



Mirror[®]

syngenta[®]

GROUP M04 FUNGICIDE

F



DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5m of the top of the bank of a static or flowing water body unless a Local Environmental Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 1m of the top of a ditch which is dry at the time of application. Aim spray away from water.

Product registration number: MAPP 18866 **UF:** P3TJ-WFJ4-9Q09-FXP6

A suspension concentrate formulation containing 500 g/l (39.5% w/w) folpet. Contains folpet and hexamethylene tetramine: may produce an allergic reaction.

A fungicide for protection against leaf blotch (*Zymoseptoria tritici*) on wheat and triticale, leaf blotch (*Rhynchosporium secalis*) on barley and triticale and net blotch (*Pyrenophora teres*) and ramularia leaf spot (*Ramularia collo-cygni*) on barley.

SAFETY PRECAUTIONS

(a) Operator protection

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) AND SUITABLE PROTECTIVE GLOVES when handling the concentrate or handling contaminated surfaces.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.

WASH CONCENTRATE from skin or eyes immediately. **WASH HANDS AND EXPOSED SKIN** before eating or drinking and after work. **IF YOU FEEL UNWELL:** seek medical advice immediately (show the label where possible).

(b) Environmental Protection

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.

To protect aquatic organisms respect an unsprayed buffer zone distance to surface water bodies in line with LERAP requirements.

This product qualifies for inclusion within the Local Environmental Risk Assessment for Pesticides (LERAP) scheme. Before each spraying operation from a horizontal boom sprayer, either a LERAP must be carried out in accordance with HSE's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for three years.

(c) Storage and disposal

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.
DO NOT RE-USE CONTAINER FOR ANY PURPOSE.

For advice on medical emergencies, fires or major spills telephone the UK National Chemical Emergency Centre on +44 (0) 1865 407333.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work.

SHAKE WELL BEFORE USE.
PROTECT FROM FROST.

Product names marked © or ™, the ALLIANCE FRAME the SYNGENTA Logo and the PURPOSE ICON are Trademarks of a Syngenta Group Company

L1099904 GBRI/02B PPE 4177198

5 litres

MIRROR®

A suspension concentrate formulation containing 500 g/l (39.5% w/w) folpet.

**Warning**

May cause an allergic skin reaction.

Suspected of causing cancer.

Very toxic to aquatic life with long lasting effects.

Keep out of reach of children.

Obtain special instructions before use.

Keep only in original packaging.

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

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

If exposed or concerned: Get medical advice/ attention.

If skin irritation or rash occurs: Get medical advice/ attention.

Collect spillage.

Contains folpet and hexamethylene tetramine. May produce an allergic reaction.

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.

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

MAPP: 18866 UFI: P3TJ-WFJ4-9Q09-FXP6

IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL FUNGICIDE

| Crop | Maximum individual dose (litres of product/ha) | Maximum total dose (litres of product/ha/crop) | Latest time of application |
|--|---|---|--|
| Winter wheat, spring wheat, winter barley, spring barley and triticale | 1.5 | 3 | Before end of heading/ inflorescence fully emerged (GS 59) |

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

DIRECTIONS FOR USE

IMPORTANT: This information is approved as part of the Product Label. All instructions within this section must be carefully read in order to obtain safe and successful use of this product.

Resistance

MIRROR® contains folpet, a protectant fungicide from the phthalimide chemical group with multi-site contact activity. For resistance management purposes, it's mode of action is classified as M4 under the FRAC* code which indicates low-risk without any signs of resistance or cross-resistance developing.

*FRAC: Fungicide Resistance Action Committee

For current advice on resistance management contact your agronomist or specialist advisor, and visit the FRAG-UK website.

Disease control in wheat, barley and triticale

For the reduction of leaf spot (*Zymoseptoria tritici*) in winter and spring wheat and triticale and leaf blotch (*Rhynchosporium secalis*) in winter and spring barley and triticale, and moderate control of net blotch (*Pyrenophora teres*) and ramularia leaf spot (*Ramularia collo-cygni*) in winter and spring barley. MIRROR may be applied in a programme of 2 suitably timed sprays.

Dose rate

1.5 L/ha per application

Septoria leaf spot (*Zymoseptoria tritici*) in winter and spring wheat and triticale

As MIRROR is a protectant fungicide with contact activity, it is important to apply the first spray before the disease becomes established in the crop (normally GS 30-33). A second spray should be timed to protect new growth from disease and therefore needs to be applied prior to further infection. This is normally 3 weeks after the first application but may be sooner under conditions of rapid growth and high disease pressure. Where disease infection or re-infection has occurred prior to application, MIRROR should be mixed with alternative chemistry to provide curative activity (see Compatibility section).

Leaf blotch (*Rhynchosporium secalis*) in winter and spring barley and triticale; and net blotch (*Pyrenophora teres*) and ramularia leaf spot (*Ramularia collo-cygni*) in winter and spring barley

As MIRROR is a protectant fungicide with contact activity, it is important to apply the first spray before the disease becomes established in the crop (normally GS 30-33). A second spray should be timed to protect new growth from disease infection. This is normally 3 weeks after the first application but may be sooner under conditions of rapid growth and high disease pressure. Where disease infection or re-infection has occurred prior to application, MIRROR should be mixed with alternative chemistry to provide curative activity (see Compatibility section).

Water volume

Apply MIRROR in a water volume of 200-400 L/ha. As MIRROR has contact activity, it is important to achieve a good coverage of the crop when spraying.

Qualified recommendation: lower water volumes of 150 L/ha may also be used*; however, these have not been supported by effectiveness or crop safety data.

*or the equivalent of a 1% v/v dilution.

Mixing and spraying

For use by tractor mounted/trailed sprayer only.

Before spraying it is important to check all hoses, filters and nozzles, and to ensure that the sprayer is clean and correctly calibrated to give an accurate application at the correct volume. Half fill sprayer tank with clean water. Add the required amount of MIRROR to the water and commence agitation. Maintain agitation during the mixing process and continue until the spraying is complete. On emptying the container, RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of container safely. Add the remainder of the water whilst continuing to agitate the mixture until spraying is complete. Do not leave in the spray tank for long periods without using.

Apply MIRROR as a medium spray (as defined by the BCPC) in cereals.

Thoroughly clean the sprayer and measuring equipment after using MIRROR.

Crops should not be re-entered until spray residues are dry.

Compatibility

Consult Syngenta UK Ltd or your distributor for details on the products which may be mixed with MIRROR.

Caution

After spraying a herbicide, sprayer tanks and equipment should be thoroughly cleaned before using MIRROR.

COMPANY ADVISORY SECTION

This section is not part of the Product Label under Regulation 1107/2009 (GB/NI) and provides additional advice on product use.

DISCLAIMER/CONDITIONS OF SUPPLY

The specified properties of our products and the mode of application stated on this label have been established on the basis of research and experience. Products conform to specification at the time of delivery but, as we exercise no control over their subsequent storage, handling, mixing or use or the weather conditions before, during and after application, all of which may affect the performance of the products, no responsibility or liability will be accepted by us or our re-sellers for any failure in performance, damage or injury to person or property whatsoever arising from the storage, handling, application or use of the products. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in or make recommendations concerning the use of such products. We recommend you contact your dealer to request advice on the suitability of this product for any new and/or unusual growing methods or for new varieties not listed on this label.

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Section 6 of the Health and Safety at Work Act
Additional Product Safety Information

(This section does not form part of the product label under the Plant Protection Products Regulations 1995.)
The product label provides information on a specific pesticidal use of the product; do not use otherwise, unless you have assessed any potential hazard involved, the safety measures required and that the particular use has 'Extension of Use' approval or is otherwise permitted under the Plant Protection Products Regulations.

The information on this label is based on the best available information including data from test results.

SAFETY DATA SHEET - v2

SECTION 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY/ UNDERTAKING

1.1 Product Identifier

Tradename: MIRROR

Design Code: A12947B

Product Registration Number: MAPP 18866

UFI: P3TJ-WFJ4-9Q09-FXP6

1.2 Relevant Identified Uses of the substance or mixture and uses advised against
Use of the Substance/Mixture: Fungicide

1.3 Details of the supplier of the safety data sheet

Company: Syngenta UK Limited
CPC4, Capital Park
Fulbourn, Cambridge CB21 5XE
United Kingdom

Telephone: +44 (0) 1223 883400

Telefax: +44 (0) 1223 882195

E-mail address of person responsible for the SDS: customer.services@syngenta.com

1.4 Emergency telephone number

Emergency phone No. +44 (0) 1484 538444 (24h)

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin sensitisation, Category 1 - H317: May cause an allergic skin reaction.

Carcinogenicity, Category 2 - H351: Suspected of causing cancer.

Short-term (acute) aquatic hazard, Category 1 - H400: Very toxic to aquatic life.

Long-term (chronic) aquatic hazard, Category 1 - H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling: Regulation (EC) No. 1272/2008

Hazard Pictograms



| | | |
|---------------------------------------|---|--|
| Signal Word | Warning | |
| Hazard Statements | H317 | May cause an allergic skin reaction. |
| | H351 | Suspected of causing cancer. |
| | H411 | Toxic to aquatic life with long lasting effects. |
| Supplemental Hazard Statements | EUH401 | To avoid risks to human health and the environment comply with the instructions for use. |
| | 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). |
| Precautionary Statements | P102 | Keep out of reach of children |
| | P201 | Obtain special instructions before use. |
| | P234 | Keep only in original packaging. |
| | P261 | Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. |
| | P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| | P308+P313 | IF exposed or concerned: Get medical advice/ attention. |
| | P333+P313 | IF skin irritation or rash occurs: Get medical advice/attention. |
| P391 | Collect spillage. | |
| P501 | Dispose of contents/ container to an approved waste disposal plant. | |

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous Component(s)

| Chemical Name | CAS-No. EC-No. Index-No. Registration number | Classification | Concentration (% w/w) |
|---|---|---|--------------------------|
| folpet (ISO) | 133-07-3 205-088-6 613-045-00-1 | Acute Tox. 4; H332 Eye Irrit. 2; H319 Skin Sens. 1; H317 Carc. 2; H351 Aquatic Acute 1; H400 M-Factor (Acute aquatic toxicity): 10 | >= 30 - < 50 |
| Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts | 68425-94-5 | Eye Irrit. 2; H319 | >= 1 - < 10 |
| fumaric acid | 110-17-8 203-743-0 607-146-00-X 01-2119485492-31 | Eye Irrit. 2; H319 | >= 1 - < 10 |

| Chemical Name | CAS-No. EC-No. Index-No. Registration number | Classification | Concentration (% w/w) |
|------------------------------|---|--|--------------------------|
| methenamine | 100-97-0 202-905-8 612-101-00-2 | Flam. Sol. 2; H228 Skin Sens. 1; H317 | >= 1 - < 10 |
| 1,2-benzisothiazol-3(2H)-one | 2634-33-5 220-120-9 613-088-00-6 | Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400 | >= 0.1 - < 0.25 |

For explanation of abbreviations see section 16.

SECTION 4. FIRST-AID MEASURES

4.1 Description of first aid measures

General advice: Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.

If inhaled: Move the victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or poison control centre immediately.

If exposed or if you feel unwell: call a POISON CENTRE or doctor/physician.

In case of skin contact: Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

In case of eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

If swallowed: If swallowed, seek medical advice immediately and show this container or label. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Nonspecific. No symptoms known or expected.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: There is no specific antidote available. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:

Extinguishing media - small fires

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media - large fires

Alcohol-resistant foam or Water spray

Unsuitable extinguishing media:

Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting: As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.

5.3 Advice for fire-fighters

Special protective equipment for firefighters: Wear full protective clothing and self-contained breathing apparatus.

Further information: Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

6.4 Reference to other sections

For disposal considerations see section 13., Refer to protective measures listed in sections 7 and 8.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling: No special protective measures against fire required. Avoid contact with skin and eyes. When using do not eat, drink or smoke. For personal protection see section 8.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s)

Specific use(s): For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis |
|--------------|----------|----------------------------------|-----------------------|----------|
| folpet (ISO) | 133-07-3 | TWA | 0.4 mg/m ³ | SYNGENTA |

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

| Substance name | End Use | Exposure routes | Potential health effects | Value |
|----------------|-----------|-----------------|----------------------------|----------------------|
| fumaric acid | Workers | Inhalation | Long-term systemic effects | 175 mg ³ |
| | Workers | Inhalation | Acute systemic effects | 175 mg ³ |
| | Workers | Dermal | Long-term systemic effects | 50 mg/kg |
| | Workers | Dermal | Acute systemic effects | 50 mg/kg |
| | Consumers | Inhalation | Long-term systemic effects | 53 mg/m ³ |
| | Consumers | Inhalation | Acute systemic effects | 53 mg/m ³ |
| | Consumers | Dermal | Long-term systemic effects | 30 mg/kg |
| | Consumers | Dermal | Acute systemic effects | 30 mg/kg |
| | Consumers | Oral | Long-term systemic effects | 30 mg/kg |
| | Consumers | Oral | Acute systemic effects | 30 mg/kg |

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

| Substance name | Environmental Compartment | Value |
|----------------|---------------------------|-----------|
| fumaric acid | Fresh water | 0.1 mg/l |
| | Marine water | 0.01 mg/l |
| | Intermittent release | 1 mg/l |
| | Sewage treatment plant | 3 mg/l |

8.2 Exposure controls

Engineering measures: Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. If airborne dust is generated, use local exhaust ventilation controls. Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit. Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Eye protection: No special protective equipment required.

Hand protection

Material: Nitrile rubber

Break through time: > 480 min

Glove thickness: 0.5 mm

Remarks: Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Skin and body protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Remove and wash contaminated clothing before re-use.

Wear as appropriate: Impervious clothing

Respiratory protection: No personal respiratory protective equipment normally required. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Protective measures: The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|---|--|
| Appearance: | liquid |
| Colour: | beige to white |
| Odour: | slight |
| Odour Threshold: | No data available |
| pH: | 4.5 - 6 |
| | Concentration: 1 % |
| Melting point/range: | No data available |
| Boiling point/boiling range: | No data available |
| Flash point: | does not flash |
| Evaporation rate: | No data available |
| Lower explosion limit: | No data available |
| Upper explosion limit: | No data available |
| Relative vapour density: | No data available |
| Density: | 1.25 g/cm ³ (25 °C) |
| Solubility in other solvents: | No data available |
| Partition Coefficient n-octanol/water: | No data available |
| Autoignition temperature: | No data available |
| Decomposition temperature: | No data available |
| Viscosity, dynamic: | No data available |
| Viscosity, kinematic: | 1500 mm ² /s (40 °C) |
| Explosive properties: | Not explosive |
| Oxidizing properties: | The substance or mixture is not classified as oxidizing. |

9.2 Other Information

Self-ignition: > 400 °C

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

None reasonably foreseeable.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions: No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid: No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid: None known.

10.6 Hazardous decomposition products

Hazardous decomposition products: No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Information on likely routes of exposure: Ingestion, Inhalation, Skin contact, Eye contact

Acute toxicity

Product:

Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity: LC50 (Rat): > 5.28 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg

Assessment: The substance or mixture has no acute dermal toxicity

Components:

folpet (ISO):

Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg

Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: LC50 (Rat): 1.89 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg

Assessment: The substance or mixture has no acute dermal toxicity

1,2-benzisothiazol-3(2H)-one:

Acute oral toxicity: LD50 (Rat): 1,020 mg/kg

Skin corrosion/irritation

Product:

Species: Rabbit

Result: No skin irritation

Components:

1,2-benzisothiazol-3(2H)-one:

Result: Irritating to skin.

Serious eye damage/eye irritation

Product:

Species: Rabbit

Result: No eye irritation

Components:

folpet (ISO):

Result: Eye irritation

Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:

Result: Eye irritation

fumaric acid:

Result: Eye irritation

1,2-benzisothiazol-3(2H)-one:

Result: Risk of serious damage to eyes.

Respiratory or skin sensitisation

Product:

Test Type: mouse lymphoma cells

Species: Mouse

Result: May cause sensitisation by skin contact.

Components:

folpet (ISO):

Species: Guinea pig

Result: May cause sensitisation by skin contact.

methenamine:

Result: May cause sensitisation by skin contact.

1,2-benzisothiazol-3(2H)-one:

Result: Probability or evidence of skin sensitisation in humans

Germ cell mutagenicity

Components:

folpet (ISO):

Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects.

fumaric acid:

Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects., In vitro tests did not show mutagenic effects

Carcinogenicity

Components:

folpet (ISO):

Carcinogenicity - Assessment: Limited evidence of carcinogenicity in animal studies

fumaric acid:

Carcinogenicity - Assessment: No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Components:

folpet (ISO):

Reproductive toxicity - Assessment: No toxicity to reproduction

fumaric acid:

Reproductive toxicity - Assessment: No toxicity to reproduction

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Product:

| | |
|--|---|
| Toxicity to fish: | LC50 (<i>Oncorhynchus mykiss</i> (rainbow trout)): 0.017 mg/l Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates: | EC50 (<i>Daphnia magna</i> (Water flea)): 3.9 mg/l Exposure time: 48 h |
| Toxicity to algae/aquatic plants: | EC50 (<i>Pseudokirchneriella subcapitata</i> (green algae)): 48.4 mg/l Exposure time: 72 h |
| Toxicity to fish (Chronic toxicity): | NOEC: 0.0375 mg/l Exposure time: 28 d Species: <i>Oncorhynchus mykiss</i> (rainbow trout) |

Components:

folpet (ISO):

Toxicity to fish:

LC50 (*Oncorhynchus mykiss* (rainbow trout)): 0.233 mg/l

Exposure time: 96 h

M-Factor (Acute aquatic toxicity): 10

Ecotoxicology Assessment

Chronic aquatic toxicity:

This product has no known ecotoxicological effects.

fumaric acid:

Toxicity to microorganisms:

EC10 (*Pseudomonas putida*): 23.2 mg/l

Exposure time: 16 h

EC50 (activated sludge): > 300 mg/l

Exposure time: 3 h

1,2-benzisothiazol-3(2H)-one:**Ecotoxicology Assessment**

Acute aquatic toxicity:

Very toxic to aquatic life.

12.2 Persistence and degradability**Components:****folpet (ISO):**

Biodegradability: Result: Readily biodegradable.

12.3 Bioaccumulative potential**Components:****folpet (ISO):**

Bioaccumulation: Remarks: Does not bioaccumulate.

12.4 Mobility in soil**Components:****folpet (ISO):**

Distribution among environmental compartments: Remarks: immobile.

12.5 Results of PBT and vPvB assessment**Product:**

Assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:**folpet (ISO):**

Assessment: This substance is not considered to be very persistent and very bioaccumulating (vPvB). This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

fumaric acid:

Assessment: This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Empty remaining contents. Triple rinse containers. Empty containers should be taken for local recycling or waste disposal. Do not re-use empty containers.

Waste Code: 150110, packaging containing residues of or contaminated by dangerous substances

SECTION 14. TRANSPORT INFORMATION

14.1 UN number

ADN: UN 3082

ADR: UN 3082

RID: UN 3082

IMDG: UN 3082

IATA: UN 3082

14.2 UN proper shipping name

ADN: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(FOLPET)

ADR: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(FOLPET)

RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(FOLPET)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(FOLPET)

IATA: Environmentally hazardous substance, liquid, n.o.s.
(FOLPET)

14.3 Transport hazard class(es)

ADN: 9

ADR: 9

RID: 9

IMDG: 9

IATA: 9

14.4 Packing group

ADN

Packing group: III

Classification Code: M6

Hazard Identification Number: 90

Labels: 9

ADR

Packing group: III

Classification Code: M6

Hazard Identification Number: 90

Labels: 9

Tunnel restriction code: (-)

RID

Packing group: III

Classification Code: M6

Hazard Identification Number: 90

Labels: 9

IMDG

Packing group: III

Labels: 9

EmS Code: F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Class 9 - Miscellaneous dangerous substances and articles

IATA (Passenger)

Packing instruction (passenger aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Class 9 - Miscellaneous dangerous substances and articles

14.5 Environmental hazards**ADN**

Environmentally hazardous: yes

ADR

Environmentally hazardous: yes

RID

Environmentally hazardous: yes

IMDG

Marine pollutant: yes

IATA (Passenger)

Environmentally hazardous: yes

IATA (Cargo)

Environmentally hazardous: yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet.

Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15. REGULATORY INFORMATION**15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture**

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): Not applicable

REACH - List of substances subject to authorisation (Annex XIV): Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Not applicable
Regulation (EC) No 850/2004 on persistent organic pollutants: Not applicable
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII): Conditions of restriction for the following entries should be considered: Number on list 3
methenamine

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

| | Quantity 1 | Quantity 2 |
|--------------------------|------------|------------|
| E1 ENVIRONMENTAL HAZARDS | 100 t | 200 t |

Other regulations:

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. Use plant protection products safely. Always read the label and product information before use. Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable. Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SECTION 16. OTHER INFORMATION

Full text of H-statements

| | |
|-------------|--------------------------------------|
| H228 | Flammable solid. |
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H351 | Suspected of causing cancer. |
| H400 | Very toxic to aquatic life. |

Full text of other abbreviations

| | |
|----------------|------------------------|
| Acute Tox.: | Acute toxicity |
| Aquatic Acute: | Acute aquatic toxicity |
| Carc.: | Carcinogenicity |
| Eye Dam.: | Serious eye damage |
| Eye Irrit.: | Eye irritation |
| Flam. Sol.: | Flammable solids |
| Skin Irrit.: | Skin irritation |
| Skin Sens.: | Skin sensitisation |

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good

Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture: Classification procedure:

| | | |
|-------------------|------|-------------------------------------|
| Skin Sens. 1 | H317 | Based on product data or assessment |
| Carc. 2 | H351 | Calculation method |
| Aquatic Acute 1 | H400 | Based on product data or assessment |
| Aquatic Chronic 1 | H410 | Based on product data or assessment |

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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