FUNGICIDE

CYAZOFAMID
Selective Oomycete fungicide

Cyazofamid is a selective Oomycete fungicide discovered and developed – on a global basis – by ISK. After the first launch in 2001, ISK has started its commercialization in various crops in many countries.

Cyazofamid, with its unique mode of action, is highly effective against Oomycete diseases. Cyazofamid also has good persistence and offers excellent rain fastness in many crops at low rates.

Cyazofamid has no negative impact on beneficial insects and mites, and thus, it will be surely added to integrated pest management programs.

Cyazofamid has good toxicological, environmental and ecotoxicological profiles.

Physico-Chemical Properties

Class: cyanoimidazole
IUPAC name: 4-chloro-2-cyano-N,N-dimethyl-5-p-tolylimidazole-1-sulfonamide
Molecular weight: 324.8
Molecular formula: C13H13ClN4O2S
Vapour pressure: < 1.33x10^-2 mPa (35°C)
Water solubility: 0.107 mg/L (pH 7, 20°C)
Form: Ivory, odourless powder
Development code: IKF-916

Toxicology & Ecotoxicology

Rat LD₅₀ (oral): > 5,000 mg/kg (m/f)
Rat LD₅₀ (dermal): > 2,000 mg/kg (m/f)
Rat LC₅₀ (inhalation): > 5.5 mg/L (4h) (m/f)
Skin irritation: slight irritant (rabbit)
Eye irritation: slight irritant (rabbit)
Skin sensitization: not a sensitizer (guinea pig)
Avian LD₅₀ (acute oral): > 2,000 mg/kg (quail, m/f)
Avian LD₅₀ (acute oral): > 2,000 mg/kg (mallard duck, m/f)
Fish LC₅₀ : > 100 mg/L (trout, 96 h)
Fish LC₅₀ : > 69.6 mg/L (carp, 96 h)
Bees (oral and contact): very low toxicity
Daphnia magna EC₅₀ : > 0.198 mg/L (48 h)

Mode of Action

Cyazofamid has proven to control Oomycetes by respiratory inhibition specifically at Complex III in the mitochondria of Oomycetes. Cyazofamid inhibits Qi (Quinone inside reducing site) of Complex III of the said oomycetes, which has not been so far reported for other fungicides. It is classified to FRAC code 21.

Application

Cyazofamid is applied at 80-100 g a.i./ha with foliar spray just before first disease symptoms are observed to control Oomycete diseases, such as late blight in potatoes, tomatoes, pepper and other vegetables, and downy mildew in grapevine, cucumber, melon and others.

Product

Trade Names
RANMAN TOP, RANMAN, SEGWAY, TORRENT, ランマン, 科佳, MILDICUT, VIDERYO, ドーシャス, グリーンワーク, etc.

Formulations
16%SC, 10%SC, 40%SC, 27.5%SC (Premixture), 44%SC (Premixture), 29%WP (Premixture)

Registered Countries
Asia: China, Japan, South Korea, Taiwan, Vietnam, etc.
Europe: Austria, Belgium, Denmark, France, Germany, Italy, Netherlands, Poland, Portugal, Romania, Serbia, Spain, Sweden, Switzerland, UK, etc.
Americas: Argentina, Brazil, Canada, Chile, Mexico, USA, etc.
Oceania: Australia, New Zealand

Crops
Potatoes, Grapes, Vegetables, Turf, etc.
**FUNGICIDE**

**CYAZOFAMID**
Selective Oomycetes fungicide

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**Biological mode of action**

Inhibits all stages in fungus life cycle (in vitro)
Low fungi application rate: 80-100 g a.i./ha or 50-100 ppm conc
Effective on fungi resistant to other chemical classes
Strong control activity against potato tuber blight
Strong rainfastness
Distribution on newly developing leaves
Inhibition of zoospore formation on leaves
No phytotoxicity concerns
No adverse effects on yeast or microbial activity of fermentation system
Very active against the following Oomycetes:
- Phytophthora
- Pseudoperonospora
- Plasmopara
- Albugo
- Blemia

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**Characteristics**

**Control of Potato Late Blight**
by long spray interval period

<table>
<thead>
<tr>
<th>Product</th>
<th>Control Value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyazofamid 100ppm 10days</td>
<td>95</td>
</tr>
<tr>
<td>Cyazofamid 100ppm 14days</td>
<td>86</td>
</tr>
<tr>
<td>Fungicide A 1500ppm 7days</td>
<td>75</td>
</tr>
</tbody>
</table>

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**Control of Potato Tuber Blight**

<table>
<thead>
<tr>
<th>Product</th>
<th>Rotten Tuber (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyazofamid 80g a.i./ha</td>
<td>10.5</td>
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<tr>
<td>Fungicide A 1280g a.i./ha</td>
<td>36.9</td>
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<tr>
<td>Fungicide B 1020g a.i./ha</td>
<td>57.6</td>
</tr>
<tr>
<td>Fungicide C 1508g a.i./ha</td>
<td>24.1</td>
</tr>
</tbody>
</table>

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**Inhibition of Zoospore formation on tomato leaves**

**Distribution on newly developing potato leaves**

*Images and diagrams illustrate the distribution and inhibition of Cyazofamid on newly developing potato leaves and tomato leaves.*