure position ... The only respirators recommended for fire fighting are self-contained breathing apparatuses that have full face-pieces and are operated in a pressure-demand or other positive-pressure mode.

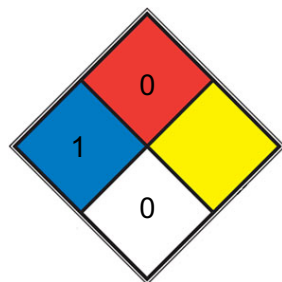
Specific Hazards Arising from the Chemical

Special Hazards of Combustion Products: Highly toxic fumes are imminent Behavior in Fire: Decomposes at 180° to 190°C (USCG, 1999)

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

NFPA 704



HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete,

FIRE 0 stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

REACT

SPEC. HAZ. 0

SECTION 6: Accidental release measures

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.

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.

Methods and materials for containment and cleaning up

Spill handling: evacuate persons not wearing protective equipment from area of spill or leak until clean-up is complete. Remove all ignition sources. Collect powdered material in the most convenient and safe manner and deposit in sealed containers. Ventilate area after clean-up is complete. It may be necessary to contain and dispose of this chemical as a hazardous waste. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact your Department of Environmental Protection or your regional office of the federal EPA for specific recommendations.

SECTION 7: Handling and storage

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.

Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in a cool, well-ventilated area.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Diuron			
	CAS No. 330-54-1			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Australia	?	10	?	?
Austria	?	5 inhalable aerosol	?	10 inhalable aerosol
Belgium	?	10	?	?
Canada - Ontario	?	10	?	?
Canada - Québec	?	10	?	?
Denmark	?	5	?	10
Finland	?	10	?	20 (1)
France	?	10	?	?
Ireland	?	10	?	?
New Zealand	?	10	?	?
People's Republic of China	?	10	?	?
Singapore	?	10	?	?
South Korea	?	10	?	?
Spain	?	10	?	?
Switzerland	?	10 inhalable aerosol	?	?
USA - NIOSH	?	10	?	?
United Kingdom	?	10	?	?
	Remarks			
Finland	(1) 15 minutes average value			

Biological limit values

no data available

Exposure controls

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

elimination area.

Individual protection measures

Eye/face protection

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

Skin protection

Wear fire/flammable 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

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	neat
Colour	White, odorless crystalline solid
Odour	Odorless
Melting point/freezing point	280°C(lit.)
Boiling point or initial boiling point and boiling range	158°C/11mmHg(lit.)
Flammability	Noncombustible Solid
Lower and upper explosion limit/flammability limit	no data available
Flash point	103°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In acetone: 5.3 wt % at 27 °C (Meister, 1988).
Partition coefficient n-octanol/water	log Kow = 2.68
Vapour pressure	2×10^{-7} mmHg) at 30 °C (Hawley, 1981)
Density and/or relative density	1.369 g/cm ³
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Very slightly soluble in water.

Chemical stability

Stable for 2 yrs. in double polyethylene bag inside a fiber drum under warehouse conditions.

Possibility of hazardous reactions

May burn, but not readily flammable. DIURON is incompatible with the following: Strong acids (NIOSH, 2016).

Conditions to avoid

no data available

Incompatible materials

Treatment at elevated temperatures by acid or base yields dimethylamine and 3,4-dichloroaniline.

Hazardous decomposition products

Diuron, stable under normal conditions, decomposed on heating to 180 to 190 deg C giving dimethylamine and 3,4-dichlorophenyl isocyanate.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat (male) oral 3400 mg/kg
- Inhalation: LC50 Rat inhalation > 0.265 mg/L for 4 hr
- Dermal: no data available

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: Known/ Likely to be Carcinogenic to Humans

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill), weight 0.8 g; Concentration: 8.2 mg/L/96 hr (95% confidence limit 7.4 - 9.1 mg/L); Conditions: static bioassay without aeration, temperature 18 deg C, pH 7.2-7.5, water hardness 40-50 mg/L as calcium carbonate, alkalinity 30-35 mg/L

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: *Daphnia magna* (water flea); Concentration: 1400 ug/L/24 hr /Conditions of bioassay not specified

Toxicity to algae: LC50; Species: *Scenedesmus subspicatus* (algae); Concentration: 0.022 mg/L for 4 days; Conditions: temperature 23 deg C

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Diuron, present at 100 mg/L, reached 0% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). In a Zahn-Wellens inherent biodegradability test, 50 mg/L of diuron was found to be not inherently biodegradable with 0% degradation in activated sludge inoculum after 28 days(2). Degradation of diuron in natural soils was found to be slow and incomplete(3). Inoculation of a sandy C-horizon with a diuron-degrading bacterial strain led to substantial diuron degradation, but the addition of purified fulvic acid and humic acid to these inoculated soils decreased this degradation, suggesting that adsorption to humic substances in soil hinders degradation(3). In soil, enzymatic and microbial demethylation of the nitrogen atom and hydroxylation at position 2 of the benzene ring occurs. Duration of activity in soil is about 4 to 8 months, depending on soil type and humidity, with a half-life of 90 to 180 days(4). In a 22 week laboratory study conducted at 27 deg C and 60% relative humidity, approximately 40% degradation occurred in Cecil loamy sand (1 ppm applied 4 times) and Brookstone silty clay loam (5 ppm applied 4 times)(5). Biological degradation in soil increased with increasing temperature and decreased with increasing concentration; little degradation was noted at 0 deg C in 20 weeks whereas substantial degradation occurred in 10 weeks in two soils at 10 ppm and only in one at 15 ppm when incubated at 20 deg C(6,7). Less than 20% of diuron (60 ppm) added to soil was detoxified within 8 weeks and there was little effect on the degradation rate when the soils were titrated to different pH's between 4.3 and 7.5(8). Degradation of diuron in soil was stimulated by amendment of the soil with manure but inhibited by sludge amendment(9).

Bioaccumulative potential

BCF values of 3.4 to 4.9 and <2.9 to 14 were measured in fish for diuron at concentrations of 0.5 and 0.05 mg/L, respectively, using carp (*Cyprinus carpio*) which were exposed over an 6-week period(1). According to a classification scheme(2), these BCF values indicate that bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The mean value and standard deviation of Koc for diuron compiled from the published literature for 84 soils is 383 and 72 respectively(1). Other Koc experimental values for diuron are: Webster soil, 682(2); mucky peat soil, 879(3); loamy sand soil, 478(3); two subsurface soils from Oklahoma, 224 and 371(4); 480 (5); 400 (6); aquifer sediments, range 69-266(7). In 43 surface soil samples representing a range of soil physicochemical properties collected from dry and wet zones of Sri Lanka, measured Koc values for diuron ranged from 55.3 to 962 (mean, 407; median, 328), while soils from dry zones were 1.5 times higher than those from the wet zone(8). In three representative cotton soils, a red sandy soil, a black cracking clay, and a brown loam, of North West New South Wales, Australia, diuron had Koc values of 457, 488, and 498,

respectively(9). According to a classification scheme(10), these measured Koc values suggest that diuron is expected to have moderate to low mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

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.

SECTION 14: Transport information

UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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.

PICCS

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

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/>

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