Product Safety Assessment

Tricyclazole


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Names
- CAS No. 41814-78-2
- Tricyclazole
- Triciclazol
- Tricyclazole, technical
- 5-methyl-1,2,4-triazolo[3,4-b]benzothiazole
- 5-methyl-1,2,4-triazolo[3,4-b][1,3]benzothiazole
- BEAM® 75 WP Fungicide
- BEAM 12 Fungicide
- BIM® 75 WP Fungicide
- BIM 750 BR Fungicide
- TROOPER® Fungicide

Product Overview
- Tricyclazole is the common name for the active ingredient in several commercial fungicide products registered to Dow AgroSciences LLC, a wholly owned subsidiary of The Dow Chemical Company, and its global affiliates. Tricyclazole’s mode of action is inhibition of melanin formation in fungi.¹ For further details, see the relevant Product Label and Product Description.
- Tricyclazole technical is a white to tan powder with no odor.² For further details, see the relevant Product Label and Product Description.
- Tricyclazole fungicide products are used to control Magnaporthe grisea, also known as rice blast fungus, in transplanted and direct-seeded rice. Products containing tricyclazole fungicide can be applied as a flat drench, transplant root soak, foliar and aerial application, or seed treatment, depending on local registrations. For further details, see the relevant Product Label, Product Uses & Regulatory Information, or Contact Us.
- Applicators may be exposed to tricyclazole during field application. Workers using tricyclazole-based products must wear proper protective equipment and follow all label instructions carefully. For further details, see the relevant Product Label and Exposure Potential.
- Eye contact with tricyclazole may cause slight irritation with corneal injury. Brief contact with skin may cause moderate skin irritation with local redness.³ For further details, see Health Information or the relevant Safety Data Sheet.
- The bioconcentration potential for tricyclazole is low. If released into the environment, tricyclazole would not be expected to persist and would be removed by wastewater-treatment facilities. This material is moderately toxic to aquatic organisms on an acute basis.⁴ For further details, see the relevant Product Label and Environmental Information.

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• Tricyclazole is thermally stable at recommended storage and normal use conditions, but can decompose at elevated temperatures. For further details, see the relevant Product Label and Physical Hazard Information.

Manufacture of Product
Tricyclazole-containing products are manufactured in China, India, and Japan by global affiliates of Dow AgroSciences LLC, a wholly owned subsidiary of The Dow Chemical Company. Tricyclazole is produced using proprietary processes and materials. The chemical structure is shown below:

Product Description
Tricyclazole is the common name for the active ingredient in several commercial fungicide products registered to Dow AgroSciences LLC, a wholly owned subsidiary of The Dow Chemical Company, and its global affiliates. Its mode of action is inhibiting melanin formation in fungi. In the absence of melanin, fungi cannot attach to the host plant. Tricyclazole technical is a white crystalline solid with about 97% purity. Tricyclazole fungicide products are marketed both as granules and wettable powders. Most formulations contain 750 grams active ingredient per kilogram of product. Formulations containing tricyclazole are sold under a variety of trade names, including BEAM® fungicide, BIM® fungicide, and TROOPER® fungicide.

Product Uses & Regulatory Information
Tricyclazole is a systemic and protective fungicide used to control Magnaporthe grisea, also known as rice blast. Fungicide formulations with tricyclazole are registered and used in rice-growing countries including Brazil, China, Colombia, Costa Rica, Dominican Republic, Japan, Korea, India, Italy, Panama, Spain, Taiwan, Thailand, Uruguay, Venezuela, Vietnam, and others. Specific registrations and local marketing plans will dictate use patterns for the specific region.

Regulations exist that govern the manufacture, sale, transportation, use, and/or disposal of tricyclazole. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Product Label, Safety Data Sheet, or Contact Us.

Exposure Potential
Tricyclazole is used in the formulation of fungicide products. Based on the approved uses for tricyclazole, workers and the public could be exposed through:

• Worker exposure – Agricultural workers could be exposed while applying this product in the field. Applicators are expected to follow label precautions, including wearing personal protective equipment that is appropriate to the application method. See Health Information and Product Label.
• Consumer exposure – Consumer exposure to tricyclazole is expected to be limited to traces of residues in food or water. See Health Information and Product Label.

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• **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil, ditches, sewers, waterways, or groundwater. If released into the environment, tricyclazole would not be expected to persist and would be removed by wastewater-treatment facilities. Tricyclazole is slightly soluble in water and moderately toxic to aquatic organisms on an acute basis. Sweep up or soak up small spills with an absorbent material, such as sand or dirt, and collect the recovered material in a container suitable for disposal. If a large spill does occur, dike the area to keep the material contained and contact Dow AgroSciences. Consult the relevant Safety Data Sheet or Product Label for detailed information about protective equipment and procedures. See Environmental Information, Health, and Physical Hazard Information.

• **In case of fire** – Consult the relevant Product Label and Safety Data Sheet for specific firefighting measures. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Use water fog or carbon-dioxide (CO₂) or dry-chemical extinguishers to fight the fire. Contain firewater for proper disposal. Toxic and irritating gases and fumes can be formed in a fire. Dusts can form explosive mixtures in air. Follow emergency procedures carefully. See Environmental Information, Health, and Physical Hazard Information.

• **Emergency response information** – In the case of an emergency such as poisoning, product spillage or fire associated with a Dow AgroSciences product, use the phone number listed on the Safety Data Sheet for the appropriate country. In some countries, the Emergency Response number is also provided on the commercial product package.

For more information, see the relevant Product Label or Safety Data Sheet.

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**Health Information**

Health information for products containing tricyclazole is summarized on the relevant Safety Data Sheets. It is important to note that health risks associated with individual products may vary based on their formulation or intended use. The Safety Data Sheet is the preferred source for specific health information. These products may also contain minor components or additives that have additional health risks. An overview of health information for tricyclazole technical appears below.

**Laboratory testing** – Tricyclazole has been comprehensively evaluated by regulatory agencies in the countries where the material is registered for use. These regulatory frameworks require laboratory testing for potential acute, short-term, and long-term health effects. These tests help scientists and regulators determine how chemicals might affect humans, domestic animals, or wildlife in case of exposure. Fungicide products used according to label directions are unlikely to cause toxic effects. The amount of fungicide that people and pets may be exposed to is very low, compared to that used in laboratory testing.

**Eye contact** – Contact may cause slight eye irritation with slight, temporary corneal injury.

**Skin contact** – Brief contact may cause moderate skin irritation with local redness. Contact does not elicit an allergic response.

**Inhalation** – Vapors are unlikely due to physical properties. Prolonged, excessive exposure to dust may cause adverse effects.

**Ingestion** – This material has moderate toxicity if swallowed. Swallowing small amounts incidental to normal handling operations is not likely to cause injury; however, swallowing larger amounts may cause injury, even death.

**Repeated exposure** – In animal testing, effects have been reported on the liver, kidney, testes, and gall bladder.
Other – In animal testing, tricyclazole technical did not cause cancer, birth defects, or fetal effects and did not interfere with reproduction. Genetic toxicity studies have been negative.

For more information, see the relevant Product Label, Safety Data Sheet or Contact Us.

Environmental Information

Tricyclazole has low potential for bioconcentration (tendency to accumulate in the food chain). Tricyclazole is slightly soluble in water and moderately toxic to aquatic organisms on an acute basis (LC_{50}/EC_{50} between 1 and 10 mg/L). Although it does not biodegrade readily, it would be expected to biodegrade slowly under environmental conditions. If released into the environment, tricyclazole would not be expected to persist and would be removed by wastewater-treatment facilities. When used appropriately, formulations containing tricyclazole are not expected to adversely affect the environment or leach into groundwater.

For more information, see the relevant Product Label or Safety Data Sheet.

Physical Hazard Information

Tricyclazole is stable at recommended storage and normal use conditions, but can decompose at elevated temperatures. Decomposition products can include, but are not limited to, carbon monoxide, carbon dioxide, nitrogen oxides, and sulfur oxides. Consult the Product Label for specific use and storage information.

For more information, see the relevant Product Label or Safety Data Sheet.

Additional Information

- Safety Data Sheets and Product Labels (www.dowagro.com/products/label/index.htm)
- Contact Us (www.dowagro.com/company/contact/index.htm)
- Dow AgroSciences web site: India: AgroChemical Products: BEAM® Fungicide (www.dowagro.com/india/acp/BEAM.htm)
- Dow AgroSciences web site: Brazil: AgroChemical Products: BIM® Fungicide (www.dowagro.com/br/produtos/)

For more business information about tricyclazole products, visit the website for Dow AgroSciences at www.dowagro.com/.

References


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NOTICES:

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

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