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Fact Sheet on the Use of Methoprene in Mosquito Control Programs

March 2001

Methoprene is an insect growth regulator that was first registered for use in Canada in 1977. Two products containing methoprene are registered for the control of mosquito larvae. There are also a number of "Domestic" and "Commercial" class products containing methoprene registered for the control of fleas, fungus gnats and pests in stored tobacco.

How Does Methoprene Work and How Is It Applied?

Methoprene comes in a granular or pellet form and is applied directly to the water where mosquito larvae are found. When mosquito larvae are exposed to methoprene, their life cycle is disrupted, and they are prevented from reaching maturity or reproducing.

All pesticides that are applied directly to water, including methoprene for mosquito control, are classified by the Pest Management Regulatory Agency (PMRA) as "Restricted." Most provinces require that applicators be certified to use restricted class products. In some provinces, methoprene use may also require a permit issued by the provincial pesticide regulatory authority.

Are There Health Concerns Related to the Use of Methoprene?

Methoprene is an insect growth regulator with a non-toxic mode of action. It controls mosquitoes by preventing their development beyond the larval life stage.

Studies indicate that methoprene is of low toxicity and poses little risk to people when used according

to label instructions. Methoprene was not shown to have any significant toxicological effects in the standard battery of toxicity studies used to assess human health effects. The pesticide has very low acute oral and inhalation toxicity potential and is not an eye or skin irritant. Methoprene is also of low acute dermal (skin) toxicity and is not a human skin sensitizer.

Does the Use of Methoprene Have an Effect on the Environment?

In laboratory tests, methoprene has been shown to be practically non-toxic to mallard ducks and only slightly toxic to fish. Although it has been observed to be very highly toxic to freshwater invertebrates, results from field studies involving methoprene have shown that it has no lasting adverse effects on populations of invertebrates or other non-target aquatic organisms when used according to label instructions for mosquito control. Negative impacts on aquatic invertebrates were not permanent and the populations were able to recover.

Methoprene is not persistent in the environment. It degrades rapidly in water, being susceptible to transformation by sunlight and microorganisms.

Role of the PMRA

Health Canada's PMRA is responsible for assessing the human health and environmental safety of all pest control products prior to their approval for use in Canada. Manufacturers must provide the Agency with a full analysis of the product formulation, as well as extensive health

and environmental data, so that a risk assessment can be carried out by PMRA scientists. Only products that are scientifically reviewed and found to be effective and safe for use with minimal risk to human health and the environment are registered by the PMRA.

Contact Information for the PMRA

Information on pesticide regulation can be obtained from the PMRA's web site at www.hc-sc.gc.ca/pmra-arla/ or by contacting the Pest Management Information Service at 1-800-267-6315.

Other Sources of Information

For information about the West Nile Virus, please see Health Canada's Population and Public Health Branch site for West Nile Virus information at <http://nile.healthcanada.net>.

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