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Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

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

1.1 Product identifier

Gandalf
25 g/l beta-Cyfluthrin CAS 68359-37-5

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

Relevant identified uses of the substance or mixture:

Insecticide

Uses advised against:

Not applicable

1.3 Details of the supplier of the safety data sheet

Adama Agricultural Solutions UK Ltd, Unit 15, Thatcham Business Village Colthrop Way, Thatcham Berkshire RG19 4LW, UK
Telephone: 01635 860555, Fax: 01635 861555
ukenquiries@adama.com

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone

Emergency information services / official advisory body:

National Chemical Emergency Centre (UK): 01865 407333 (24 hours)

Telephone number of the company in case of emergencies:

Tel.: --

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) 1272/2008 (CLP)

| Hazard class | Hazard category | Hazard statement |
|--------------|-----------------|-------------------------------------|
| Flam. Liq. | 3 | H226-Flammable liquid and vapour. |
| Acute Tox. | 4 | H332-Harmful if inhaled. |
| Acute Tox. | 4 | H302-Harmful if swallowed. |
| Eye Irrit. | 2 | H319-Causes serious eye irritation. |

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| | | |
|-----------------|---|--|
| Skin Sens. | 1 | H317-May cause an allergic skin reaction. |
| Asp. Tox. | 1 | H304-May be fatal if swallowed and enters airways. |
| STOT SE | 3 | H336-May cause drowsiness or dizziness. |
| Aquatic Acute | 1 | H400-Very toxic to aquatic life. |
| Aquatic Chronic | 1 | H410-Very toxic to aquatic life with long lasting effects. |

2.1.2 Classification according to Directives 67/548/EEC and 1999/45/EC (including amendments)

Xn, Harmful, R20/22

Sensitizing, R43

N, Dangerous for the environment, R50/53

Xn, Harmful, R65

R66

2.2 Label elements

2.2.1 Labeling according to Regulation (EC) 1272/2008 (CLP)



Danger

H226-Flammable liquid and vapour. H332-Harmful if inhaled. H302-Harmful if swallowed. H319-Causes serious eye irritation. H317-May cause an allergic skin reaction. H304-May be fatal if swallowed and enters airways. H336-May cause drowsiness or dizziness. H410-Very toxic to aquatic life with long lasting effects.

P102-Keep out of reach of children.

P210-Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P243-Take precautionary measures against static discharge. P261-Avoid breathing vapours or spray. P270-Do not eat, drink or smoke when using this product. P280-Wear protective gloves and eye protection/face protection.

P302+P352-IF ON SKIN: Wash with plenty of water and soap. P304+P340-IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P331-Do NOT induce vomiting.

P501-Dispose of contents/container to an approved waste disposal plant.

EUH066-Repeated exposure may cause skin dryness or cracking.

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

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SP 1 Do not contaminate water with the product or its container (Do not clean application equipment near surface water/Avoid contamination via drains from farmyards and roads).

Hydrocarbons, C10, aromatics, <1% naphthalene
beta-cyfluthrin

2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006.

The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006.

SECTION 3: Composition/information on ingredients

Formulation:
Emulsion concentrate

3.1 Substance

n.a.

3.2 Mixture

| | |
|--|---|
| Hydrocarbons, C10, aromatics, <1% naphthalene | |
| Registration number (REACH) | 01-2119463583-34-XXXX |
| Index | --- |
| EINECS, ELINCS, NLP | 918-811-1 (REACH-IT List-No.) |
| CAS | (64742-94-5) |
| content % | 80-90 |
| Classification according to Directive 67/548/EEC | Dangerous for the environment, N, R51 Dangerous for the environment, R53 Harmful, Xn, R65 R66 R67 |
| Classification according to Regulation (EC) 1272/2008 (CLP) | Asp. Tox. 1, H304 STOT SE 3, H336 Aquatic Chronic 2, H411 |

| | |
|--|--|
| 2-Ethylhexanol | |
| Registration number (REACH) | 01-2119487289-20-XXXX |
| Index | --- |
| EINECS, ELINCS, NLP | 203-234-3 |
| CAS | CAS 104-76-7 |
| content % | 1-5 |
| Classification according to Directive 67/548/EEC | Harmful, Xn, R20 Irritant, Xi, R36/37/38 |
| Classification according to Regulation (EC) 1272/2008 (CLP) | Skin Irrit. 2, H315 Eye Irrit. 2, H319 Acute Tox. 4, H332 STOT SE 3, H335 |

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| | |
|---|--|
| Benzenesulfonic acid, C10-C13 alkyl derivatives, calcium salts | |
| Registration number (REACH) | 01-2119560592-37-XXXX |
| Index | --- |
| EINECS, ELINCS, NLP | 932-231-6 (REACH-IT List-No.) |
| CAS | CAS --- |
| content % | 1-5 |
| Classification according to Directive 67/548/EEC | Irritant, Xi, R38 Irritant, Xi, R41 |
| Classification according to Regulation (EC) 1272/2008 (CLP) | Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412 |

| | |
|--|--|
| Poly(oxy-1,2-ethanediyl), .alpha.-phenyl-.omega.-hydroxy-, styrenated | |
| Registration number (REACH) | -- |
| Index | --- |
| EINECS, ELINCS, NLP | - |
| CAS | CAS 104376-75-2 |
| content % | 1-5 |
| Classification according to Directive 67/548/EEC | Dangerous for the environment, R52 Dangerous for the environment, R53 |
| Classification according to Regulation (EC) 1272/2008 (CLP) | Aquatic Chronic 3, H412 |

| | |
|--|--|
| beta-cyfluthrin | |
| Registration number (REACH) | -- |
| Index | 607-254-00-7 |
| EINECS, ELINCS, NLP | 269-855-7 |
| CAS | CAS 68359-37-5 |
| content % | 1-3 |
| Classification according to Directive 67/548/EEC | Very toxic, T+, R26/28 Dangerous for the environment, N, R50 Dangerous for the environment, R53 |
| Classification according to Regulation (EC) 1272/2008 (CLP) | Acute Tox. 1, H330 Acute Tox. 1, H300 Aquatic Acute 1, H400 (M=10000) Aquatic Chronic 1, H410 (M=10000) |

For the text of the R-phrases / H-phrases and classification codes (GHS/CLP), see Section 16.

The substances named in this section are given with their actual, appropriate classification!

For substances that are listed in appendix VI, table 3.1/3.2 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.

SECTION 4: First aid measures

4.1 Description of first aid measures

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Inhalation

Remove person from danger area.

Supply person with fresh air and consult doctor according to symptoms.

If the person is unconscious, place in a stable side position and consult a doctor.

Skin contact

Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.

Eye contact

Remove contact lenses.

Wash thoroughly for several minutes using copious water. Seek medical help if necessary.

Ingestion

Rinse the mouth thoroughly with water.

Do not induce vomiting. Consult doctor immediately.

Danger of aspiration

In case of vomiting, keep head low so that the stomach content does not reach the lungs.

4.2 Most important symptoms and effects, both acute and delayed

If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.

In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.

Headaches

Dizziness

Coordination disorders

Mental confusion

Effect on the central nervous system

Unconsciousness

With long-term contact:

Drying of the skin.

Dermatitis (skin inflammation)

Allergic reaction

Ingestion:

Nausea

Vomiting

Danger of aspiration

Oedema of the lungs

Chemical pneumonitis (condition similar to pneumonia)

4.3 Indication of any immediate medical attention and special treatment needed

Gastric lavage (stomach washing) only under endotracheal intubation.

Subsequent observation for pneumonia and pulmonary oedema.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

CO₂

Dry extinguisher

Alcohol resistant foam

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Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:

Oxides of carbon

Oxides of sulphur

Oxides of nitrogen

Hydrogen chloride

Hydrofluoric acid

Toxic gases

Flammable vapour/air mixtures

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.

Protective respirator with independent air supply.

According to size of fire

Full protection, if necessary

Cool container at risk with water.

Dispose of contaminated extinction water according to official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove possible causes of ignition - do not smoke.

Ensure sufficient supply of air.

Avoid inhalation, and contact with eyes or skin.

If applicable, caution - risk of slipping

6.2 Environmental precautions

If leakage occurs, dam up.

Resolve leaks if this possible without risk.

Prevent surface and ground-water infiltration, as well as ground penetration.

Prevent from entering drainage system.

If accidental entry into drainage system occurs, inform responsible authorities.

6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. universal binding agent) and dispose of according to Section 13.

Fill the absorbed material into lockable containers.

6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

7.1 Precautions for safe handling

7.1.1 General recommendations

Ensure good ventilation.

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Keep away from sources of ignition - Do not smoke.
 Take measures against electrostatic charging, if appropriate.
 Avoid contact with eyes or skin.
 Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
 Observe directions on label and instructions for use.
 Use working methods according to operating instructions.

7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.
 Wash hands before breaks and at end of work.
 Keep away from food, drink and animal feedingstuffs.
 Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.
 Observe regulations for keeping separated.
 Store product closed and only in original packing.
 Solvent resistant floor
 Protect from direct sunlight and warming.
 Store in a well ventilated place.
 Only store at temperatures from 0°C to 30°C.

7.3 Specific end use(s)

No information available at present.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Workplace exposure limit (WEL) of the total hydrocarbon solvent content of the mixture (RCP method according to EH40):
 500 mg/m³

| Chemical Name | Hydrocarbons, C10, aromatics, <1% naphthalene | | Content %:80-90 |
|--|---|-----|-----------------|
| WEL-TWA: 500 mg/m ³ (Aromatics) | WEL-STEL: --- | --- | |
| BMGV: --- | Other information: --- | | |

WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period) EH40. AGW = "Arbeitsplatzgrenzwert" (workplace limit value, Germany). | WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period). | BMGV = Biological monitoring guidance value EH40. BGW = "Biologischer Grenzwert" (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
 ** = The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision.

| Hydrocarbons, C10, aromatics, <1% naphthalene | | | | | | |
|---|--|------------------|------------|-------|------|------|
| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
| | | | | | | |



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| | | | | | | |
|---------------------|--------------------|-----------|------|------|--------------|--|
| Workers / employees | Human - dermal | Long term | DNEL | 12,5 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Long term | DNEL | 151 | mg/m3 | |
| Consumer | Human - dermal | Long term | DNEL | 7,5 | mg/kg bw/day | |
| Consumer | Human - inhalation | Long term | DNEL | 32 | mg/m3 | |
| Consumer | Human - oral | Long term | DNEL | 7,5 | mg/kg bw/day | |

| 2-Ethylhexanol | | | | | | |
|---------------------|---|------------------------------|------------|--------|--------------|------|
| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |
| Workers / employees | Human - inhalation | Short term, local effects | DNEL | 106,4 | mg/m3 | |
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 23 | mg/kg bw/day | |
| Workers / employees | Human - inhalation | Long term, systemic effects | DNEL | 53,2 | mg/m3 | |
| Consumer | Human - inhalation | Short term, local effects | DNEL | 53,2 | mg/m3 | |
| Consumer | Human - dermal | Long term, systemic effects | DNEL | 11,4 | mg/kg bw/day | |
| Consumer | Human - inhalation | Long term, systemic effects | DNEL | 2,3 | mg/m3 | |
| Consumer | Human - oral | Short term, systemic effects | DNEL | 1,1 | mg/kg bw/day | |
| | Environment - freshwater | | PNEC | 0,017 | mg/l | |
| | Environment - marine | | PNEC | 0,0017 | mg/l | |
| | Environment - sporadic (intermittent) release | | PNEC | 0,17 | mg/l | |
| | Environment - sewage treatment plant | | PNEC | 10 | mg/l | |
| | Environment - sediment, freshwater | | DNEL | 0,28 | mg/kg dw | |
| | Environment - sediment, marine | | PNEC | 0,028 | mg/kg dw | |
| | Environment - soil | | PNEC | 0,047 | mg/kg dw | |
| | Environment - oral (animal feed) | | PNEC | 55 | mg/kg feed | |

| Benzenesulfonic acid, C10-C13 alkyl derivatives, calcium salts | | | | | | |
|--|--|------------------|------------|-------|------|------|
| Area of application | Exposure route / Environmental compartment | Effect on health | Descriptor | Value | Unit | Note |



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| | | | | | | |
|---------------------|----------------|------------------------------|------|-----|--------------|--|
| Workers / employees | Human - dermal | Long term, systemic effects | DNEL | 1,7 | mg/kg bw/day | |
| Consumer | Human - dermal | Short term, systemic effects | DNEL | 85 | mg/kg bw/day | |
| Consumer | Human - oral | Long term, systemic effects | DNEL | 89 | mg/kg bw/day | |

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.
If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.
Applies only if maximum permissible exposure values are listed here.

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:
Tight fitting protective goggles with side protection (EN 166).

Skin protection - Hand protection:
Chemical resistant protective gloves (EN 374).
If applicable
Protective nitrile gloves (EN 374)
Protective gloves made of polyvinyl alcohol (EN 374)
Protective Viton® / fluoroelastomer gloves (EN 374)
Minimum layer thickness in mm:

0,5
Permeation time (penetration time) in minutes:
480
The breakthrough times determined in accordance with EN 374 Part 3 were not obtained under practical conditions.
The recommended maximum wearing time is 50% of breakthrough time.
Protective hand cream recommended.

Skin protection - Other:
Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments)

Respiratory protection:
If OES or MEL is exceeded.
Filter A2 P2 (EN 14387), code colour brown, white
Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:
Not applicable



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Additional information on hand protection - No tests have been performed.
In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.
Selection of materials derived from glove manufacturer's indications.
Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.
Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.
In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.
The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls

No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|--|
| Physical state: | Liquid |
| Colour: | Light yellow |
| Odour: | Slightly |
| Odour threshold: | Not determined |
| pH-value: | 5,02 (1 %, CIPAC MT 75.3) |
| Melting point/freezing point: | Not determined |
| Initial boiling point and boiling range: | Not determined |
| Flash point: | 60 °C (CIPAC MT 12.2 (Tag, closed cup)) |
| Evaporation rate: | Not determined |
| Flammability (solid, gas): | Not determined |
| Lower explosive limit: | Not determined |
| Upper explosive limit: | Not determined |
| Vapour pressure: | Not determined |
| Vapour density (air = 1): | Not determined |
| Density: | 0,9071 g/ml (20°C, CIPAC MT 3.2) |
| Bulk density: | Not determined |
| Solubility(ies): | Not determined |
| Water solubility: | Not determined |
| Partition coefficient (n-octanol/water): | 5,9 (22°C, beta-cyfluthrin) |
| Auto-ignition temperature: | >400 °C (Regulation (EC) 440/2008 A.15. (AUTO-IGNITION TEMPERATURE (LIQUIDS AND GASES))) |
| Decomposition temperature: | Not determined |
| Viscosity: | 2,43 mm ² /s (20°C, ASTM D 445) |
| Viscosity: | 1,67 mm ² /s (40°C, ASTM D 445) |
| Explosive properties: | Product is not explosive. (Regulation (EC) 440/2008 A.14. (EXPLOSIVE PROPERTIES)) |
| Oxidising properties: | No (Regulation (EC) 440/2008 A.21. (OXIDISING PROPERTIES (LIQUIDS))) |

9.2 Other information

| | |
|---------------------------|----------------|
| Miscibility: | Not determined |
| Fat solubility / solvent: | Not determined |
| Conductivity: | Not determined |

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|-------------------|---|
| Surface tension: | 26,5 mN/m (25°C, Regulation (EC) 440/2008 A.5. (SURFACE TENSION)) |
| Surface tension: | 25,5 mN/m (40°C, Regulation (EC) 440/2008 A.5. (SURFACE TENSION)) |
| Surface tension: | 43,9 mN/m (0 %) |
| Surface tension: | 29,8 mN/m (1 %) |
| Solvents content: | Not determined |

SECTION 10: Stability and reactivity

10.1 Reactivity

The product has not been tested.

10.2 Chemical stability

Stable with proper storage and handling.

10.3 Possibility of hazardous reactions

No dangerous reactions are known.

10.4 Conditions to avoid

See also section 7.

Heating, open flame, ignition sources

10.5 Incompatible materials

See also section 7.

Avoid contact with strong oxidizing agents.

10.6 Hazardous decomposition products

See also section 5.2

No decomposition when used as directed.

SECTION 11: Toxicological information

Possibly more information on health effects, see Section 2.1 (classification).

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| Toxicity/effect | Endpoint | Value | Unit | Organism | Test method | Notes |
|----------------------------------|----------|----------------|-------|----------|---|------------------|
| Acute toxicity, by oral route: | LD50 | >200- <2000 | mg/kg | Rat | OECD 423 (Acute Oral Toxicity - Acute Toxic Class Method) | |
| Acute toxicity, by oral route: | ATE | 575 | mg/kg | | | calculated value |
| Acute toxicity, by dermal route: | LD50 | >4000 | mg/kg | Rat | OECD 402 (Acute Dermal Toxicity) | |
| Acute toxicity, by inhalation: | LC50 | 1,067 | mg/l | Rat | OECD 403 (Acute Inhalation Toxicity) | |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Not irritant |

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| | | | | | | |
|---|--|--|--|------------|---|--|
| Serious eye damage/irritation: | | | | Rat | OECD 405 (Acute Eye Irritation/Corrosion) | Irritant |
| Respiratory or skin sensitisation: | | | | Guinea pig | | Yes (skin contact) |
| Germ cell mutagenicity: | | | | | | n.d.a. |
| Carcinogenicity: | | | | | | n.d.a. |
| Reproductive toxicity: | | | | | | n.d.a. |
| Specific target organ toxicity - single exposure (STOT-SE): | | | | | | n.d.a. |
| Specific target organ toxicity - repeated exposure (STOT-RE): | | | | | | n.d.a. |
| Aspiration hazard: | | | | | | n.d.a. |
| Respiratory tract irritation: | | | | | | n.d.a. |
| Repeated dose toxicity: | | | | | | n.d.a. |
| Symptoms: | | | | | | n.d.a. |
| Other information: | | | | | | Classification according to calculation procedure. |

| Hydrocarbons, C10, aromatics, <1% naphthalene | | | | | | |
|---|-----------------|--------------|-------------|-----------------|---|---|
| Toxicity/effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | >5000 | mg/kg | Rat | OECD 401 (Acute Oral Toxicity) | |
| Acute toxicity, by dermal route: | LD50 | >2000 | mg/kg | Rabbit | OECD 402 (Acute Dermal Toxicity) | |
| Acute toxicity, by inhalation: | LC50 | >5 | mg/l/4h | Rat | | |
| Skin corrosion/irritation: | | | | | | Repeated exposure may cause skin dryness or cracking. |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Not irritant |
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Not irritant |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | Not sensitizing |
| Germ cell mutagenicity: | | | | | OECD 479 (Genetic Toxicology - In Vitro Sister Chromatid Exchange assay in Mammalian Cells) | Negative |
| Reproductive toxicity: | | | | | OECD 414 (Prenatal Developmental Toxicity Study) | Negative |



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| | | | | | | |
|---|--|--|--|--|--|--|
| Specific target organ toxicity - repeated exposure (STOT-RE): | | | | | OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents) | Negative |
| Aspiration hazard: | | | | | | Yes |
| Symptoms: | | | | | | drowsiness, headaches, drowsiness, dizziness |

| 2-Ethylhexanol | | | | | | |
|---|----------|--------|------------|----------|----------------------------------|---|
| Toxicity/effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | 2049 | mg/kg | Rat | | |
| Acute toxicity, by dermal route: | LD50 | > 3000 | mg/kg | Rat | OECD 402 (Acute Dermal Toxicity) | |
| Acute toxicity, by inhalation: | LC50 | 2,7 | mg/l/4h | | | |
| Skin corrosion/irritation: | | | | Rabbit | | Irritant |
| Serious eye damage/irritation: | | | | Rabbit | | Irritant |
| Respiratory or skin sensitisation: | | | | | | No (skin contact) |
| Carcinogenicity: | NOAEL | 750 | mg/kg bw/d | | | |
| Specific target organ toxicity - repeated exposure (STOT-RE): | NOAEL | 200 | mg/kg bw/d | Mouse | | |
| Symptoms: | | | | | | unconsciousness, drop in blood pressure, vomiting, headaches, cramps, drowsiness, mucous membrane irritation, dizziness, nausea |
| Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.: | NOAEC | 638,4 | mg/m3 | | | |

| Benzenesulfonic acid, C10-C13 alkyl derivatives, calcium salts | | | | | | |
|--|----------|-------|-------|----------|--|----------------------|
| Toxicity/effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by oral route: | LD50 | 4445 | mg/kg | Rat | | |
| Acute toxicity, by dermal route: | LD50 | >2000 | mg/kg | Rat | | Analogous conclusion |
| Skin corrosion/irritation: | | | | Rabbit | OECD 404 (Acute Dermal Irritation/Corrosion) | Irritant |



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| | | | | | | |
|------------------------------------|--|--|--|------------|---|---|
| Serious eye damage/irritation: | | | | Rabbit | OECD 405 (Acute Eye Irritation/Corrosion) | Risk of serious damage to eyes. |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | No (skin contact), Analogous conclusion |
| Germ cell mutagenicity: | | | | | OECD 476 (In Vitro Mammalian Cell Gene Mutation Test) | Negative, Analogous conclusion |
| Reproductive toxicity: | | | | Rat | | No indications of such an effect., Analogous conclusion |

| beta-cyfluthrin | | | | | | |
|------------------------------------|-----------------|--------------|-------------|-----------------|-------------------------------|--|
| Toxicity/effect | Endpoint | Value | Unit | Organism | Test method | Notes |
| Acute toxicity, by dermal route: | LD50 | >5000 | mg/kg | Rat | | |
| Skin corrosion/irritation: | | | | | | Not irritant |
| Serious eye damage/irritation: | | | | | | Mild irritant |
| Respiratory or skin sensitisation: | | | | Guinea pig | OECD 406 (Skin Sensitisation) | Not sensitizing |
| Symptoms: | | | | | | headaches, cramps, gastrointestinal disturbances, dizziness nausea and vomiting. |

SECTION 12: Ecological information

Possibly more information on environmental effects, see Section 2.1 (classification).

| Gandalf | | | | | | | |
|------------------------------------|-----------------|-------------|--------------|-------------|-----------------|--------------------|--------------|
| Toxicity/effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
| Toxicity to fish: | | | | | | | n.d.a. |
| Toxicity to daphnia: | | | | | | | n.d.a. |
| Toxicity to algae: | | | | | | | n.d.a. |
| Persistence and degradability: | | | | | | | n.d.a. |
| Bioaccumulative potential: | | | | | | | n.d.a. |
| Mobility in soil: | | | | | | | n.d.a. |
| Results of PBT and vPvB assessment | | | | | | | n.d.a. |
| Other adverse effects: | | | | | | | n.d.a. |

| Hydrocarbons, C10, aromatics, <1% naphthalene | | | | | | | |
|---|-----------------|-------------|--------------|-------------|-----------------|--------------------|--------------|
| Toxicity/effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |



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| | | | | | | | |
|--------------------------------|-------|-----|-------|------|----------------------------------|--|---|
| Toxicity to fish: | LL50 | 96h | 2 - 5 | mg/l | Oncorhynchus mykiss | OECD 203 (Fish, Acute Toxicity Test) | |
| Toxicity to daphnia: | EL50 | 48h | 3 -10 | mg/l | Daphnia magna | OECD 202 (Daphnia sp. Acute Immobilisation Test) | |
| Toxicity to algae: | EL50 | 72h | 11 | mg/l | Pseudokirchnerie lla subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| Toxicity to algae: | NOELR | 72h | 2,5 | mg/l | Pseudokirchnerie lla subcapitata | OECD 201 (Alga, Growth Inhibition Test) | |
| Persistence and degradability: | | 28d | 49,56 | % | | OECD 301 F (Ready Biodegradability - Manometric Respirometry Test) | Not readily but inherent biodegradable. |
| Persistence and degradability: | | 28d | 49,6 | % | | OECD 301 F (Ready Biodegradability - Manometric Respirometry Test) | Not readily but inherent biodegradable. |
| Water solubility: | | | | | | | Insoluble |

2-Ethylhexanol

| Toxicity/effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
|------------------------------------|----------|------|-------|------|-------------------------|--|-------------------------------------|
| Toxicity to fish: | LC50 | 96h | 17,1 | mg/l | Leuciscus idus | | |
| Toxicity to daphnia: | EC50 | 48h | 39 | mg/l | Daphnia magna | | |
| Toxicity to algae: | EC50 | 72h | 11,5 | mg/l | Scenedesmus subspicatus | | |
| Persistence and degradability: | | 5d | > 95 | % | | OECD 301 B (Ready Biodegradability - Co2 Evolution Test) | |
| Bioaccumulative potential: | BCF | | 25,33 | | | | |
| Bioaccumulative potential: | Log Kow | | 2,9 | | | | |
| Results of PBT and vPvB assessment | | | | | | | No PBT substance, No vPvB substance |

Benzenesulfonic acid, C10-C13 alkyl derivatives, calcium salts

| Toxicity/effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
|-----------------|----------|------|-------|------|----------|-------------|-------|
|-----------------|----------|------|-------|------|----------|-------------|-------|



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| | | | | | | | |
|--------------------------------|-----------|-----|----------|------|---------------------------|--|--|
| Toxicity to fish: | LC50 | 96h | >1 - <10 | mg/l | | OECD 203 (Fish, Acute Toxicity Test) | |
| Toxicity to fish: | NOEC/NOEL | | 0,23 | mg/l | Salmo gairdneri | | Analogous conclusion (72 d) |
| Toxicity to daphnia: | EC50 | 48h | 2,9 | mg/l | | OECD 202 (Daphnia sp. Acute Immobilisation Test) | Analogous conclusion |
| Toxicity to daphnia: | NOEC/NOEL | 48h | 0,379 | mg/l | | | Analogous conclusion |
| Toxicity to algae: | NOEC/NOEL | 96h | 0,5 | mg/l | Selenastrum capricornutum | | Analogous conclusion |
| Persistence and degradability: | | 28d | 109 | % | | OECD 301 B (Ready Biodegradability - Co2 Evolution Test) | Readily biodegradable (Analogous conclusion) |

| beta-cyfluthrin | | | | | | | |
|--------------------------------|----------|------|----------|------|-------------------------|-------------|-----------------------|
| Toxicity/effect | Endpoint | Time | Value | Unit | Organism | Test method | Notes |
| Toxicity to fish: | LC50 | 96h | 0,000068 | mg/l | Oncorhynchus mykiss | | |
| Toxicity to fish: | LC50 | 96h | 0,00028 | mg/l | Lepomis macrochirus | | |
| Toxicity to fish: | LC50 | 96h | 0,00033 | mg/l | Leuciscus idus | | |
| Toxicity to daphnia: | EC50 | 48h | 0,00029 | mg/l | Daphnia magna | | |
| Toxicity to algae: | IC50 | 96h | >0,01 | mg/l | Scenedesmus subspicatus | | |
| Persistence and degradability: | | | | | | | Readily biodegradable |
| Bioaccumulative potential: | BCF | | 506 | | | | |
| Bioaccumulative potential: | Log Pow | | 6,18 | | | | |

SECTION 13: Disposal considerations

13.1 Waste treatment methods

For the substance / mixture / residual amounts

EC disposal code no.:

The waste codes are recommendations based on the scheduled use of this product.

Owing to the user's specific conditions for use and disposal, other waste codes may be

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allocated under certain circumstances. (2001/118/EC, 2001/119/EC, 2001/573/EC)

02 01 08 agrochemical waste containing dangerous substances

07 04 99 wastes not otherwise specified

20 01 19 pesticides

Recommendation:

Pay attention to local and national official regulations

E.g. suitable incineration plant.

For contaminated packing material

Pay attention to local and national official regulations

Empty container completely.

Dispose of packaging that cannot be cleaned in the same manner as the substance.

SECTION 14: Transport information

General statements

UN number: 1993

Transport by road/by rail (ADR/RID)

UN proper shipping name:

UN 1993 FLAMMABLE LIQUID, N.O.S. (HYDROCARBONS, C10, AROMATICS) (SPECIAL PROVISION 640E)

Transport hazard class(es): 3

Packing group: III

Classification code: F1

LQ (ADR 2013): 5 L

LQ (ADR 2009): 7

Environmental hazards: environmentally hazardous

Tunnel restriction code: D/E



Transport by sea (IMDG-code)

UN proper shipping name:

FLAMMABLE LIQUID, N.O.S. (HYDROCARBONS, C10, AROMATICS, BETA-CYFLUTHRIN)

Transport hazard class(es): 3

Packing group: III

EmS: F-E, S-E

Marine Pollutant: Yes

Environmental hazards: environmentally hazardous



Transport by air (IATA)

UN proper shipping name:

Flammable liquid, n.o.s. (HYDROCARBONS, C10, AROMATICS)

Transport hazard class(es): 3

Packing group: III

Environmental hazards: Not applicable



Special precautions for user

Persons employed in transporting dangerous goods must be trained.

All persons involved in transporting must observe safety regulations.

Precautions must be taken to prevent damage.

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

Freighted as packaged goods rather than in bulk, therefore not applicable.

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Minimum amount regulations have not been taken into account.
Danger code and packing code on request.
Comply with special provisions.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

For classification and labelling see Section 2.

Observe restrictions: Yes
Comply with trade association/occupational health regulations.
Observe youth employment law (German regulation).
Observe law on protection of expectant mothers (German regulation).
VOC (1999/13/EC): 88,2 - 90% w/w

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

These details refer to the product as it is delivered.
Revised sections:

2, 3

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

| Classification in accordance with regulation (EC) No. 1272/2008 (CLP) | Evaluation method used |
|---|--|
| Flam. Liq. 3, H226 | Classification based on test data. |
| Acute Tox. 4, H332 | Classification based on test data. |
| Acute Tox. 4, H302 | Classification based on test data. |
| Eye Irrit. 2, H319 | Classification based on test data. |
| Skin Sens. 1, H317 | Classification based on test data. |
| Asp. Tox. 1, H304 | Classification according to calculation procedure. |
| STOT SE 3, H336 | Classification according to calculation procedure. |
| Aquatic Acute 1, H400 | Classification according to calculation procedure. |
| Aquatic Chronic 1, H410 | Classification according to calculation procedure. |

The following phrases represent the posted R phrases / H phrases, Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Section 2 and 3).

20 Harmful by inhalation.
20/22 Harmful by inhalation and if swallowed.
26/28 Very toxic by inhalation and if swallowed.
36/37/38 Irritating to eyes, respiratory system and skin.
38 Irritating to skin.

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41 Risk of serious damage to eyes.
43 May cause sensitization by skin contact.
50 Very toxic to aquatic organisms.
50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
51 Toxic to aquatic organisms.
52 Harmful to aquatic organisms.
53 May cause long-term adverse effects in the aquatic environment.
65 Harmful: may cause lung damage if swallowed.
66 Repeated exposure may cause skin dryness or cracking.
67 Vapours may cause drowsiness and dizziness.
H300 Fatal if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
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.

Flam. Liq. — Flammable liquid
Acute Tox. — Acute toxicity - inhalation
Acute Tox. — Acute toxicity - oral
Eye Irrit. — Eye irritation
Skin Sens. — Skin sensitization
Asp. Tox. — Aspiration hazard
STOT SE — Specific target organ toxicity - single exposure - narcotic effects
Aquatic Chronic — Hazardous to the aquatic environment - chronic
Aquatic Acute — Hazardous to the aquatic environment - acute
Skin Irrit. — Skin irritation
STOT SE — Specific target organ toxicity - single exposure - respiratory tract irritation
Eye Dam. — Serious eye damage

Any abbreviations and acronyms used in this document:

AC Article Categories
acc., acc. to according, according to
ACGIH American Conference of Governmental Industrial Hygienists
ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)
AOEL Acceptable Operator Exposure Level
AOX Adsorbable organic halogen compounds

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approx. approximately
Art., Art. no. Article number
ATE Acute Toxicity Estimate according to Regulation (EC) 1272/2008 (CLP)
BAM Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing, Germany)
BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)
BCF Bioconcentration factor
BGV Berufsgenossenschaftliche Vorschrift (= Accident Prevention Regulation)
BHT Butylhydroxytoluol (= 2,6-Di-t-butyl-4-methyl-phenol)
BMGV Biological monitoring guidance value (EH40, UK)
BOD Biochemical oxygen demand
BSEF Bromine Science and Environmental Forum
bw body weight
CAS Chemical Abstracts Service
CEC Coordinating European Council for the Development of Performance Tests for Fuels, Lubricants and Other Fluids
CESIO Comité Européen des Agents de Surface et de leurs Intermédiaires Organiques
CIPAC Collaborative International Pesticides Analytical Council
CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)
CMR carcinogenic, mutagenic, reproductive toxic
COD Chemical oxygen demand
CTFA Cosmetic, Toiletry, and Fragrance Association
DMEL Derived Minimum Effect Level
DNEL Derived No Effect Level
DOC Dissolved organic carbon
DT50 Dwell Time - 50% reduction of start concentration
DVS Deutscher Verband für Schweißen und verwandte Verfahren e.V. (= German Association for Welding and Allied Processes)
dw dry weight
e.g. for example (abbreviation of Latin 'exempli gratia'), for instance
EC European Community
ECHA European Chemicals Agency
EEA European Economic Area
EEC European Economic Community
EINECS European Inventory of Existing Commercial Chemical Substances
ELINCS European List of Notified Chemical Substances
EN European Norms
EPA United States Environmental Protection Agency (United States of America)
ERC Environmental Release Categories
ES Exposure scenario
etc. et cetera
EU European Union
EWC European Waste Catalogue
Fax. Fax number
gen. general
GHS Globally Harmonized System of Classification and Labelling of Chemicals
GWP Global warming potential
HET-CAM Hen's Egg Test - Chorionallantoic Membrane
HGWP Halocarbon Global Warming Potential
IARC International Agency for Research on Cancer

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IATA International Air Transport Association
IBC Intermediate Bulk Container
IBC (Code) International Bulk Chemical (Code)
IC Inhibitory concentration
IMDG-code International Maritime Code for Dangerous Goods
incl. including, inclusive
IUCLID International Uniform Chemical Information Database
LC lethal concentration
LC50 lethal concentration 50 percent kill
LCLo lowest published lethal concentration
LD Lethal Dose of a chemical
LD50 Lethal Dose, 50% kill
LDLo Lethal Dose Low
LOAEL Lowest Observed Adverse Effect Level
LOEC Lowest Observed Effect Concentration
LOEL Lowest Observed Effect Level
LQ Limited Quantities
MARPOL International Convention for the Prevention of Marine Pollution from Ships
n.a. not applicable
n.av. not available
n.c. not checked
n.d.a. no data available
NIOSH National Institute of Occupational Safety and Health (United States of America)
NOAEC No Observed Adverse Effective Concentration
NOAEL No Observed Adverse Effect Level
NOEC No Observed Effect Concentration
NOEL No Observed Effect Level
ODP Ozone Depletion Potential
OECD Organisation for Economic Co-operation and Development
org. organic
PAH polycyclic aromatic hydrocarbon
PBT persistent, bioaccumulative and toxic
PC Chemical product category
PE Polyethylene
PNEC Predicted No Effect Concentration
POCP Photochemical ozone creation potential
ppm parts per million
PROC Process category
PTFE Polytetrafluorethylene
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)
REACH-IT List-No. 9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)
SADT Self-Accelerating Decomposition Temperature
SAR Structure Activity Relationship

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SU Sector of use
SVHC Substances of Very High Concern
Tel. Telephone
ThOD Theoretical oxygen demand
TOC Total organic carbon
TRGS Technische Regeln für Gefahrstoffe (=Technical Regulations for Hazardous Substances)
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods
VbF Verordnung über brennbare Flüssigkeiten (= Regulation for flammable liquids (Austria))
VOC Volatile organic compounds
vPvB very persistent and very bioaccumulative
WEL-TWA, WEL-STEL WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period), WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period) (EH40, UK).
WHO World Health Organization
wwt wet weight

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.

No responsibility.

These statements were made by:

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