FUNGICIDE

Pyriofenone
Selective fungicide for Powdery mildew

Pyriofenone is a selective Powdery mildew fungicide discovered and developed by ISK.

Pyriofenone has a unique mode of action, which disrupts actin function (FRAC code 50). Thanks to this MOA, Pyriofenone strongly inhibits conidia formation to prevent secondary infection and halts all steps of the infection process including hyphal growth and appressoria formation.

Pyriofenone has excellent rainfastness and residual activity and also controls Powdery mildew through vapor action and translaminar movement.

Pyriofenone has outstanding crop safety with little to no impact on beneficial organisms making it an excellent choice as a rotation product for your spray program.

Physico-Chemical Properties

Chemical structure

- Class: Aryl-phenyl-ketones
- IUPAC name: (5-chloro-2-methoxy-4-methyl-3-pyridyl) (4,5,6-trimethoxy-o-tolyl)methanone
- Molecular weight: 365.8
- Molecular formula: C_{18}H_{20}ClNO_{5}
- Vapour pressure: 1.9 x 10^{-6} Pa (25°C)
- Water solubility: 1.56 mg/L (20°C)
- Form: White Solid (Powder)
- Development code: IKF-309

Toxicology & Ecotoxicology

- Rat LD_{50} (oral): > 2,000 mg/kg (m/f)
- Rat LD_{50} (dermal): > 2,000 mg/kg (m/f)
- Rat LC_{50} (inhalation): > 5.18 mg/L (m/f)
- Skin irritation: non irritant (rabbit)
- Eye irritation: non irritant (rabbit)
- Skin sensitization: sensitizing to skin (guinea pig, Buehler test) negative (LLNA test)
- Avian LD_{50} (acute oral): > 2,000 mg/kg (quail, m/f)
- Avian LD_{50} (subacute oral): > 5,000 ppm in feed (quail)
- Fish LC_{50}: > 1.36 mg/L (carp, 96 h)
- Bees LD_{50} (acute oral): > 100 μg a.i./bee (48 h)
- Bees LD_{50} (acute contact): > 100 μg a.i./bee (48 h)
- Daphnia magna EC_{50} : > 1.96 mg/L (48 h)

Product

| Trade Names | PROPERTY, PROLIVO, KUSABI, UNCICUT, etc. |
| Formulations | 30%SC, 18%SC |
| Registered Countries | Asia Japan, Korea, etc. |
| | Europe Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Finland, Germany, Greece, Hungary, Italy, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden, UK, etc. |
| | Oceania Australia, New Zealand |
| | Americas Canada, Chile, Colombia, Ecuador, Guatemala, Honduras, Mexico, Peru, USA, etc. |

Always read and follow the product label instructions in your country.

Characteristics

- Specialized in Powdery mildew control
- Unique mode of action (FRAC code 50)
- Inhibits disease at every step of the infection process
- Good vapor action
- Decreases secondary infections by inhibiting conidia formation
- Excellent rainfastness and residual activity
- Outstanding crop safety with little or no impact on beneficial organisms
**Mode of Action**

Subcellular localization of actin at hyphal apex is necessary for polar growth of hypha. Vesicles carrying the material for hyphal growth are transported toward localized actin. It is hypothesized that the mode of action of Pyriofenone is the induction of mislocalization of actin from the apex, resulting in disrupted apical transport, induced swelling, collapse and abnormal branching of hyphal tips.

**Vapor action**

Pyriofenone moves into the gaseous phase and re-distributes locally. This vapor action allows Pyriofenone to mitigate gaps in spray coverage and control Powdery mildew on nearby untreated plant tissue.

**Registered Crops**

- Apple
- Green Pepper
- Asian Pear
- Tomato
- Mango
- Spinach Beet
- Persimmon
- Podded Pea
- Grape
- Cucurbits
- Strawberry
- Ornamentals
- Berries
- Cereals
- Eggplant
- etc.

Always read and follow the product label instructions in your country.

**Cucumber trials (Field trial and Sensitivity test for different MOA fungicides)**

<table>
<thead>
<tr>
<th>Cucumber field trial against Powdery mildew*</th>
<th>Isolate sensitivity test to fungicides with different MOA**</th>
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<tbody>
<tr>
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<tr>
<td>Untreated control</td>
<td>Pyriofenone</td>
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<tr>
<td>Pyriofenone+DMI A 75+75 g a.i./ha</td>
<td>0.4</td>
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<tr>
<td>DMI A 75 g a.i./ha</td>
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<tr>
<td>Pyriofenone 75 g a.i./ha</td>
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MIC (minimum inhibitory concentration) values were evaluated on Podosphaera sp.-infected leaf disks floating on solutions containing each fungicide at concentrations ranging from 0.05 to 100 ppm.

Pyriofenone shows no cross resistance with different MOA fungicides.

*Field trial (2014)  **Sensitivity test (2013)