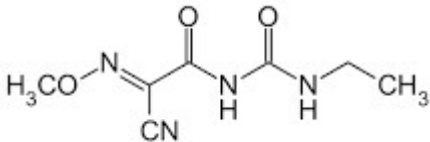


TECHNICAL BULLETIN CYMOXANIL TECHNICAL

1. INTRODUCTION

Cymoxanil is a foliar fungicide with protective and curative action. Has contact and local systemic activity, and also inhibits sporulation. Cymoxanil control of *Peronosporales*, especially *Peronospora*, *Phytophthora*, and *Plasmopara* spp. Normally used in combination with protectant fungicides (to improve residual activity) on a range of crops, including vines, hops, potatoes, tomatoes, cucurbits and lettuce.

2. ACTIVE INGREDIENT

Common name	cymoxanil (BSI, ANSI, E-ISO, (<i>m</i>) F-ISO)
IUPAC Name	1-(2-cyano-2-methoxyiminoacetyl)-3-ethylurea
Chemical Abstracts name	2-cyano- <i>N</i> -[(ethylamino)carbonyl]-2-(methoxyimino)acetamide
Molecular formula	C ₇ H ₁₀ N ₄ O ₃
CAS number	57966–95–7
Structural formula	
Molecular weight	198.2
Purity	98.00% w/w Min

3. PHYSICOCHEMICAL PROPERTIES

Physical state	peach colour solid
Melting Point	159–160 °C)
Vapour Pressure	0.15 mPa (20 °C)
Specific gravity/Density	1.32 (25 °C)

Partion co-efficient	logP = 0.59 (pH 5), 0.67 (pH 7)
Solubility	In water 890 mg/kg (pH 5, 20 °C). In hexane 0.037, toluene 5.29, acetonitrile 57, ethyl acetate 28, <i>n</i> -octanol 1.43, methanol 22.9, acetone 62.4, dichloromethane 133.0 (all in g/l, 20 °C).
Stability	Hydrolysis DT50 148 d (pH 5), 34 h (pH 7), 31 min (pH 9). Aqueous photolysis DT50 1.8 d (pH 5). pKa 9.7 (decomp.)

4. APPLICATIONS

Cymoxanil is recommended for use as foliar spray using high volume spraying equipment such as knapsack sprayer, rocking sprayer etc. having good delivery system ensuring fine droplets for better pest control.

Measure required quantity of the product and mix it well with small quantity of water. Then add the remaining quantity of water in a spray tank through continuous agitation to obtain uniform spray mix. Spraying should be done so as to avoid spray drift to a non-target area. This can be obtained by carrying out the spray operations during early morning or late evening when the wind velocity is low.

5. MODE OF ACTION & USES

Cymoxanil is a foliar fungicide with protective and curative action. Has contact and local systemic activity, and also inhibits sporulation.

Cymoxanil used to control of Peronosporales, especially *Peronospora*, *Phytophthora*, and *Plasmopara* spp. Normally used in combination with protectant fungicides (to improve residual activity) on a range of crops, including vines, hops, potatoes, tomatoes, cucurbits and lettuce.

6. TOXICITY

Acute oral LD50	: for male rats 760 mg/kg, female rats 1200 mg/kg.
Acute dermal LD50	: >2000 mg/kg in rats
Acute Inhalation LC50	: for male and female rats >5.06 mg/l.
Skin irritation	: Slight irritant to rabbits
Eye irritation	: Non irritant to rabbits
Skin Sensitization	: Not a sensitizer to guinea pig
Toxicity class WHO (a.i.)	: III

7. ECOTOXICITY

- Birds :** Acute oral LD50 for bobwhite quail and mallard ducks >2250 mg/kg.
Dietary LC50 (8 d) for bobwhite quail and mallard ducks >5620 mg/kg diet.
- Fish :** LC50 (96 h) for rainbow trout 61, bluegill sunfish 29, common carp 91, sheepshead minnows >47.5 mg/l.
- Daphnia :** LC50 (48 h) 27 mg/l.
- Algae :** EC50 (5 d) for *Selenastrum capricornutum* 1.21 mg/l; EC50 for *Anabaena flos-aquae* 231 ppb.
- Bees :** Not toxic to bees; LD50 (48 h, contact) >25 µg/bee;
LC50 (48h, oral) >1000 ppm.
- Worms :** LC50 (14 d) >2208 mg/kg soil.
- Other aquatic spp.** LC50 (96 h) for eastern oysters >46.9, mysid shrimps >44.4 ppm.

8. COMPATIBILITY

Cymoxanil product is compatible with many commonly used fungicides, liquid fertilizers, herbicides, insecticides, adjuvants and biological control agents. However, the physical compatibility of this product with tank-mix partner(s) must be evaluated before use.

9. HANDLING & STORAGE

Handling:

Keep away from food, drink, and animal feedstuff. KEEP OUT OF REACH OF CHILDREN. Wear suitable Personal protective equipment when handling and spraying.

Storage:

Store in the original container in a dry, cool, ventilated, LOCKED area. DO NOT store in prolonged sunlight. DO NOT store with food, seed, or animal feedstuff.

The material should be transported in clearly labelled leak-proof containers.

10. DISPOSAL CONSIDERATIONS

Avoid skin contamination and inhalation of vapour, if any. Sweep-up and place in a proper container. Ensure that the container is tightly closed and labeled before transferring to a safe place for disposal.

Empty any quantity of product remaining in damaged/ leaking container into a clean container.

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