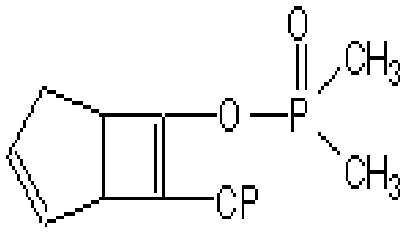
Heptenophos



Chemical name: Heptenophos
Other names: 7-chlorobicyclo[3.2.0]hepta-2,6-dien-6-yl dimethyl phosphate
4-(O,O-Dimethylphosphoryl)-5-chlorobicyclo(3,2,0)hepta-1,4-diene
Heptenofos, Heptenofosz
Compound: $C_9H_{12}ClO_4P$
CAS Number: 23560-59-0
Pesticide type: insecticide, acaricide

Characteristics

Heptenophos was first introduced in 1975. It is a new compound belonging to the organophosphate group of chemicals. It has a systemic mode of action with stomach, contact and respiratory action, is an inhibitor of acetylcholinesterase. It is a liquid with light brown colour.

Use

Mostly used to control sucking insects and certain Diptera. Trade name include HOE2982, Hostaquick, Ragadan.

Possible hazards and regulation

PAN Bad Actor Chemical
It has not been included as active substance in Annex I to Directive 91/414/EEC.

WHO Ib highly hazardous

Toxicity

The compound is very highly toxic to most mammals and other animals.

Toxicity to humans
Symptoms of poisoning with this compound may include any of the following: excessive salivation, sweating, tearing, muscle twitching, weakness, tremor, headache, dizziness, nausea, vomiting, diarrhea, respiratory depression, fluids in lungs, in severe cases seizures, incontinence, loss of consciousness.

ADI 0,003 mg/kg/day

Acute toxicity limits
Acute oral LD50 in rat is 96 mg/kg which suggests a high toxicity via the oral route.
Dermal LD50 is greater than 2000 mg/kg in rats, while inhalation LC50 was set at 0,95 mg/l in rats.

Chronic toxicity:
Short term dietary NOEL is 15 ppm based on a 2 year study in rats.

Reproductive effects: not listed

Ecological effects
Heptenophos is highly toxic to birds – acute LD50 17 mg/kg. It is also very highly toxic to fish with acute 96 hour LC50 0,056 mg/l. Aquatic invertebrates are also very sensitive to its toxic effects – acute 48 hour EC50 for Daphnia magna is 0,0022 mg/l. It has low toxicity to algae with acute 72 hour EC50 35 mg/l and moderate toxicity to earthworms with acute 14 day LC50 98 mg/l.

Carcinogenity not listed on any list of carcinogens

Mutagenity: no data available

Bioaccumulation: low potential for bioaccumulation

Mobility: moderately mobile

Persistence and degradability in environment
Typical DT50 in soil for heptenophos is 1,4 days (may range from 0,07 to 1,8 days), which suggests the compound is not persistent. Aqueous hydrolysis DT50 mean value is 13 days. It has generally a low potential to leach.

Limits
MRLs for all crops established at 0,05 mg/kg.

Hazard Symbol : T toxic
N dangerous for the environment

Risk Phrases :
R25 Toxic if swallowed
R50 Very toxic to aquatic organisms
R53 May cause long-term adverse effects in the aquatic environment

Safety Phrases :
S1/2 Keep locked up and out of the reach of children
S23 Do not breathe gas/fumes/vapour/spray (*appropriate wording to be specified by the manufacturer*)
S28 After contact with skin, wash immediately with plenty of ... (*to be specified by the manufacturer*)
S37 Wear suitable gloves
S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
S60 This material and its container must be disposed of as hazardous waste
S61 Avoid release to the environment. Refer to special instructions/safety data sheet

Links
http://sitem.herts.ac.uk/aeru/footprint/en/Reports/379.htm
http://www.mpo.cz/cz/prumysl-a-stavebnictvi/dance/vypis723.html
http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC37684
http://www.croplife.co.za/docs/MRL%27s.pdf

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