



# Chemical Watch Factsheet

A Beyond Pesticides/ NCAMP Factsheet

## Mevinphos

Initially registered by Shell Chemical in 1953, mevinphos is currently produced in the U.S. by DuPont and Amvac Chemical Corp. Sold under the tradenames Phosdrin™ -and Phosfene™, among others, mevinphos serves as a broad spectrum insecticide/acaricide registered for use on a variety of field, forage, vegetable, and fruit crops, including one greenhouse and two aquatic uses. Major U.S. uses are alfalfa and lettuce, 25% and 20% respectively.

Mevinphos, an organophosphate with both contact and systemic activity, is readily absorbed through the skin, lungs, and mucous membranes, and is a potent inhibitor of the essential nervous system enzyme acetylcholinesterase (AChE). Poisoning symptoms may include: headache, vomiting, blurred vision, diarrhea, muscle twitching, hypersecretion, abdominal cramps, and death. An oral LD50 of 3.7mg/kg qualifies mevinphos for EPA's highest acute toxicity class.

Mevinphos' high acute toxicity and the frequency of worker poisonings have made it one of five chemicals targeted for banning by the United Farm Workers. Reports from California show that mevinphos was the leading cause of pesticide induced hospitalization, and the second most common cause of occupational pesticide poisoning between 1980-1986. Most recently, in November 1989, more than 80 farm workers were poisoned in Florida upon entering a mevinphos treated cauliflower field only 20 hours after application (PAY, Dec. 1989). These considerations prompted EPA to require the physical presence of a certified applicator during use, and to lengthen reentry periods to 96 hours for citrus, grapes, nectarines, and peaches and 48 hours for all other crops as of publication of the reregistration standard in 1988.

Mevinphos' toxicity extends to a variety of wildlife, including birds, fish, aquatic invertebrates, and honeybees, and it has been identified by the U.S. Fish and Wildlife Service as likely to jeopardize endangered species when used on corn and sorghum.

Despite over three decades of use,

and an appalling safety record, the EPA reregistration document states that "except for a teratology study conducted in the rat, the Agency has no acceptable toxicology data for mevinphos." This includes both acute and chronic toxicity testing such as carcinogenicity, reproductive effects, mutagenicity, and acute delayed neurotoxicity. EPA further notes that "available data are insufficient to fully assess the environmental fate of mevinphos, including the potential for groundwater contamination, mevinphos' persistence in the environment, and the need for crop rotational label restrictions." Despite their expressed concern for the significant number of mevinphos poisonings, the Agency "is reserving consideration of special review for mevinphos until data become available that more clearly identify the risks posed by mevinphos use."

*Reprinted from Volume 10, Number 3, August, 1990*

**Updated: October 2007**

### 1994 Cancellation

On July 1, 1994, the EPA issued a Cancellation Order for all mevinphos registrations, effective immediately, after the registrant submitted a request for voluntary cancellation. However, according to the EPA, because mevinphos is so acutely toxic that even a small exposure can cause serious poisonings, the EPA would have found it ineligible for reregistration.

Despite being cancelled in the US, mevinphos products produced in the U.S., including existing stocks, may be exported to countries which permit mevinphos use. Most of the mevinphos tolerances were revoked, except for fifteen tolerances, which are maintained for "import" purposes. Fifteen import toler-

ances for this chemical exist and include tolerances for broccoli, cabbage, cauliflower, celery, cucumbers, grapes, lettuce, melons, peas, peppers, spinach, summer squash, strawberries, tomatoes, and watermelon.

Mevinphos is extremely toxic by all routes of exposure and has been placed in Toxicity Category I. There is a steep dose response curve for mevinphos; that is, the difference between a nonlethal dose and a lethal dose is small. It is very highly toxic to avian species and to fish and aquatic invertebrates. Mevinphos primarily dissipates via microbial metabolism, which occurs quite rapidly with a half-life of approximately one day. It is very mobile in soils, but is not expected to reach ground water due to its short half-life. However, an incomplete database on environmental fate and ecological effects still exist.

In September 2000, the EPA issued a Tolerance Reassessment Progress and Interim Risk Management Decision (TRED) for mevinphos. The final tolerance reassessment decision for mevinphos will be issued once the cumulative assessment for all of the organophosphates is completed.

---

### **Mevinphos *chemicalWATCH* Factsheet Bibliography**

---

Karr, Catherine. 1989. "Eighty workers fall ill to Phosdrin." *Pesticides and You* 9(5):3.

Thomson, W.T. 1984. *Agricultural Chemicals: Insecticides*. Thomson Publications, Fresno, CA.

U.S. EPA. 2000. *Report on FQPA Tolerance Reassessment Progress and Interim Risk Management Decision, Mevinphos*. Office of Pesticide Programs. Washington, DC

U.S. EP A. 1988. *Guidance for the reregistration of pesticide products containing mevinphos as the active ingredient*. Office of Pesticide Programs. Washington, DC.