

# TRICHLORFON

**Trichlorfon** is a moderately toxic organophosphate insecticide which is registered as a General Use Pesticide by the EPA but the primary manufacture, Bayer Corporation, has voluntarily canceled its production of most products containing the chemical (#INCHEM and #EXTOXNET). It is used to control insects on numerous crops (see #Usesbelow).

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## Just the facts

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Physical Information
Name: Trichlorfon
Use: organophosphate insecticide
Formula: $C_4H_8Cl_3O_4P$
Synonyms: chlorofos, DEP, DETF, dipterex, dimethyl 1-hydroxy- 2,2,2-trichloro ethanephosphonate, O, O-dimethyl (2,2,2-trichloro-1-hydroxyethyl), phosphonate, metrifonate, foschlor, trichlorofon, trichlorphon
Trade Names: Anthon, Bovinos, Briten, Chlorophos, Ciclosom, Dipterex, Ditrifon, Dylox, Dyrex, Equino-Aid, Foschlor, Leivasom, Neguvon, Masoten, Pronto, Phoschlor, Proxol, Totalene, Trichlorophene, Trichlorophon, Trinex, Tugon and Vermicide Bayer 2349

## Physical Information

Source: synthetic chemistry

Recommended daily intake: none

Absorption: dermal, inhalation, ingestion

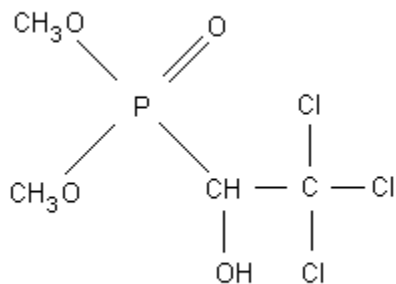
Sensitive individuals: workers

Toxicity/symptoms: moderately toxic

Regulatory facts: registered as a General Use Pesticide (GUP)

## Chemical Structure

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Structure retrieved from #INCHEM.

## Chemical Description

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Trichlorfon is a colorless powder at room temperature.

## Uses

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Trichlorfon is produced and used in dust, emulsifiable concentrate, granular, fly bait, and soluble powder formulations and the concentration of trichlorfon in the product ranges from around 40-98% (#EXTOXNET). It has been used since the early 1950s in a number of settings. It was used on a variety of crops to control insects such as cockroaches, crickets, silverfish, bedbugs, fleas, cattle grubs, flies, ticks, leafminers, and leaf-hoppers (#EXTOXNET). It was also used on livestock, domestic settings, greenhouses, and aquatic environments (#EXTOXNET). During the height of its use, 500,000-1,000,000 were applied annually (#EPA).

## Health Effects

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### *Main Article: Cholinesterase Inhibitor*

The undesirable health effects associated with trichlorfon, and all Organophosphates for that matter, is its cholinesterase inhibiting properties. It is a moderately toxic organophosphate absorbed easily dermally but also can have negative effects when its fumes are inhaled or it is ingested (#EXTOXNET).

It is "Suspected" (but not listed as definitively) the following long-term health problems (#Scorecard):

- \* Carcinogen
- \* Neurotoxicant
- \* Immunotoxicant
- \* Developmental Toxicant
- \* Gastrointestinal or Liver Toxicant
- \* Reproductive Toxicant

Cases of occupational and accidental exposure have been documented with some cases resulting in fatalities (#INCHEM).

## Environmental Effects

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Trichlorfon breaks down and degrades very rapidly in soil with a half-life of anywhere from 3-27 days and usually only negligible amounts are left in the soil a month after treatment (#INCHEM and #EXTOXNET). Because it does not bind strongly to soil particles it is likely to leach into groundwater sources where it is stable in water below 5.5 pH but at higher pH levels, it is converted to dichlorvos (#INCHEM and #EXTOXNET). Though it leached into groundwater easily, it has little prospect of causing lasting damage to groundwater supplies because it evaporates easily, often with the majority being evaporated after only two hours (#EXTOXNET).

In laboratory settings, Trichlorfon is highly toxic to most aquatic organisms, but in practice the amount of trichlorfon rarely reached levels considered high enough to cause real harm to fish and therefore it probably had negligible effects on populations (#INCHEM). The same scenario is observed in relation to birds: highly toxic in laboratory settings but a negligible effect on overall populations (#INCHEM).

## Regulation

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Trichlorfon is classified by the EPA as a General Use Pesticide (GUP) and is in toxicity class II (Moderately Toxic) with products containing trichlorfon bear the Signal Word WARNING (#EXTOXNET). But, the main producer, Bayer, voluntarily canceled production of most products containing trichlorfon in 1995 (#EPA). Additionally it is on three federal regulatory lists: Hazardous Substances (Superfund), Registered Pesticides (Federal Insecticide, Fungicide, and Rodenticide Act), and Toxic Release Inventory Chemicals

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