



DIMILIN

GENERAL INFORMATION

Dimilin (also known as diflubenzuron) is an insecticide which interferes with chitin (outer-shell) synthesis in insects. It kills larval (immature) insects by disrupting their growth. It is a white crystalline solid with no odor and does not dissolve easily in water. It is used to control gypsy moth populations in forest and recreational areas, and other insects in cotton, soybeans, mushrooms, and pastures. It is a manufactured chemical and does not occur naturally in the environment. It has an extremely low vapor pressure; therefore, exposure to substantial levels of Dimilin in air is unlikely.

HEALTH EFFECTS

No human health effects are likely from exposure to Dimilin as it is used in pesticide treatment programs. Most of the information about the health effects of Dimilin comes from animal studies. Any Dimilin absorbed or eaten by animals is quickly broken down and excreted, and does not accumulate in the body. Complete excretion was found in mice, rats, cats, sheep, cows, pigs, and chickens.

At very high levels, Dimilin's only direct effect is elevated levels of methemoglobin (an abnormal blood pigment), which reduces the oxygen carrying capacity of the blood. However, this response to exposure is reversible and would not be associated with any toxic effects at the levels used in pesticide treatment programs.

Dimilin is not carcinogenic (causes cancer), mutagenic (causes genetic damage), or teratogenic (causes birth defects) in animals or humans. Dimilin is not estrogenic (causes hormonal disruption) and does not impair reproductive performance in animals.

ENVIRONMENTAL EFFECTS

Dimilin enters the environment when it is applied to forest trees and agricultural crops as a pesticide. Dimilin rapidly degrades into other chemicals in soil and water. Its half-life (50% degradation) in soil is approximately 2-6 days and in water is 1-7 days. It sticks strongly to soil particles and therefore does not leach to the ground water or evaporate easily into air. It also does not run off into streams and rivers during rainstorms. Dimilin is not taken up by plant roots. It is persistent on leaf surfaces and may remain in leaf litter at least 1 year after spraying. Dimilin primarily affects arthropods who feed on leaves. It is highly toxic to juvenile life stages of aquatic crustaceans (shrimps and water fleas) and many aquatic insects (mayflies and caddis flies). Adult insects are not affected; however, their fecundity (ability to reproduce) may be

affected. Animals such as cows, sheep, goats, horses, birds, wildlife, large mammals, earthworms, honey bees, and mollusks are not affected from exposure to Dimilin. Dimilin is not toxic to fish.

QUESTIONS?

If you need further information regarding the health effects of Dimilin, please contact the Virginia Department of Health, Division of Environmental Epidemiology, 109 Governor Street, 4th Floor, Richmond, VA 23219, or call (804) 864-8182.

Prepared by: Ram K. Tripathi, Ph.D.

Toxicologist

May 3, 1996

Revised: Virginia Department of Health

Division of Environmental Epidemiology

November 17, 2011