

TOXAPHENE

Overview

Toxaphene, also known as camphechlor, chlorocamphene, polychlorocamphene, and chlorinated camphene, is a highly toxic and bioaccumulative organic insecticide. It is one of the so-called Dirty Dozen, a group of 12 chemicals that are considered highly toxic and associated with numerous diseases and birth defects in livestock and humans (#BBC). It was used widely from around 1947-1980 but its use has reduced drastically following a ban by the US EPA in 1982 (#US EPA Persistent Bioaccumulative and Toxic (PBT) Chemical Program). It is also listed as a UNEP Persistent Organic Pollutant (POP), UNEP Prior Informed Consent Chemical (PIC), and WHO Obsolete Pesticide (PANNA Pesticide Database).

Chemical Description

Toxaphene is not naturally occurring, but rather a complex mixture of 670 chlorinated terpenes that was available in numerous forms but most often found as a solid or gas (#US EPA Persistent Bioaccumulative and Toxic (PBT) Chemical Program and #ATSDR Toxicological Profile for Toxaphene). As a solid, it is amber in color with a pine-like odor.

Uses

Toxaphene was used as a nonsystemic stomach and contact insecticide from the late 1940s until 1982 (peaking in 1975), when the EPA canceled all uses of toxaphene as a pesticide or pesticide ingredient (#ATSDR Toxicological Profile for Toxaphene). It was used mainly on cotton, but also on flowers because it was persistent and relatively nontoxic to bees (#ATSDR Toxicological Profile for Toxaphene). Toxaphene production was greatest in 1977, at around 40 million pounds, and dropped to 12 million pounds when it was canceled in 1982 (#EPA Consumer Factsheet on TOXAPHENE).

Toxaphene was used to control insects on cotton, corn, fruit, vegetables, and small grains as

well as to protect livestock from such pests as lice, fleas, ticks, mange, and scab mites (#ATSDR Toxicological Profile for Toxaphene). Up through the early 1970s, toxaphene, often mixed with rotenone, was used widely in lakes and rivers to eradicate fish that were considered a detriment to sport fishing (#ATSDR Toxicological Profile for Toxaphene). This occurred most often in Canada and the Northern United States.

Its use as a pesticide was canceled in 1982, all uses were banned in 1990, and existing stocks were not to be sold in the United States after March 1, 1990. It is currently used only for the following:

- ♣ Scabies control in cattle (as a dip)
- ♣ Insect control for pineapples in Puerto Rico and for bananas in the Virgin Islands
- ♣ Emergency treatment of cotton, corn, and small grains

"Toxaphene-like pesticides" are still produced and used in other countries including in India, parts of Eastern Europe, Latin America, and Africa (#ATSDR Toxicological Profile for Toxaphene).

Health Effects

Toxaphene is a very harmful bioaccumulative and persistent chemical that causes serious acute and chronic health problems. Health effects depend on amount and duration of exposure.

Acute

Toxaphene is highly toxic following acute oral exposure, and numerous deaths have been reported in humans following accidental or intentional ingestion of toxaphene (#ATSDR Toxicological Profile for Toxaphene). Acute exposure to toxaphene overstimulates the central nervous system and damages the kidney, liver, spleen, and adrenal gland (#ATSDR Toxicological Profile for Toxaphene). Because the majority of uses have been canceled, exposure to large amounts of toxaphene is not likely.

Chronic

Toxaphene is bioaccumulative and is readily stored in fats. There have yet to be human studies to examine the effects of long-term, low-level toxaphene exposure, but animal studies have been conducted. In rats, it is seen to be a developmental toxicant, a nervous system toxicant,

and a possible carcinogen (#ATSDR Toxicological Profile for Toxaphene and #EPA Persistent Bioaccumulative and Toxic (PBT) Chemical Program).

Environmental Effects

Toxaphene enters the environment after application to crops or to rivers and lakes and persists for years depending on the local conditions (#Public Health Statement for Toxaphene).

Precautions

Acute exposure to toxaphene is unlikely because it has been canceled for so long.

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