

Material group	1FB/1310-05	Page 1 of 14
Product name	1310-05, FLUTRIAFOL 125 g/l SC	March 2017
Safety data sheet according to EU Reg. 1907/2006 as amended		Supersedes September 2015

SAFETY DATA SHEET

1310-05, FLUTRIAFOL 125 g/l SC

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

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

- 1.1. **Product identifier** **1310-05, Flutriafol 125 g/l SC**
Contains 1,2-benzisothiazol-3(2H)-one
- 1.2. **Relevant identified uses of the substance or mixture and uses advised against** Can be used as fungicide only.
- 1.3. **Details of the supplier of the safety data sheet** **CHEMINOVA A/S**
 Thyborønvej 78
 DK-7673 Harboøre
 Denmark
SDS.Ronland@fmc.com
- 1.4. **Emergency telephone number**
Company (+45) 97 83 53 53 (24 h; for emergencies only)

Medical emergencies:

Austria: +43 1 406 43 43	Norway: +47 22 591300
Belgium: +32 70 245 245	Poland: +48 22 619 66 54
Bulgaria: +359 2 9154 409	+48 22 619 08 97
Czech Republic: +420 224 919 293	Portugal: 808 250 143 (in Portugal only)
+420 224 915 402	+351 21 330 3284
Denmark: +45 82 12 12 12	Romania: +40 21318 3606
France: +33 (0) 1 45 42 59 59	Slovakia: +421 2 54 77 4 166
Finland: +358 9 471 977	Slovenia: +386 41 650 500
Hungary: +36 80 20 11 99	Spain: +34 91 562 04 20
Ireland (Republic): +352 1 809 2166	Sweden: +46 08-331231
Italy: +39 02 6610 1029	112
Lithuania: +370 523 62052	Switzerland: 145
+370 687 53378	United Kingdom: 0870 600 6266 (in the UK only)
Luxembourg: +352 8002 5500	U.S.A. & Canada: +1 800 / 331-3148 (PROSAR)
Netherlands: +31 30 274 88 88	All other countries: +1 651 / 632-6793 (PROSAR - Collect)

SECTION 2: HAZARDS IDENTIFICATION

- 2.1. **Classification of the substance or mixture** Sensitisation – skin: Category 1B (H317)
 Hazards to the aquatic environment, chronic: Category 1 (H410)

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WHO classification Class U (Unlikely to present acute hazard in normal use)

Health hazards The product may be an allergic sensitizer to certain individuals. It is mildly irritating to skin and eyes.

Environmental hazards The product is toxic to aquatic organisms.

2.2. Label elements

According to EU Reg. 1272/2008 as amended

Product identifier 1310-05, Flutriafol 125 g/l SC
 Contains 1,2-benzisothiazol-3(2H)-one

Hazard pictograms (GHS07, GHS09)



Signal word Warning

Hazard statements

H317 May cause an allergic skin reaction.
 H410 Very toxic to aquatic life with long lasting effects.

Supplementary hazard statement

EUH401 To avoid risks to human health and the environment, comply with the instructions of use.

Precautionary statements

P261 Avoid breathing vapours.
 P280 Wear protective gloves.
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P501 Dispose of contents/container as hazardous waste.

2.3. **Other hazards** None of the ingredients in the product meets the criteria for being PBT or vPvB.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances** The product is a mixture, not a substance

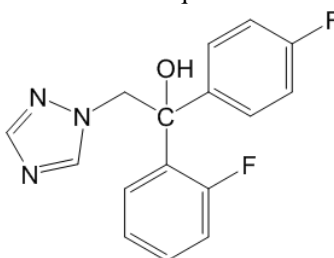
3.2. **Mixtures** See section 16 for full text of hazard statements.

Active ingredient

Flutriafol Content: 12% by weight
 CAS name 1H-1,2,4-Triazole-1-ethanol, α -(2-fluorophenyl)- α -(4-fluorophenyl)-
 CAS no. 76674-21-0
 IUPAC name (RS)-2,4'-Difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol
 ISO name Flutriafol

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EC no. (EINECS no.) None
 EU index no. None
 Classification of the ingredient Acute oral toxicity: Category 4 (H302)
 Hazards to the aquatic environment, chronic: Category 2 (H411)
 Structural formula



<u>Reportable ingredients</u>	Content (% w/w)	CAS no.	EC no. (EINECS no.)	Classification
Alcohols, C13-15, branched and linear, ethoxylated	8	157627-86-6	NLP no.: 500-337-8	Acute Tox. 4 (H302) Eye Dam. 1 (H318) Aquatic Chronic 3 (H412)
Propane-1,2-diol Reg. no. 01-2119456809-23	7	57-55-6	EINECS no.: 200-338-0	No classification
Sodium alkylnaphthalenesulfonate-formaldehyde condensate	3	577773-56-9	None	Eye Irrit. 2 (H319)
1,2-Benzisothiazol-3(2H)-one	max. 0.02	2634-33-5	EINECS no.: 220-120-9	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1A (H317) Aquatic Acute 1 (H400)

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambulance.

Skin contact Immediately remove contaminated clothing and footwear. Flush skin with water. Wash with water and soap. See physician if irritation develops.

Eye contact Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. See physician if irritation persists.

Ingestion Let the exposed person rinse mouth and let him/her drink several

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glasses of water or milk, but not induce vomiting. If vomiting does occur, let him/her rinse mouth and drink fluids again. Get medical attention immediately.

- 4.2. **Most important symptoms and effects, both acute and delayed** When fed to animals at high dosage, similar formulations of flutriafol caused salivation, depression of activity, muscle spasms, ataxia and increased body temperature.
- 4.3. **Indication of any immediate medical attention and special treatment needed** Immediate medical attention is required in case of ingestion
 It may be helpful to show this safety data sheet to physician.
- Note to physician A specific antidote against this substance is not known. Treatment is as for a general chemical. Gastric lavage and/or administration of activated charcoal can be considered.

SECTION 5: FIRE-FIGHTING MEASURES

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1. **Personal precautions, protective equipment and emergency procedures** It is recommended to have a predetermined plan for the handling of spills. Empty, closable vessels for the collection of spills should be available.
- In case of large spill (involving 10 tonnes of the product or more):
 1. use personal protection equipment; see section 8
 2. call emergency telephone no.; see section 1
 3. alert authorities.
- Observe all safety precautions when cleaning up spills. Use personal protection equipment. Depending on the magnitude of the spill this may mean wearing respirator, face mask or eye protection, chemical resistant clothing, gloves and rubber boots.
- Stop the source of the spill immediately if safe to do so. Avoid and reduce mist formation as much as possible.

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- 6.2. **Environmental precautions** Contain the spill to prevent any further contamination of surface, soil or water. Wash waters must be prevented from entering surface water drains. Uncontrolled discharge into water courses must be alerted to the appropriate regulatory body.
- 6.3. **Methods and materials for containment and cleaning up**
- It is recommended to consider possibilities to prevent damaging effects of spills, such as bunding or capping. See GHS (Annex 4, Section 6).
- Surface water drains should be covered if appropriate. Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, hydrated lime, Fuller's earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with much water and industrial detergent. Absorb wash liquid onto absorbent and transfer to suitable containers. The used containers should be properly closed and labelled.
- Large spills which soak into the ground should be dug up and transferred to suitable containers.
- Spills in water should be contained as much as possible by isolation of the contaminated water. The contaminated water must be collected and removed for treatment or disposal.
- 6.4. **Reference to other sections** See subsection 8.2. for personal protection. See section 13 for disposal.

♣ SECTION 7: HANDLING AND STORAGE

- 7.1. **Precautions for safe handling**
- In an industrial environment it is recommended to avoid all personal contact with the product, if possible by using closed systems with remote system control. The material should be handled by mechanical means as much as possible. Adequate ventilation or local exhaust ventilation is required. The exhaust gases should be filtered or treated otherwise. For personal protection in this situation, see section 8.
- For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.
- Remove contaminated clothing immediately. Wash thoroughly after handling. Before removing gloves, wash them with water and soap. After work, take off all work clothes and footwear. Take a shower, using water and soap. Wear only clean clothes when leaving job. Wash protective clothing and protective equipment with water and soap after each use.

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

7.2. Conditions for safe storage, including any incompatibilities

Storage at temperatures not exceeding 25°C is recommended. Protect from frost, fire and heat.

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

7.3. Specific end use(s)

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

♣ SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Personal exposure limits To our knowledge not established for flutriafol. An internal TLV of 1.5 mg/m³ (8-hr TWA) for flutriafol is recommended by the manufacturer.

		Year	
Propane-1,2-diol	AIHA (USA) WEEL	2015	10 mg/m ³
	MAK (Germany)	2014	Cannot be established at present
	HSE (UK) WEL	2011	8-hr TWA 150 ppm (474 mg/m ³) total (vapour and particulates) 10 mg/m ³ (particulates)

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

Flutriafol

DNEL	0.05 mg/kg bw/day
PNEC, aquatic environment	6.2 µg/l

Propane-1,2-diol

DNEL, inhalation, systemic	183 mg/m ³
DNEL, inhalation, local	10 mg/m ³
PNEC, fresh water	260 mg/l
PNEC, marine water	26 mg/l

8.2. Exposure controls

When used in a closed system, personal protection equipment will not be required. The following is meant for other situations, when the use of a closed system is not possible, or when it is necessary to open the system. Consider the need to render equipment or piping systems non-hazardous before opening.

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

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



Respiratory protection

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



Protective gloves

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



Eye protection

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



Other skin protection

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on physical and chemical properties

Appearance	Off-white/brown liquid (suspension in water)
Odour	Characteristic odour between fish- and glue-like
Odour threshold	Not determined
pH	Undiluted: 7.1 at 25°C 1% dilution in water: 6.5 at 25°C
Melting point/freezing point	< 0°C
Initial boiling point and boiling range	99°C
Flash point	> 99°C (Pensky-Martens closed cup)
Evaporation rate	Not determined
Flammability (solid/gas)	Not applicable (liquid)
Upper/lower flammability or explosive limits	Not determined
Vapour pressure	Flutriafol : 7.1 x 10 ⁻⁹ Pa at 20°C

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Vapour density	Not determined
Relative density	Not determined
Solubility(ies)	Density: 1.06 g/ml at 20°C Solubility of flutriafol at 21°C in: acetone 114 - 133 g/l n-heptane < 10 g/l water 130 mg/l at 20°C
Partition coefficient n-octanol/water	Flutriafol : log K _{ow} = 2.29
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Viscosity	The product is a non-newtonian liquid. Viscosity is dependent on shear rate. 83 - 560 mPa.s at 20°C 68 - 455 mPa.s at 40°C
Explosive properties.....	Not explosive
Oxidising properties	Not oxidising

9.2. Other information

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

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

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product

Acute toxicity	The product is not considered as harmful by ingestion, skin contact or by inhalation. * Because of the consistency of the product it is not likely that a lethal concentration in air can be obtained, but signs of toxicity may occur at the highest obtainable concentration. The acute toxicity is measured as:	
Route(s) of entry	- ingestion	LD ₅₀ , oral, rat: > 3000 mg/kg (method OECD 423)
	- skin	LD ₅₀ , dermal, rat: > 4000 mg/kg (method OECD 402)
	- inhalation	LC ₅₀ , inhalation, rat: > 2.10 mg/l/4 h (method OECD 403)

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Skin corrosion/irritation	Not irritating to skin (method OECD 404). *
Serious eye damage/irritation	Mildly irritating to eyes (method OECD 405).
Respiratory or skin sensitisation ...	Test results on the product are mixed: Buehler test: negative (method OECD 406) Local Lymph Node Assay: positive (method OECD 429) To our knowledge, no cases of allergy in humans have been reported.
Germ cell mutagenicity	The product contains no ingredient known to be mutagenic. *
Carcinogenicity	The product contains no ingredient known to be carcinogenic. *
Reproductive toxicity	The product contains no ingredient found to have adverse effects on reproduction. *
STOT – single exposure	To our knowledge, no specific effects have been observed after single exposure. *
STOT – repeated exposure	The following is found for the active ingredient flutriafol: Target organ: liver Repeated exposure to flutriafol may cause liver damage. The LOEL for this effect has been found to be approx. 150 mg flutriafol/kg bw/day in a 90-day feeding study in rats. *
Aspiration hazard	The product does not present an aspiration pneumonia hazard. *
Symptoms and effects, acute and delayed	To our knowledge, adverse effects in humans have not been reported. When fed to animals at high dosage, similar compounds caused salivation, depression of activity, muscle spasms, ataxia and increased body temperature.
<u>Flutriafol</u> Toxicokinetics, metabolism and distribution	Flutriafol is rapidly absorbed after oral intake. It is widely distributed in the body, but it preferably binds to red blood cells. Metabolism is almost complete. It is rapidly excreted. There is no evidence of accumulation.
Acute toxicity	The substance is harmful by ingestion. It is considered as less harmful by skin contact and by inhalation. The acute toxicity is measured as:
Route(s) of entry	- ingestion LD ₅₀ , oral, rat: 300 - 2000 mg/kg (method OECD 423)
	- skin LD ₅₀ , dermal, rat: > 2000 mg/kg (method OECD 402) *
	- inhalation LC ₅₀ , inhalation, rat: > 5.0 mg/l/4 h (method OECD 403) *
Skin corrosion/irritation	Not irritating to skin (method OECD 404). *
Serious eye damage/irritation	Not irritating to eyes (method OECD 405). *

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licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Disposal of packaging

It is recommended to consider possible ways of disposal in the following order:

1. Reuse or recycling should first be considered. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
4. Disposal in a landfill or burning in open air should only occur as a last resort. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

♣ SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

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

SECTION 15: REGULATORY INFORMATION

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

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15.2. **Chemical safety assessment** A chemical safety assessment is not required to be included for this product.

♣ SECTION 16: OTHER INFORMATION

Relevant changes in the safety data sheet	Minor corrections only.
List of abbreviations	<p>AIHA American Industrial Hygiene Association CAS Chemical Abstracts Service Dir. Directive DNEL Derived No Effect Level EC European Community EC₅₀ 50% Effect Concentration E_rC₅₀ 50% Effect Concentration based on growth rate EINECS European INventory of Existing Commercial Chemical Substances GHS Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013 HSE Health & Safety Executive, UK IBC International Bulk Chemical code ISO International Organisation for Standardization IUPAC International Union of Pure and Applied Chemistry LC₅₀ 50% Lethal Concentration LD₅₀ 50% Lethal Dose LOEL Lowest Observed Effect Level MAK Maximale Arbeitsplatz-Konzentration MARPOL Set of rules from the International Maritime Organisation (IMO) for prevention of sea pollution NLP No Longer Polymer NOEC No Observed Effect Concentration n.o.s. Not otherwise specified OECD Organisation for Economic Cooperation and Development OPPTS Office of Prevention, Pesticides and Toxic Substances PBT Persistent, Bioaccumulative, Toxic PNEC Predicted No Effect Concentration Reg. Registration, or Regulation SC Suspension Concentrate STOT Specific Target Organ Toxicity TLV Threshold Limit Value TWA Time Weighted Average vPvB very Persistent, very Bioaccumulative WEEL Workplace Environmental Exposure Level WEL Workplace Exposure Limit WHO World Health Organisation</p>
References	Data measured on this and a similar product are unpublished company data. Data on ingredients are available from published literature and can be found several places.

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Method for classification	Sensitisation – skin: test data Hazards to the aquatic environment: read-across	
Used hazard statements	H302	Harmful if swallowed.
	H315	Causes skin irritation.
	H317	May cause an allergic skin reaction.
	H318	Causes serious eye damage.
	H319	Causes serious eye irritation.
	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.
	H412	Harmful to aquatic life with long lasting effects.
	EUH401	To avoid risks to human health and the environment, comply with the instructions of use
Advice on training	This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.	

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

Prepared by: Cheminova A/S / GHB