Permethrin Fact Sheet

Permethrin is a pyrethroid that can be inhaled, ingested, or absorbed through skin.

Depending on the formulation, permethrin is a non-toxic to moderately toxic pesticide. Short-term side effects in sensitive individuals include eye, skin, nose, and throat irritation, and may include breathing problems. Signs and symptoms of poisoning following very high exposure include abnormal facial sensation, dizziness, salivation, headache, fatigue, vomiting, diarrhea, and irritability to sound and touch. Pulmonary edema, seizures, and fasciculations may occur in more severe cases. Permethrin DOES NOT cause cholinesterase inhibition. There are no laboratory tests to confirm the presence of permethrin in an individual.

Toxicological Effects of permethrin*:

Acute toxicity: Permethrin is moderately to practically non-toxic via the oral route, with a reported LD50 for technical permethrin in rats of 430 to 4000 mg/kg. Via the dermal route, it is slightly toxic, with a reported dermal LD50 in rats of over 4000 mg/kg, and in rabbits of greater 2000 mg/kg. Permethrin caused mild irritation of both the intact and abraded skin of rabbits. It also caused conjunctivitis when it was applied to the eyes The 4-hour inhalation LC50 for rats was greater than 23.5 mg/L, indicating practically no inhalation toxicity. The toxicity of permethrin is dependent on the ratio of the isomers present; the cis-isomer being more toxic.

Chronic toxicity: No adverse effects were observed in dogs fed permethrin at doses of 5 mg/kg/day for 90 days. Rats fed 150 mg/kg/day for 6 months showed a slight increase in liver weights. Very low levels of permethrin in the diet of chickens (0.1 ppm for 3 to 6 weeks after hatching) have been reported to suppress immune system activity.

Reproductive effects: The fertility of female rats was affected when they received very high oral doses of 250 mg/kg/day of permethrin during the 6th to 15th day of pregnancy. It is not likely that reproductive effects will be seen in humans under normal circumstances.

Teratogenic effects: Permethrin is reported to show no teratogenic activity.

Mutagenic effects: Permethrin is reported to show no mutagenic activity.

Carcinogenic effects: The evidence regarding the carcinogenicity of permethrin is inconclusive.

Organ toxicity: Permethrin is suspected of causing liver enlargement of the liver and nerve damage. Effects on the immune system have been noted in animal studies.

Fate in humans and animals: Permethrin is efficiently metabolized by mammalian livers [40]. Breakdown products, or "metabolites," of permethrin are quickly excreted and do not persist significantly in body tissues. When permethrin is administered orally to rats, it is rapidly metabolized and almost completely eliminated from the body in a few days. Only 3 to 6% of the original dose was excreted unchanged in the feces of experimental animals. Permethrin may persist in fatty tissues, with half-lives of 4 to 5 days in brain and body fat. Permethrin does not block, or inhibit, cholinesterase enzymes. For more information about permethrin please contact the National Pesticide Telecommunications Network at 1-800-858-7378 *most studies quoted were conducted exclusively in animals

This information has been taken directly from the following sources:

City Health Information, "A West Nile Virus Supplement", The New York City Department of Health, June 2000, v19 s1.

Extoxnet, Extension Toxicology Network, "Pesticide Information Profiles". Website address: http://ace.orst.edu/cgi-bin/mfs/01/pips/permethr.htm

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