

THIRAM

An effective and reliable fungicide,
manufactured and supplied by Eastman

- **Reliable and consistently effective**

Economical, broad-spectrum disease control that enables excellent yields of high-quality produce

- **Resistance management tool**

Nonsystemic, multisite mode of action—ideal for tank mix or alternation in fungicide spray programs

- **Safe to honeybees and beneficial organisms**

Controls spring diseases during bloom stage*

Growers continue to be faced with potential loss of high-value crops due to a range of foliar, seed, and soilborne diseases as well as damage by deer and rodents. Thiram, a reliable and versatile fungicide, offers an economical solution to help combat these threats.

Thiram is a powerful fungicide that provides broad-spectrum disease control. Nonphytotoxic, Thiram can be used on all crops and seeds. It can be safely applied through foliar spraying, soil drenching, and seed dressing.

Thiram protects crops from damage in the field and prevents harvest deterioration in storage and during transport. Nonsystemic, Thiram acts on many sites of the biochemical process of harmful fungi, is effective against a variety of fungi, and is at low risk for resistance development.

Thiram's reliable and consistent performance makes it a valuable fungicide, enabling growers to reap an excellent yield of high-quality produce.

Eastman—driven to address the changing needs of the world and its growing population

Eastman is one of the world's largest producers of Thiram. We guarantee quality products to our customers and provide global support for regulatory dossiers. We are committed to ensuring Thiram is used to its fullest potential in the safest possible way.

Disease spectrum

Thiram controls a broad range of plant diseases caused by phytopathogenic fungi. It also controls numerous ascomycetes (*Colletotrichum*, *Mycosphaerella*, *Monilinia*, *Sclerotinia*, *Botrytis*, *Diaporthe*, *Septoria*, *Venturia*, *Taphrina*, *Stemphylium*), oomycetes (*Pythium* spp.), and basidiomycetes (*Rhizoctonia*, *Tilletia*).

Foliar application of Thiram protects fruits and leaves against molds, summer diseases, rot, scab, shot hole, leaf curl, and anthracnose.

Thiram is the global standard for **seed treatment**.

- Thiram promotes a phytotonic effect on seeds, providing excellent control of seedborne and soilborne diseases.
- Thiram secures germination and protects young plants from damping off, seedling blight, smut, basal rot, *Phoma*, *Alternaria*, and overall seed decay.
- Thiram is compatible with *Rhizobia* in *Fabaceae* cultivation

Repellency

Thiram has a strong repellent action against birds, rodents, and deer. Without the need for additional chemicals, Thiram protects sown and emerging seeds from being eaten by birds and protects young plants and palatable plant parts of fruit trees and ornamentals from being eaten by rabbits and deer.

Resistance management

The multisite mode of action and broad-spectrum disease control make Thiram a good mixing partner with several single-site fungicides as part of resistance management strategies.

Thiram is nonsystemic and has a preventive mode of action. It inhibits spore germination and mycelium growth by interfering with a variety of enzymes involved in the respiration process, including cytochrome P450 and alcohol dehydrogenase.

Thiram is a FRAC Group M3 fungicide. When used according to the label, Thiram will not trigger resistance issues. Its use fits perfectly within resistance management programs.

Safety to honeybees and beneficial organisms

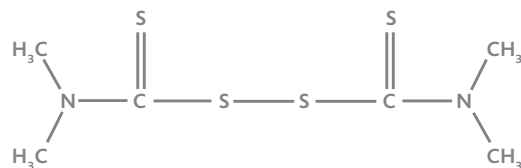
Thiram is safe to honeybees and other beneficial organisms, such as mites, earthworms, and insects.

Bee safety with Thiram is demonstrated in multiple studies that evaluate the effects on bees or larvae individually as well as colony health. Thiram does not impact the survival of adults or pupae, foraging activity, behavior, colony development and strength, or bee brood.

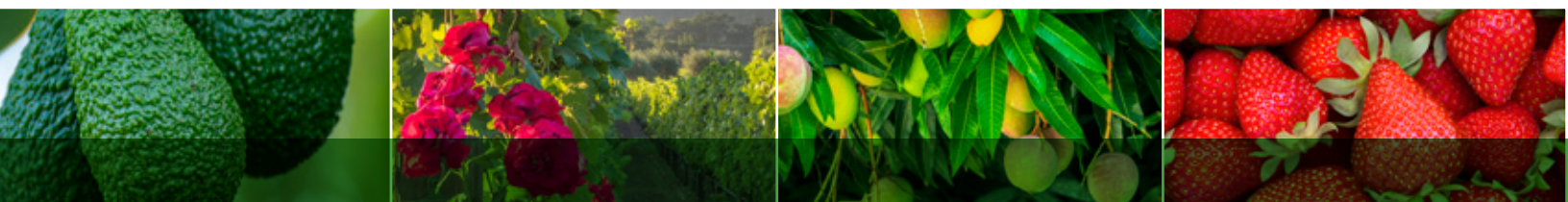
Thiram is therefore a suitable tool for controlling spring diseases during bloom stage, when used according to the label. Label approval is given by local authorities after thorough evaluation of existing studies and according to the national requirements.

Chemistry and formulations

Thiram is a dimethyl-*bis*-dithiocarbamate that, unlike other dithiocarbamates, does not break down to ETU.



It is nonvolatile and has low water solubility that improves rainfast properties.



Main registered foliar uses of Thiram formulations supported by Eastman



	Argentina	Australia	Belarus	Belize	Cameroon	Chile	China	Columbia	Costa Rica	Dominican Republic	Ecuador	Egypt	Georgia	Guatemala	Honduras	Indonesia	Ivory Coast	Malaysia	Mexico	Morocco	New Zealand	Philippines	Russia	South Africa	Switzerland	Thailand	Uruguay	U.S.A.	Vietnam	
Tropical fruits																														
Banana				•	•	•	•	•	•	•	•		•	•		•			•			•								
Avocado		•						•											•											
Mango		•														•						•								
Pineapple																						•								
Stone fruit																														
Peach		•				•							•						•	•	•		•	•			•	•		
Apricot		•																			•			•			•			
Nectarine		•				•														•	•			•						
Cherry		•				•															•		•							
Plum		•				•															•		•	•						
Pome fruit																														
Apple	•	•	•			•	•						•						•	•	•		•							
Pear	•	•				•							•							•	•									
Soft berries and grapes																														
Strawberry	•	•											•			•			•	•	•						•	•		
Berry fruit																					•									
Grape	•	•																			•			•						
Other fruits																														
Citrus fruit						•										•														
Nuts and olives																				•										
Vegetables																														
Fruiting vegetables (e.g., tomato, cucumber, watermelon)	•				•	•			•		•	•				•				•	•						•			
Legumes (e.g., bean, pea)		•				•			•											•										
Leafy vegetables (e.g., celery, lettuce, cabbage)	•	•				•			•									•				•								
Tubers and bulbs (e.g., potato, onion, carrot)	•	•				•			•		•	•				•					•	•								
Other crops																														
Ornamentals and turf		•					•			•								•			•					•				
Rice, coffee, tobacco																•						•								•

This overview is subject to change depending on the evaluation and registration of individual countries.

Not all uses and/or products are registered in all countries/regions. For the most recent status, contact your local customer service representative for availability in your region.





Foliar

For foliar uses, Thiram is formulated as high-quality water-dispersible granules (WG) and suspension concentrate (SC). This facilitates handling and makes the product suitable for high-performance spraying machines.

Eastman's WG formulation is virtually dust-free and disperses quickly in the spray tank. The spherical granules combine outstanding wettability and suspension characteristics with ease of storage and insensitivity to temperature variations.

Eastman's SC formulations have outstanding compatibility for most tank mixtures. The SC formulations are tailored to climatic conditions to match the crop-specific needs in temperate, subtropical, and tropical conditions.

Seed treatment

For seed treatment, Thiram is available as a flowable concentrate (FS). The supplemental additives result in good adhesion and retention to the seed surface, fast drying, perfect seed flowing, no dust problems, and easy machinery cleanup after treatment. It has demonstrated good to excellent compatibility with most commercial film-coating products.

For seed treatment globally, Thiram is mainly registered for (but not limited to) vegetable seeds, maize, sugar beet, canola, and sorghum in various countries.

Supply and logistics

As one of the world's largest producers of methylamines and derivatives, Eastman offers a secure supply of its key raw materials for manufacturing dithiocarbamates. The central location of our manufacturing site in Belgium, near the Port of Antwerp—Europe's second largest port—makes Eastman an agile global supplier of Thiram.

Stewardship commitment

Eastman is committed to stewardship and has a dedicated crop protection stewardship team that provides information and documentation on the correct and safe application of our products. Our training activities teach farmers how to use our crop protection products effectively and safely, which helps increase the yield and quality of their harvested goods. Farmers worldwide have received safety training from Eastman.

Most of our training takes place as part of customer events and meetings, because safety training is an integral part of the way our business operates. Additional courses are conducted in cooperation with partners such as local, regional, and international associations.

In countries with no statutory requirements for certification, Eastman focuses on training end users on the safe handling of our products. With our regional organizations and local distributors, we establish action plans for the prioritized countries that are then implemented locally. On-site safety checks and safe application training are also available on request.

Formulation	Packaging	Pack size	Pallets
Water-dispersible granule	Big bag	500-kg big bag	500-kg CP1
	Paper bag	10- or 20-kg paper bag	500-kg CP1
Suspension concentrate	Can	Two 10-L cans in box	720-L CP1
		Four 5-L cans in box	720-L CP1
	Drum	60-L can	540-L CP1
IBC	210-L drum	840-L CP3	
	1000-L IBC	1000 L	
Flowable concentrate	Can	27-L can	864-L CP1
		60-L can	540-L CP1
	Drum	210-L drum	840-L CP3
IBC	10000-L IBC	1000 L	

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