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

- **Chemical structure**
- **Class**: cyanoimidazole
- **IUPAC name**: 4-chloro-2-cyano-N,N-dimethyl-5-p-tolylimidazole-1-sulfonamide
- **Molecular weight**: 324.8
- **Molecular formula**: C_{13}H_{13}ClN_{4}O_{2}S
- **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 LD_{50} (oral)**: > 5,000 mg/kg (m/f)
- **Rat LD_{50} (dermal)**: > 2,000 mg/kg (m/f)
- **Rat LC_{50} (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 LD_{50} (acute oral)**: > 2,000 mg/kg (quail, m/f)
- **Avian LD_{50} (acute oral)**: > 2,000 mg/kg (mallard duck, m/f)
- **Fish LC_{50}**: > 100 mg/L (trout, 96 h)
- **Fish LC_{50}**: > 69.6 mg/L (carp, 96 h)
- **Bees (oral and contact)**: very low toxicity
- **Daphnia magna EC_{50}**: > 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. |
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Selective Oomycetes fungicide

Biological mode of action

Characteristics
Inhibits all stages in fungus life cycle (in vitro)
Low fungi application rate: 80-100 g a.i./ha or 50-100 ppm conic
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

Inhibition of Zoospore formation on tomato leaves

Distribution on newly developing potato leaves

Control of Potato Late Blight by long spray interval period

Control of Potato Tuber Blight

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