



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

SUBJECT: BEAD Chemical Profile for Registration Review: Cryolite (075101)

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Peer Review Panel date: September 8, 2010

INTRODUCTION

The purpose of this document is to convey usage information and provide a broad overview of the pest management roles of pesticides that are beginning to undergo registration review. The anticipated audience consists of the team of EPA staff currently evaluating the registration status of cryolite, and eventually the general public. This document builds upon the data already provided in the "Usage and Label Use Data Packages" that are also provided to Registration

Review teams by BEAD. The document is based on information and data available to BEAD as of August 31, 2010.

Cryolite (chemical names include: sodium aluminofluoride, sodium aluminum fluoride, or sodium hexafluoroaluminate) is an inorganic fluorine compound used as an insecticide primarily on raisins and table grapes to control leafrollers, leaffolders, worms, and mites (GfK Kynetec, 1998-2008). The mode of action of this chemical is not well understood but is thought to be a feeding blocker/stomach poison (Brown, 2006; UC IPM, 2008).

USE SITES

Agricultural Use Sites

Blueberry, Broccoli, Brussels sprouts, Cabbage, Cauliflower, Citrus, Collards, Cranberry, Cucumber, Eggplant, Grapefruit, Grapes, Kiwi fruit, Kohlrabi, Lemon, Lettuce (head, leaf, black seeded Simpson – salad bowl, etc), Lime, Melons (cantaloupe, water), Orange, Peach, Pepper, Potato - white/Irish, Pumpkin, Raspberry (black - red), Squash (all or unspecified), Squash (summer), Squash (winter) (Hubbard), Strawberry, Tangelo, Tangerines, and Tomato.

Non-Agricultural Use Sites

Ornamental and/or shade trees, Ornamental herbaceous plants, Ornamental nonflowering plants, and Ornamental woody shrubs and vines.

COMMON FORMULATIONS AND APPLICATION METHODS

Cryolite is formulated as bait/solid, wettable powder/dust, and dust and dry flowable. It may be applied as broadcast as a foliar spray in early summer and late spring, as chemigation with sprinkler irrigation, and as dust or spray with aircraft.

USAGE

Agricultural Usage

Based on private market pesticide usage data, the agricultural usage averaged almost 2 million pounds active ingredient (A.I.) for about 300,000 acres per year from 1998-2008. The use of cryolite in pounds A.I. and acres treated peaked in 1998 and 2000. (GfK Kynetec, 1998-2008)

From 1998-2008, the largest markets in terms of total pounds of active ingredient applied are: raisin grapes (71%), table grapes (12%), and wine grapes (9%). (GfK Kynetec, 1998-2008)

From 1998-2008, the largest markets in terms of total area treated are: raisin grapes (74%), table grapes (12%), and wine grapes (10%). (GfK Kynetec, 1998-2008)

The states with the most agricultural usage in terms of pounds AI applied are: California (97%), and Arizona (1%). (GfK Kynetec, 1998-2008)

Non-Agricultural Usage

There are no usage data for cryolite from our available sources on ornamental plants and nursery crops. The California Department of Pesticide Regulation reports approximately 1,850 pounds of cryolite used on outdoor nursery stock in 2008.

USE TRENDS

Figure 1 displays usage trends, in terms of pounds applied, for cryolite's largest agricultural markets. The data in this section are provided for preliminary scoping purposes. The use of cryolite has generally been in decline since 1998. From 1998 through 2004, cryolite's major uses are raisin, table, and wine grapes. However, for the last four years surveyed (2005-2008), the use on oranges and peppers has surpassed the use on wine grapes.

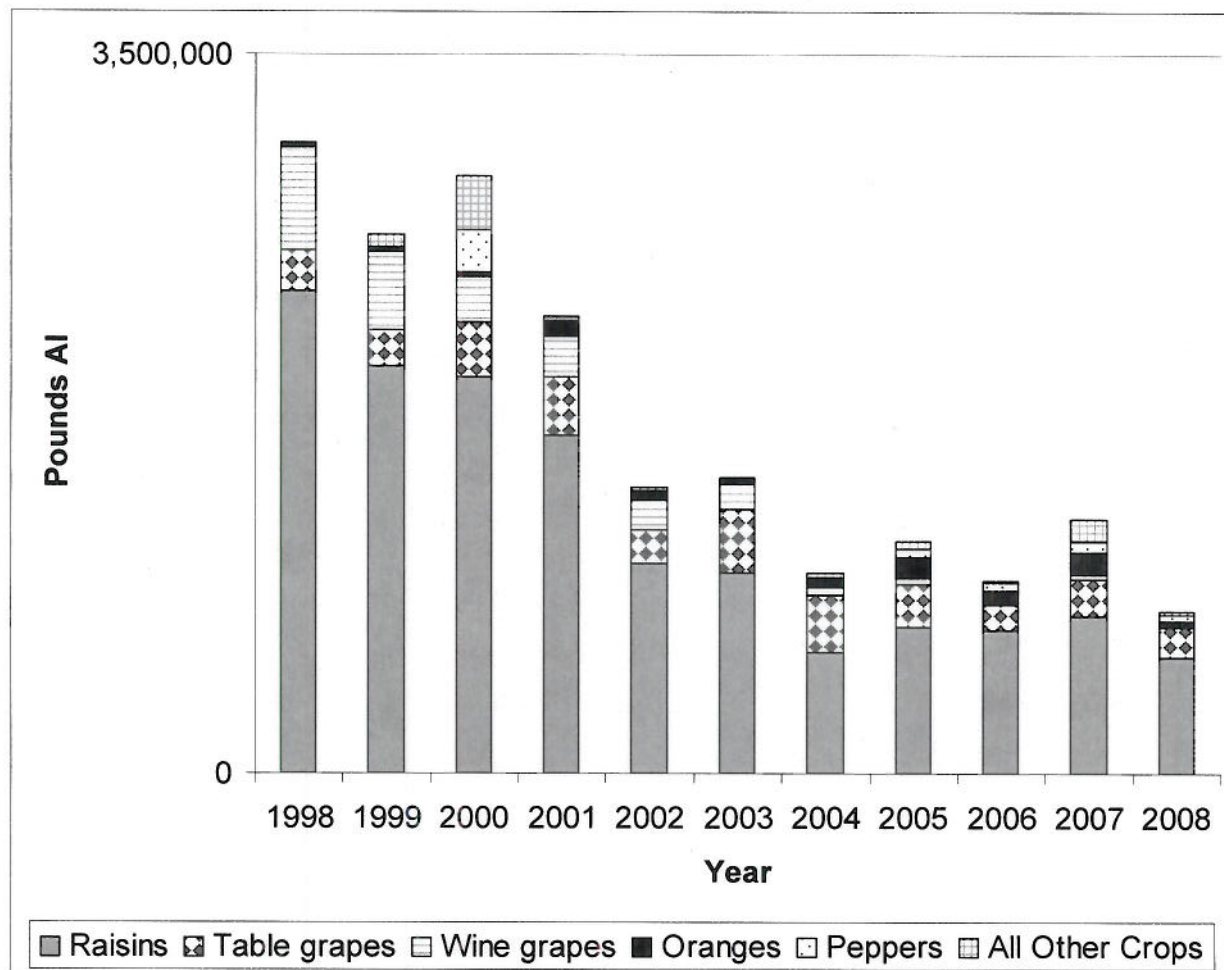


Figure 1. Cryolite usage by major agricultural markets, pounds AI, 1998-2008

Note: All other crops refers to apples, cantaloupes, cherries, grapefruit, lemons, peaches, potatoes, pumpkins, squash, strawberries, tomatoes, and watermelons. (GfK Kynetec, 1998-2008)

BIOLOGICAL ASPECTS RELEVANT TO CRYOLITE

Cryolite targets leaf-feeding insect pests. The University of California Integrated Pest Management (IPM) program recommends up to two early stage treatments to control omnivorous leafroller and grape leaffolder caterpillars in grapes.

The Insecticide Resistance Action Committee (IRAC) has documented only one case of resistance to cryolite, in the walnut husk fly in California (Quayle, 1943). There is no reported use of cryolite in California walnuts in recent history.

HISTORY OF BEAD ASSESSMENTS FOR CRYOLITE

There have been no Section 18 requests for cryolite. BEAD has not conducted any benefits assessments for cryolite.

REFERENCES

Brown, Amy E. (2006). Mode of Action of Landscape Insecticides and Miticides. Maryland Cooperative Extension, Pesticide Information Leaflet No. 42. [online] Available at <http://www.entmclasses.umd.edu/leaflets/pil42.pdf>. Accessed August 31, 2010

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