

chemicalWATCH Factsheet

FOSAMINE AMMONIUM

Manufactured by Dupont, fosamine ammonium (Krenite™) has been registered by EPA since 1979 for non-crop uses and conifer release applications in forestry. It is a post-emergent pesticide used for the control of woody plants. One formulation contains a surfactant (Rennex 31™ or poly-oxyethylene tridecyl ether) to aid plant leaf absorption of the pesticide, and another product formulation label also recommends the addition of a surfactant.

Since Krenite™ is not registered for use on cropland, EPA does not require the manufacturer to perform or submit carcinogenicity bioassays or other chronic health effects data, prior to registration, consequently no information is available on these crucial points. However, in 1984, EPA issued a data call-in for environmental fate and potential for groundwater contamination data, as well as for limited chronic toxicity data.

In general, the acute toxicity

of Krenite™ has been found to be quite low for mammals, birds, fish, bees, aquatic invertebrates, etc. Oral and dermal LD₅₀'s in animal tests are all in the gram/kg range. Of several mutagenicity assays submitted to EPA for review, only one, a test in cultured Chinese Hamster Ovary cells, showed chromosomal aberrations. Researchers have found that low concentrations of fosamine ammonium sprayed on chicken and quail eggs induced dose-dependent skeletal abnormalities in the embryos. A rat study for birth defects was negative.

The major metabolite of Krenite™ is carbamoyl phosphoric acid (CPA). Animals typically excrete both unchanged fosamine ammonium and CPA in urine and feces within 72 hours of exposure.

Limited information on environmental fate is available. Fosamine ammonium is highly water soluble and shows no tendency to bioaccumulate, and CPA is readily susceptible to mi-

crobial degradation. Half-lives in soil depend on the soil clay content and the availability of microbes, but in most cases range from 1 week to 10 days. In water, degradation depends on pH, proceeding more rapidly under acidic conditions (pH<7.0). Still, at pH 7 fosamine ammonium was very stable, with only 3% degraded after 4 weeks.

In a recent Final Environmental Impact Statement, the Region 6 Forest Service concluded that they would not use fosamine ammonium in their programs because the data, where they existed, were of such poor quality that they were unable to adequately quantify its risks.

Bibliography on reverse

Reprinted from Vol. 9, No. 5, December, 1989

Pesticides and You

National Coalition Against the Misuse of Pesticides (NCAMP)
530 Seventh Street, S.E., Washington, D.C. 20003 • 202/543-5450

chemicalWATCH factsheet
Fosamine Ammonium bibliography

Dupont. (1973). Environmental chemistry review for ammonium ethyl carbamoylphosphonate (Krenite™). Exp-352. Wilmington, DE.

Envirologic Data, Inc. (1984). Risk Assessment of Fosamine Ammonium. Prepared for ME Department of Transportation and ME Board of Pesticides Control. Portland, ME.

Lutz-Ostertag, Y. (1983). Toxic and teratogenic effects of the ammonium salt of fosamine on the development of quail and chicken embryos. *Arch. Anat. Microsc. Morphol. Exp.* 72:77-85.

Schneider, H. (1979). Toxicological information: fosamine, ammonium salt, ammonium ethyl carbamoylphosphonate. Dupont Haskell Laboratory for Toxicology and Industry Medicine. Wilmington, DE.

U.S. Department of Agriculture. (1988). Managing competing and unwanted vegetation. Final Environmental Impact Statement. Forest Service. Pacific Northwest Region.

U.S.-EPA. (1985). Toxicology One-Liner #465G: Fosamine. Office of Pesticide Programs. Washington, DC.

U.S.-EPA. (1984). Data Call-In notice for chronic toxicological and ground water data for fosamine ammonium. Office of Pesticide Programs. Washington, DC.