

# THIRAM

## Overview

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Thiram is a non-systemic dimethyl dithiocarbamate [fungicide](#) used as both in the field and to protect harvested crops in transport and storage. It is registered by the [EPA](#) as a class II (slightly toxic) General Use Pesticide used on a variety of crops including fruit, vegetables, and ornamentals as well as on numerous plants to protect against damage from animals such as deer, rabbits, and rodents.

## Just the facts

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### Physical Information

Name: Thiram

Chemical Formula:  $C_6H_{12}N_2S_4$

Synonyms: thiuram, TMTD

Trade Names: AAtack, Arasan, Aules, Fermide 850, Fernasan, FMC 2070, Hexathir, Mercuram, Micropearls, Nomersan, Pomarsol, Puralin, Rezifilm, Rhodiasan Express, Spotrete, Tersan, Thiosan, Thiotex, Thiramad, Thirame, Thiuramin, Thirasan, Tirampa, Tiuramyl, TMTC, TMTD 50 Borches, Trametan, Tuads, and Tulisan

Use: [fungicide](#)

Source: synthetic chemistry

Recommended daily intake:

## Physical Information

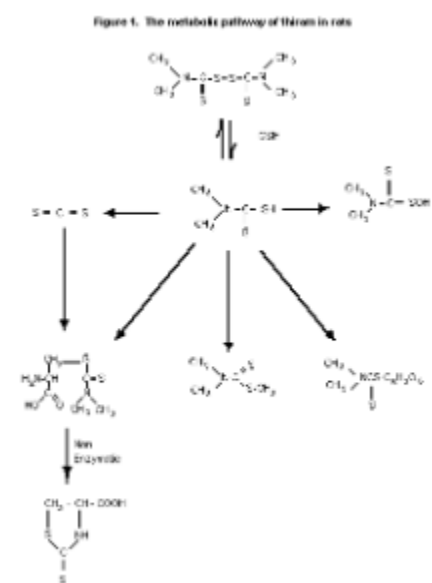
Absorption: dermal, inhalation, ingestion

Sensitive individuals:

Toxicity/symptoms:

Regulatory facts:

## Chemical Structure



Structure retrieved from [#INCHEM](#).

## Chemical Description



Thiram is white or yellow crystalline solid with a characteristic odor at room temperature

## Uses

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Thiram is used as a [fungicide](#) both in the field and as a seed protectant after harvesting ([#EPA](#)). It is applied directly on strawberries, peaches, and apples and is applied post harvest on a number of seed crops including small and large seeded vegetables, cereal grains, coniferous seeds, cotton seeds, ornamental seeds, and soybeans. It is estimated that 165,000 lbs are applied directly on crops in the field annually while around 631,000 of thiram is applied to 1.3 billion pounds of food annually ([#EPA](#)). It is also applied on crops and acts as a repellent against certain animals - rodents, rabbits, and deer - that would otherwise damage the crops.

Thiram is available in dust, flowable, wettable powder, water dispersible granules, and water suspension formulations, but is most commonly used in mixtures with other fungicides ([#EPA](#) and [#EXTOXNET](#)). Because it is applied post-harvest, pests are unable to develop a resistance against thiram ([#EPA](#)). It is also used throughout the year and is most commonly applied in Florida and California.

## Health Effects

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Thiram is slightly toxic when absorbed through inhalation or ingestion but is considered moderately toxic when absorbed dermally and laboratory tests which administered large doses to rats and mice usually resulted in death after 2-7 days. Symptoms of acute inhalation exposure include itching, scratchy throat, hoarseness, sneezing, coughing, inflammation of the nose or throat, bronchitis, dizziness, headache, fatigue, nausea, diarrhea, and other gastrointestinal complaints. It is also a skin sensitizer and results in irritated eyes and skin when exposed.

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*"Symptoms of chronic exposure to thiram in humans include drowsiness, confusion, loss of sex drive, incoordination, slurred speech, and weakness, in addition to those due*

*to acute exposure. Repeated or prolonged exposure to thiram can also cause allergic reactions such as dermatitis, watery eyes, sensitivity to light, and conjunctivitis [1](#). Except for the occurrence of allergic reactions, harmful chronic effects from thiram have been observed in test animals only at very high doses."*

It is not known definitively to be a developmental toxin, reproductive toxin, or carcinogen

## **Environmental Effects**

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Thiram is not persistent in soils and also is nearly immobile in clay or highly organic soils which therefore makes it highly unlikely to contaminate groundwater. It also breaks down quickly in water and even more so in highly acidic environments

Thiram is practically nontoxic to birds, honeybees, and small mammals but moderately to highly toxic to most fish and aquatic organisms

## **Regulation**

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Thiram has been registered for use in the United States since 1948 with reregistration tests occurring in 1991, 1995, and again in 2004

Source : <http://www.toxipedia.org/display/toxipedia/Thiram>