

1. IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY

1.1 Product identifier

Trade name

Cachet

1.2 Relevant identified uses of the mixture and uses advised against

1.2.1 Relevant identified uses

For professional use only as an agricultural herbicide.

1.2.2 Uses advised against

Do not use for any other purpose.

1.3 Details of the supplier of the safety data sheet

Agform Ltd., Hilldale Farm Research Centre, Titchfield Lane, Wickham, Hampshire, PO17 5NZ. United Kingdom

Telephone: 01329 836930
Fax: N/A
Email: msds@agform.com
Web: www.agform.com

1.4 Emergency telephone number

| | |
|---|---|
| For advice on medical emergencies, fires or major spills: | 07811 366992 |
| Available | 24hr |
| Time Zone | GMT |
| Language(s) of phone service | English |
| UK National Poisons Information Service: | +44 (0)121 507 4123 (For health professionals only) |
| Available | 24h |
| Time Zone | GMT |
| Language(s) of phone service | English |

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance

Classification according to Regulation (EC) no. 1272/2008 [CLP/GHS]

Aquatic Acute Cat 1 (H400)
Aquatic Chronic Cat 1 (H410)

Additional information

For full text of classifications, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) no. 1272/2008 [CLP/GHS]

Pictograms:



Signal Word:

Warning

Hazard statements:

H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

Precautionary statements:

P273 Avoid release to the environment.
P280 Wear protective gloves / protective clothing / eye protection / face protection
P391 Collect spillage
P501 Dispose of contents / container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

2.3 Other hazards

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixtures

Description of the mixture:

Suspension concentrate (SC)

Diflufenican 500 g/l

| Chemical Name | CAS-No. | EC-No. | Index No. | Concentration (% w/w) | Classification (Regulation (EC) No. 1272/2008) |
|-------------------|------------|--------|-----------|-----------------------|--|
| Diflufenican | 83164-33-4 | - | - | 40-44 | Aquatic Chronic 3; H412 |
| Other ingredients | - | - | - | To 100% | Not classified |

Additional information

For full text of classifications and hazard statements, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General notes:

If symptoms occur after exposure to this product, seek medical attention immediately and show the product label or this SDS. Remove to fresh air and keep at rest. Do not allow smoking or eating. Take off all contaminated clothing and footwear.

Following inhalation:

Remove to fresh air and keep at rest in half-upright position. Seek medical attention immediately.

Following skin contact:

Remove all contaminated clothing. Wash skin with soap and rinse with plenty of water. Seek medical attention if irritation arises. Wash clothes before re-use.

Following eye contact:

Immediately rinse with water. Holding eyes open, continue rinsing for 15 minutes at least. Remove contact lenses as soon as possible. Seek medical attention immediately.

Following ingestion:

If swallowed, DO NOT INDUCE VOMITING: seek medical advice immediately and show this container or label. Remove any residues from mouth and rinse it with plenty of water. Offer the casualty 1 or 2 glasses of water to drink. Never give anything by mouth to an unconscious person.

Self-protection of first aider:

Personal protective equipment for first aid responders is recommended according to potential for exposure (refer to Section 8).

Notes for the doctor:

No specific antidote. Treat symptomatically (decontamination, vital functions). Call a Poison Centre immediately for treatment advice. In case of ingestion gastric lavage may be necessary (with proper laryngeal control). Before emptying the stomach, assess the potential danger arising from lung aspiration against the product toxicity. Report to Agform Limited any unusual symptoms occurring after exposure by any route.

4.2 Most important symptoms and effects, both acute and delayed

No additional information on symptoms and effects available.

4.3 Indication of immediate medical attention and special treatment needed

No specific antidote. Treat according to symptoms.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:

Carbon dioxide, water, foam, dry chemical

Unsuitable extinguishing media:

Avoid using a solid water stream as it may cause the fire to scatter or spread

5.2 Special hazards arising from the mixture

Hazardous combustion products

Avoid breathing smoke or mists when fire-fighting. Do not allow contaminated fire-fighting water to enter watercourses or drains. In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid), Hydrogen fluoride, Carbon monoxide (CO), Nitrogen oxides (NOx), Sulphur oxides

5.3 Advice for fire-fighters

Clothing conforming to EN469 should be sufficient to deal with fires involving the substance.

However, a Self-Contained Breathing Apparatus (SCBA) may be required if there is a potential for exposure to combustion fumes.

5.4 Additional information

Provide storage and work areas with suitable fire extinguishers.

Call the Fire Brigade at once to deal with all fires involving pesticides unless the fire is small and immediately controllable. Spray unopened containers with a mist spray to keep cool. If without risk, remove intact containers from exposure to fire. Contain fire-fighting water, bunding if necessary with sand or earth. Do not allow contamination of public drains or surface or ground waters. Dispose of fire debris and contaminated water as advised in the DEFRA "Code of practice for using plant protection products".

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Protective equipment: Remove immediately any contaminated clothing. Wear prescribed personal protective equipment to prevent contact with eyes and skin. A Self-Contained Breathing Apparatus (SCBA) may be required if there is an elevated risk for exposure.

Emergency procedures: Call the emergency services if the release is not immediately controllable. If the release is localized and immediately controllable, provide sufficient ventilation and control the release at its source.

6.1.2 For emergency responders

Clothing conforming to EN469.

6.2 Environmental precautions

Use appropriate containment to avoid environmental contamination. Control the release at its source. Contain the spill to prevent it from spreading, contaminating soil or entering sewage and drainage systems or any body of water. Inform the local water company if the release enters drains and the Environment Agency (England and Wales), the Scottish Environmental Protection Agency (Scotland) or the Environment and Heritage Service (Northern Ireland) if it enters surface or ground waters.

6.3 Methods and material for containment and cleaning up

For containment

Clean up spills immediately and place in a compatible disposal container. Contain spill by diking with earth, sand or absorbent material and place into a compatible marked disposal container.

For cleaning up

Scrub area with a hard water detergent. Soak up wash liquid with additional absorbent material and place into a compatible marked disposal container. Seal container and arrange for disposal.

Other information

Not Applicable

6.4 Reference to other sections

Refer to Section 8 for personal protective equipment and to Section 13 for disposal instructions.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide suitable ventilation in the areas where the product is stored and used. Contaminated work clothing should not be allowed out of the workplace. Avoid all contact by mouth, with eyes and skin. Wear personal protective equipment as specified in Section 8. When using, do not eat, drink or smoke. Remove contaminated clothing and protective equipment before meals and after work. Wash hands and exposed skin before meals and after work. Wash all protective clothing thoroughly after use, especially the insides of gloves.

7.2 Conditions for safe storage, including any incompatibilities

The material is stable under normal ambient conditions. Keep in original container, in a dry, cool and safe place. Store in a locked, suitable store. Keep away from any source of ignition. Do not store in proximity of sources of ignition and direct sunlight. Keep out of the reach of children and unauthorised personnel. Keep away from food, drink and animal feeding stuffs.

7.3 Specific end use(s)

Herbicide for professional use as directed by the product label, every other use is hazardous.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

8.1 Control Parameters

Occupational Exposure limit values

Occupational Exposure limit values have been set for the following components: N/A

| Chemical Name | CAS-No. | Exposure Limit | Reference |
|---------------|---------|----------------|-----------|
| | | | |

Information on monitoring procedures

None available.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Engineering controls and appropriate work processes must be used to eliminate or reduce worker and environmental exposure in the areas where the substance is handled, transported, loaded, unloaded, stored and used. These measures must be adequate for the extent of the actual risk. Provide adequate local exhaust ventilation. Use specialized transfer systems if available.

8.2.2 Personal protection equipment

For normal use/handling refer to the product label. In all other cases the following apply:

Eye and face protection

Avoid contact with eyes. Wear suitable eye and face protection (EN 166).

Skin protection:

Hand protection: Wear suitable protective gloves against chemicals (EN 374 part 1, 2, 3). Nitrile rubber min. 0.5mm thick and 300mm long gloves are the ones proven to be the most suitable according to tests on pesticide products.

Wash the gloves thoroughly after each use, especially the insides. Replace gloves if damaged and before exceeding the breakthrough time.

Body protection: Avoid contact with skin. If there is a significant potential for contact, wear suitable coveralls (ISO 13982-1, Type 5, EN 13034, Type 6).

Other skin protection: None specified.

Respiratory protection: If a risk assessment shows that engineering controls do not provide adequate respiratory protection to exposure to spray particles, wear particle filtering half mask (EN 149) or half mask connected to particle filter (EN 140 + 143).

8.2.3 Environmental exposure controls

Implement all applicable local and community environmental protection legislation. Refer to Section 15. Use appropriate containment to avoid environmental contamination. Do not empty into drains. Do not contaminate water with the product or used container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads. Refer to Section 12 and 13.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|---|---|
| a) <i>Appearance:</i> | Suspension |
| <i>Colour:</i> | White to beige |
| b) <i>Odour:</i> | Weak, characteristic |
| c) <i>Odour threshold:</i> | Not determined – not required under all applicable pesticide legislation. |
| d) <i>pH:</i> | 4.0 – 6.5 (at 100%, 23 °C) |
| e) <i>Melting point/freezing point:</i> | Not applicable |
| f) <i>Initial boiling point and boiling range:</i> | > 100 °C |
| g) <i>Flash point:</i> | No flash point. |
| h) <i>Evaporation rate:</i> | Not available - not required under all applicable pesticide legislation. |
| i) <i>Flammability (solid, gas):</i> | Not applicable (liquid) |
| j) <i>Upper/lower flammability or explosive limits:</i> | Not applicable – the mixture is water-based |
| k) <i>Vapour pressure:</i> | No significant volatility – the mixture is water-based |
| l) <i>Vapour density:</i> | Not applicable - not required under all applicable pesticide legislation. |
| m) <i>Density:</i> | 1.19 g/mL at 20 °C |
| n) <i>Solubility(ies)</i> | |
| <i>Solubility (water):</i> | Dispersible |
| o) <i>Partition coefficient: n-octanol/water:</i> | Diflufenican: log P _{ow} 4.2 (20 °C, no pH dependency) |
| p) <i>Auto-ignition temperature:</i> | Not available |
| <i>Minimum Ignition Temperature:</i> | Not available |
| <i>Minimum Ignition Energy:</i> | Not available |

- q) *Decomposition temperature:* Diflufenican: 304.6 °C
r) *Viscosity:* Not available
s) *Explosive properties:* Not expected to be explosive (based consideration of components and a similar formulation).
t) *Oxidising properties:* Not expected to be explosive (based consideration of components and a similar formulation).

9.2 Other information

None

10. STABILITY AND REACTIVITY

10.1 Reactivity

Non-reactive when stored in original container under normal conditions of storage and use.

10.2 Chemical stability

Stable when stored in original container under normal conditions of storage and use.

10.3 Possibility of hazardous reactions

No hazardous reactions when stored in original container under normal conditions of storage and use.

10.4 Conditions to avoid

Do not store in proximity of sources of ignition and direct sunlight.

10.5 Incompatible materials

Avoid contamination with strong oxidisers

10.6 Hazardous decomposition products

Toxic oxides of carbon and nitrogen

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 Substances

Not Applicable

11.1.2 Mixtures

All results based on tests conducted performed on similar formulation.

a) Acute toxicity:

- LD₅₀ oral, rat:** >19267 mg/ kg bw (Calc. ATE: conservative estimate in accordance with CLP EC 1272/2008 limits and Bridging Rules)
LD₅₀ dermal, rabbit: > 8695 mg/ kg bw (Calc. ATE: conservative estimate in accordance with CLP EC 1272/2008 limits and Bridging Rules)
LC₅₀ inhalation, rat: > 22.26 mg/L (4 h) (Calc. ATE: conservative estimate in accordance with CLP EC 1272/2008 limits and Bridging Rules)

b) Skin corrosion/irritation:

No skin irritation

c) Serious eye damage/irritation:

No eye irritation

d) Respiratory or skin sensitization:

No sensitisation (mouse)

e) Germ cell mutagenicity:

Not classified as mutagenic on the basis of mixture components information.
Diflufenican - *In vitro* and *in vivo* genetic toxicity results were negative.
Diflufenican does not have genotoxic potential.

f) Carcinogenicity:

Not classified as carcinogenic on the basis of mixture components information.
Diflufenican - in both rats and mice diflufenican did not show any carcinogenic potential.

g) Reproductive toxicity:

Not classified as a reproductive/developmental toxicant on the basis of mixture components information.
Diflufenican - developmental toxicity noted only at maternally toxic doses. No evidence of teratogenicity.

h) STOT-single exposure:

Not classified on the basis of information on the mixture components.

i) STOT-repeated exposure:

Not classified on the basis of information on the mixture components.

Diflufenican- in laboratory animals, effects have been noted in the liver following repeated exposure to large quantities.
Not classified on the basis of information on the mixture components.

j) **Aspiration hazard:**

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Acute Toxicity

LC₅₀ fish, *Oncorhynchus mykiss* (96h):

Mixture not tested

EC₅₀ aquatic invertebrates, *Daphnia magna* (48h):

Mixture not tested

EC₅₀ algae, *Pseudokirchneriella subcapitata*:

Mixture not tested

12.2 Persistence and degradability:

Diflufenican - Not readily biodegradable

12.3 Bioaccumulative potential:

Diflufenican - No significant potential for bioaccumulation

12.4 Mobility in soil:

Diflufenican – Slightly mobile

12.5 Results of PBT and vPvB assessment:

No PBT or vPvB assessments have been carried out on the mixture; please refer to 12.1, 12.2 & 12.3.

12.6 Other adverse effects:

Not determined.

12.7 Additional Information:

None

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal of waste product, contaminated packaging materials and any excess diluted spray should be in accordance with The Hazardous Waste (England and Wales) Regulations 2005 and any other applicable local or national legislation (for guidance refer to the DEFRA "Pesticides: Code of Practice for Using Plant Protection Products").

For the handling and management of accidental release, follow the information given under Section 6 and 7.

14. TRANSPORT INFORMATION

ADR/RID/ADN/IMDG/ICAO/IATA

14.1 UN number

UN 3082

14.2 UN Proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CONTAINS DIFLUFENICAN)

14.3 Transport hazard class(es)

9

14.4 Packing group

III

14.5 Environmental hazards

Land transport ADR/RID - Environmentally Hazardous: Yes

Maritime transport IMDG - Marine pollutant: Yes

Land transport ADR/RID - Tunnel restriction code: E

Not evaluated.

14.6 Special Precautions for User

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

15. REGULATORY INFORMATION

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

EU Regulations

REGULATION (EC) No 1107/2009 of The European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC. Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances

DIRECTIVE 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations.

REGULATION (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

REGULATION (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

National Regulations/legislation:

The Chemicals (Hazard Information & Packaging for Supply) Regulations 2009 (CHIP 4)
Health and Safety at Work etc. Act 1974, as amended, the Control of Substances Hazardous to Health Regulations 1999 (COSHH), as amended.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment under Regulation (EC) 1907/2006 is required and has not been carried out.

16. OTHER INFORMATION

a) Indication of changes:

Vertical lines in the left hand margin indicate an amendment from the previous version.

b) Abbreviations and acronyms:

DEFRA: Department for Environment Food & Rural Affairs

c) Key literature references and sources for data:

Agform Limited

ECHA Guidance on the compilation of safety data sheets (Version 2.1, February 2014)

d) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

All classification according to Regulation (EC) Nr. 1272/2008 - Bridging principle

e) Relevant classifications, hazard (H) and precautionary (P) statements not written out in full under Sections 2 to 15:

Aquatic Chronic 3: Hazardous to the aquatic environment – chronic, Category 3

H412 Harmful to aquatic life with long lasting effects

f) Training advice:

General occupational hygiene training recommended.

g) Further information:

The toxicological data indicated in this MSDS might not in some cases be entirely consistent with the classification of this mixture as it is compiled from a number of different sources.

The information and recommendations in this publication are, to the best of our knowledge, information and belief, accurate at the date of publication. Nothing herein is to be construed as a warranty, expressed or implied. In all cases it is the responsibility of the user to determine the applicability of such information or the suitability of any products for their own particular purpose.

This Material Safety Data Sheet was compiled by Agform Limited in compliance with Regulation (EC) 1907/2006 as amended by 453/2010.