1. Identification

Product identifier used on the label

**Manticor (TM) LFR (R) In-Furrow Fungicide/Insecticide**

**Recommended use of the chemical and restriction on use**

Recommended use*: fungicide; insecticide

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

**Details of the supplier of the safety data sheet**

Company: BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

**Emergency telephone number**

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

**Other means of identification**

Substance number: 753079
EPA Registration number: 279-3478-7969
Chemical family: pyrethroid, insecticide, strobilurine, fungicide

2. Hazards Identification


**Classification of the product**

| Acute Tox. | 4 (Inhalation - mist) | Acute toxicity |
| Eye Dam./Irrit. | 2A | Serious eye damage/eye irritation |
| Skin Sens. | 1 | Skin sensitization |
| Carc. | 2 | Carcinogenicity |
| STOT RE | 1 | Specific target organ toxicity — repeated |
Nervous system
Aquatic Acute 1 Hazardous to the aquatic environment - acute
Aquatic Chronic 1 Hazardous to the aquatic environment - chronic

Label elements

Pictogram:

Signal Word: Danger

Hazard Statement:
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P201 Obtain special instructions before use.
P260 Do not breathe dust/gas/mist/vapours.
P261 Avoid breathing mist.
P202 Do not handle until all safety precautions have been read and understood.
P270 Do not eat, drink or smoke when using this product.
P264 Wash with plenty of water and soap thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.

Precautionary Statements (Response):
P308 + P311 IF exposed or concerned: Call a POISON CENTER or doctor/physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P314 Get medical advice/attention if you feel unwell.
P303 + P352 IF ON SKIN (or hair): Wash with plenty of soap and water.
P391 Collect spillage.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P337 + P311 If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):
P405 Store locked up.

Precautionary Statements (Disposal):
3. Composition / Information on Ingredients


<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Weight %</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>82657-04-3</td>
<td>14.4 %</td>
<td>Bifenthrin</td>
</tr>
<tr>
<td>175013-18-0</td>
<td>7.2 %</td>
<td>Pyraclostrobin</td>
</tr>
<tr>
<td>57-55-6</td>
<td>&lt; 15.0%</td>
<td>Propylene glycol</td>
</tr>
</tbody>
</table>

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

If on skin:
Remove contaminated clothing. Wash thoroughly with soap and water. Seek medical attention.

If in eyes:
Remove contact lenses, if present. Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Do not induce vomiting unless told to by a poison control center or doctor. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media: water spray, dry powder, foam, carbon dioxide
Safety Data Sheet
Manticor™ LFR (R) In-Furrow Fungicide/Insecticide

Revision date: 2016/01/29
Version: 2.0

Unsuitable extinguishing media for safety reasons:
- water jet

Special hazards arising from the substance or mixture
Hazards during fire-fighting:
- carbon monoxide, carbon dioxide, nitrogen oxides
The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters
Protective equipment for fire-fighting:
- Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:
- Keep containers cool by spraying with water if exposed to fire. In case of fire and/or explosion do not breathe fumes. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
- Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

Environmental precautions
- Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up
- For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).
- For large amounts: Dike spillage. Pump off product.
- Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations. Wear suitable protective equipment.

7. Handling and Storage

Precautions for safe handling
- No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Protection against fire and explosion:
- No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

Conditions for safe storage, including any incompatibilities
- Segregate from foods and animal feeds.

Further information on storage conditions: Keep away from heat. Protect from direct sunlight.
8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

No occupational exposure limits known.

**Personal protective equipment**

**RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:**

**Respiratory protection:**
Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

**Hand protection:**
Chemical resistant protective gloves. Protective glove selection must be based on the user’s assessment of the workplace hazards.

**Eye protection:**
Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

**Body protection:**
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

**General safety and hygiene measures:**
The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>solvent-like</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not determined since harmful by inhalation.</td>
</tr>
<tr>
<td>Colour</td>
<td>off-white</td>
</tr>
<tr>
<td>pH value</td>
<td>approx. 8 - 10 (1 %%(m), 21.3 °C)</td>
</tr>
<tr>
<td>Melting point</td>
<td>not determined</td>
</tr>
<tr>
<td>Boiling point</td>
<td>approx. 95.5 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 100 °C</td>
</tr>
<tr>
<td>Flammability</td>
<td>not applicable</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.</td>
</tr>
</tbody>
</table>
Upper explosion limit: As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.

Autoignition: Based on the water content the product does not ignite.

Vapour pressure: approx. 0.2 hPa
  ( 20 °C)
The statements are based on the properties of the individual components.

Density: approx. 1.11 g/cm³
  ( 20 °C)

Vapour density: not applicable

Partitioning coefficient n-octanol/water (log Pow): not applicable

Thermal decomposition: No decomposition if stored and handled as prescribed/indicated.

Viscosity, dynamic: approx. 373.3 mPa.s
  ( 21.3 °C)

Solubility in water: dispersible

Evaporation rate: not applicable

Other Information: If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:
not fire-propagating

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid
See MSDS section 7 - Handling and storage.

Incompatible materials
strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

Decomposition products:
Thermal decomposition products: Sulphur dioxide, hydrogen fluoride, Hydrogen chloride, carbon oxides

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.
11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Oral
Type of value: LD50
Species: rat
Value: approx. 310.2 mg/kg

Inhalation
Type of value: LC50
Species: rat
Value: > 2.08 mg/l

Dermal
Type of value: LD50
Species: rat
Value: > 2,000 mg/kg

Assessment other acute effects
Assessment of STOT single:
The available information is not sufficient for evaluation.

The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion
Assessment of irritating effects: Eye contact causes irritation. Not irritating to the skin.

Skin
Species: rabbit
Result: non-irritant

Eye
Species: rabbit
Result: Irritant.

Sensitization
Assessment of sensitization: Sensitization after skin contact possible.

Mouse Local Lymph Node Assay (LLNA)
Species: mouse
Result: sensitizing

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Cyclopropanecarboxylic acid, 3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]-2,2-dimethyl-, (2-methyl[1,1'-biphenyl]-3-yl)methyl ester, (1R,3R)-rel-
Assessment of repeated dose toxicity: Repeated exposure to small quantities may affect certain organs.

Genetic toxicity
Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity
Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Cyclopropanecarboxylic acid, 3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]-2,2-dimethyl-, (2-methyl[1,1'-biphenyl]-3-yl)methyl ester, (1R,3R)-rel-
Assessment of carcinogenicity: In long-term studies in rats in which the substance was given by feed, a carcinogenic effect was not observed. In long term studies in mice in which the substance was given by feed, a carcinogenic effect was observed.

Reproductive toxicity
Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity
Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Bifenthrin
Assessment of teratogenicity: Causes developmental effects in animals at high, maternally toxic doses.

Other Information
Misuse can be harmful to health.

Symptoms of Exposure
The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Very toxic to aquatic life with long lasting effects.
The product has not been tested. The statement has been derived from the properties of the individual components.

Toxicity to fish

*Information on: Cyclopropanecarboxylic acid, 3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]- 2,2-dimethyl-, (2-methyl[1,1'-biphenyl]-3-yl)methyl ester, (1R,3R)-rel-
LC50 (96 h) 0.00010 mg/l, Salmo gairdneri, syn. O. mykiss

*Information on: pyraclostrobin
LC50 (96 h) 0.0062 mg/l, Oncorhynchus mykiss (EPA 72-1, Flow through.)

Aquatic invertebrates

*Information on: Cyclopropanecarboxylic acid, 3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]- 2,2-dimethyl-, (2-methyl[1,1'-biphenyl]-3-yl)methyl ester, (1R,3R)-rel-
EC50 (48 h) 0.00011 mg/l, Daphnia magna

*Information on: pyraclostrobin
EC50 (48 h) 0.016 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic plants

*Information on: Cyclopropanecarboxylic acid, 3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]- 2,2-dimethyl-, (2-methyl[1,1'-biphenyl]-3-yl)methyl ester, (1R,3R)-rel-
EC50 > 100 mg/l, algae

*Information on: pyraclostrobin
EC50 (96 h) > 0.843 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201)

Persistence and degradability

Assessment biodegradation and elimination (H2O)
The product has not been tested. The statement has been derived from the properties of the individual components.

Assessment biodegradation and elimination (H2O)

*Information on: Cyclopropanecarboxylic acid, 3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]- 2,2-dimethyl-, (2-methyl[1,1'-biphenyl]-3-yl)methyl ester, (1R,3R)-rel-

Not readily biodegradable (by OECD criteria).

*Information on: pyraclostrobin

Not readily biodegradable (by OECD criteria).

Bioaccumulative potential

Assessment bioaccumulation potential
The product has not been tested. The statement has been derived from the properties of the individual components.

Bioaccumulation potential
Information on: Cyclopropanecarboxylic acid, 3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]-2,2-dimethyl-, (2-methyl[1,1'-biphenyl]-3-yl)methyl ester, (1R,3R)-rel-

Bioconcentration factor: 1,709

Information on: pyraclostrobin

Bioconcentration factor: 379 - 507, Oncorhynchus mykiss (OECD-Guideline 305)
Accumulation in organisms is not to be expected.

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Mobility in soil

Assessment transport between environmental compartments
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: pyraclostrobin

Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

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Additional information

Other ecotoxicological advice:
Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:
Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container disposal:
Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport

USDOT
Not classified as a dangerous good under transport regulations

Sea transport

IMDG
Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PYRACLOSTROBIN, BIFENTHRIN)

Air transport
IATA/ICAO
Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PYRACLOSTROBIN, BIFENTHRIN)

15. Regulatory Information

Federal Regulations

Registration status:
Crop Protection: TSCA, US released / exempt
Chemical: TSCA, US blocked / not listed

EPCRA 311/312 (Hazard categories): Acute; Chronic

EPCRA 313:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical name</th>
</tr>
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<tbody>
<tr>
<td>82657-04-3</td>
<td>Bifenthrin</td>
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State regulations

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<tr>
<th>State RTK</th>
<th>CAS Number</th>
<th>Chemical name</th>
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<tbody>
<tr>
<td>NJ</td>
<td>57-55-6</td>
<td>Propylene glycol</td>
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<td>82657-04-3</td>
<td>Bifenthrin</td>
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<tr>
<td></td>
<td>14808-60-7</td>
<td>Crystalline silica</td>
</tr>
<tr>
<td>PA</td>
<td>57-55-6</td>
<td>Propylene glycol</td>
</tr>
</tbody>
</table>

CA Prop. 65:
WARNING: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

Labeling requirements under FIFRA

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

WARNING:
KEEP OUT OF REACH OF CHILDREN.
May be fatal if swallowed.
HARMFUL IF ABSORBED THROUGH SKIN.
Causes moderate eye irritation.
Avoid contact with the skin, eyes and clothing. Prolonged or repeated skin contact may cause sensitization or allergic reactions. Wash thoroughly after handling.

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2016/01/29

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

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

END OF DATA SHEET