



Pesticide Fact Sheet

Name of Chemical: ACTELIC

Reason for Issuance:

Date Issued: June 30, 1985

Fact Sheet Number: 59

1. DESCRIPTION OF CHEMICAL

Generic Name: O-[2-(diethylamino)-6-methyl-4-pyrimidinyl]
O,O-dimethyl phosphorothioate

Common Name: Pirimiphos-methyl

Trade Name: Actellic

EPA Shaughnessy Code: 108102

Chemical Abstracts Service (CAS) Number: 29232-93-7

Year of Initial Registration: 1984

Pesticide Type: Insecticide

Chemical Family: Organophosphate

U.S. and Foreign Producers: ICI Americas, Inc., Imperial
Chemical Industries, PLC.,
United Kingdom

2. USE PATTERNS AND FORMULATIONS

Application Sites: Stored grain products: corn, rice, wheat,
and grain sorghum intended for export
only

Types of Formulations: Emulsifiable concentrate

Types of Methods of Application: Sprays

Application Rates: 0.006 to 0.015 lbs. a.i. per 1000 lbs.
of grain

Usual Carriers: petroleum solvents

3. SCIENCE FINDINGS

Summary Science Statement

Pirimiphos-methyl is an organophosphorothioate compound with moderate acute toxicity. This chemical has demonstrated adverse chronic effects. It is also a moderate toxicant to wildlife species, however the registered use precludes exposure to wildlife.

This chemical is toxic to fish, and other wildlife. The proposed use precludes any impact on endangered species.

In case of a significant chemical spill call (800) 426-9300 (CHEMTREC).

Chemical Characteristics

Physical State: Liquid

Color: Amber

Odor: Putrid- a typical organophosphorothioate odor. Odorless when pure

Molecular weight: 305 ($C_{11}H_{20}N_3O_3PS$)

Melting point: 15-18°C

Boiling point: Decomposes above 100°C

Vapor Pressure: 1.1×10^{-4} tor at 30°C

Flash Point: not reported

Solubility in various solvents: Solubility in water: 5 ppm at 30°C.
Miscible in all proportions with methanol, ethanol, chloroform, acetone, benzene, toluene and xylene.

Toxicology Characteristics

Acute Oral: 2050 mg/kg, Toxicity Category III

Acute Dermal: 1505 mg/kg, Toxicity Category II

Primary Dermal Irritation: No irritation, Toxicity Category III

Primary Eye Irritation: Corneal opacity persisted to 14 days. Toxicity Category III

Skin Sensitization: Not a sensitizer

Acute Inhalation: Uncharacterized. The use pattern precludes inhalation exposure.

Neurotoxicity: Not an acute delayed neurotoxic agent at doses up to 10 mg/kg/day for 90 doses.

Oncogenicity: Not shown to be an oncogen in rat or mouse studies at dose levels up to 300 and 500 ppm (highest dose tested), respectively.

Teratogenicity: The Agency has determined that this chemical is not teratogenic at levels up to 16 mg/kg/day, however, an additional study in a second species (rats) is still required.

Reproduction-3 generation: Two studies adequately demonstrate that pirimiphos-methyl does not produce reproductive effects. No effects were demonstrated at dose levels up to 100 ppm.

Metabolism: The studies suggest that pirimiphos-methyl is rapidly excreted and no evidence of bioaccumulation was noted.

Mutagenicity: This chemical has been determined to be non-mutagenic in all three required studies.

Physiological and Biochemical Behavioral Characteristics

Mechanism of Pesticidal Action: An insecticide which is active by contact, ingestion, and vapor action and causes phosphorylation of the acetylcholinesterase enzyme of tissues, allowing accumulation of acetylcholine at cholinergic neuro-effector junctions (muscarinic effects), and at skeletal muscle myoneural junctions and autonomic ganglia. Poisoning also impairs the central nervous system function.

Symptoms of poisoning include: headache, dizziness, extreme weakness, ataxia, tiny pupils, twitching, tremor, nausea, slow heartbeats, pulmonary edema, and sweating. Continual absorption at intermediate dosages may cause influenza-like illness which includes symptoms like weakness, anorexia, and malaise.

Metabolism and Persistence in Plants and Animals:

The metabolism of pirimiphos-methyl in plants and animals is not, at this time, adequately understood in order to establish a tolerance for grain crops.

Environmental Characteristics

Uncharacterized. This use pattern preclude exposure to the environment.

Ecological Characteristics

Avian oral:

Mallard duck--76.6 mg/kg

Ring necked pheasant--17.7 mg/kg

Avian dietary:

Mallard duck--633 ppm

Bobwhite quail--207 ppm

Freshwater Fish:

Coldwater fish (rainbow trout)--0.40 ppm

Warmwater fish (bluegill sunfish)--2.9 ppm

Acute Freshwater Invertebrates:

Daphnia--0.21 ppb

4. Tolerance Assessment

No domestic tolerances exist for this chemical. Tolerances for small grains have been proposed to support domestic consumption of treated grains. There is an established tolerance of 5 ppm for imported kiwifruit.

5. SUMMARY OF MAJOR DATA GAPS

- A second mamalian species (rat) teratology study.

6. CONTACT PERSON AT EPA

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