

5. PRODUCTION, IMPORT/EXPORT, USE, AND DISPOSAL

5.1 PRODUCTION

Guthion is produced by the reaction of N-bromethylazimidobenzoyl with sodium dimethyldithio-phosphoric acid (NRC 1977). Current production volumes are not known. In 1997, 2,091,014 pounds of guthion were used on crops throughout the United States with the vast majority being applied to apple orchards (USDA 2000). This represented an 18% decrease from national usage data compiled for 1992 in which 2,548,867 pounds were used. In the interim Registration Eligibility Decision (RED) document for guthion, EPA estimated that <2 million pounds are used annually (EPA 2001b). Current use volumes of guthion throughout the United States are expected to be considerably lower than in previous years since many of the registered uses for this insecticide have been cancelled or are expected to be cancelled in upcoming years (see Section 5.3). For example, according to the State of California Department of Pesticide Regulation, use of guthion has decreased in California from over 400,000 pounds in 1994, to slightly over 50,000 pounds used in 2004 (CDPR 2006). The SRI Directory of Chemical Producers lists Bayer Crop Science as the only manufacturer of guthion in 2005 (SRI 2005); however, according to the National Pesticide Information Retrieval System, there are currently four active registrants manufacturing formulated products or technical-grade guthion (NPIRS 2006). These companies and the products produced are described in Table 5-1.

No information is available in the TRI database on facilities that manufacture or process guthion because this chemical is not required to be reported under Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) (EPA 1997).

5.2 IMPORT/EXPORT

No current data are available regarding the volume of guthion imported or exported to and from the United States. As with many pesticides with production or uses involving proprietary information, quantitative estimates of production, import, and export volumes are not publicly available (Bason and Colborn 1992).

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Table 5-1. Manufacturers of Technical-Grade or Formulated Products Containing Guthion

Company name and address	Number of active products	Product description(s)
Bayer CropScience Research Triangle Park, North Carolina 27709 (919)549-2000	2	Technical-grade powder and 50% wettable powder
Gowan Company Yuma, Arizona 85366-5569 (928)783-8844	5	Technical-grade powder, 50% water soluble bags, 35% water soluble bags, 35% wettable powder, and 50% polyvinyl acetate bags
Makhteshim Chemical Works, Ltd. Makhteshim-Agan of North America, Inc. Raleigh, North Carolina 27609 (919)256-9300	1	Technical-grade powder
Micro-Flo Company, LLC Memphis, Tennessee 38117 (901)432-5118	3	35% Emulsifiable concentrate, 35% wettable powder, 50% wettable powder

Source: NPIRS 2006

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5.3 USE

Guthion is a broad spectrum organophosphate insecticide, acaricide, and molluscicide that has been used to control a wide variety of insects including codling moths, plum curculios, apple maggots, aphids, leafrollers, mites, mealybugs, moths, and boll weevils (EPA 2001b). It has been used on a variety of crops; however, its major use has been on tree crops, including pome and stone fruit and nut crops (EPA 2001b).

In 2001, the EPA published its Interim Reregistration Eligibility Document (IRED) for guthion, in which it concluded that all uses of guthion were ineligible for re-registration based on their currently approved labeling (EPA 2001b). The EPA proposed the immediate cancellation of 28 Group 1 uses of guthion (alfalfa, beans—succulent or snap, birdsfoot trefoil, broccoli, cabbage including Chinese, caneberries—foliar application only, cauliflower, citrus, celery, clover, cucumbers, eggplants, filberts, grapes, melons, nectarines, nursery stock other than quarantine use, onions—green, onions—dry bulb, parsley, pecans, peppers, plums and dried plums, potatoes, quince, spinach, strawberries, and tomatoes), which were deemed to have little use and/or low benefits. Another seven uses were allowed to continue with a 4-year phase out since these uses were considered to have moderately high economic benefit. The remaining uses were considered to have significant economic benefits for which no adequate pesticide could be used in place of guthion (California EPA 2004). These uses were considered eligible for re-registration with 4-year time limited tolerances. If no request was made for re-registration these uses were set to expire in October 2005. In July 2004, the guthion registrants submitted applications to extend the registrations for the remaining 10 uses of guthion (Group 3 uses). These uses include almonds; apples/crabapples; blueberries, lowbush and highbush; Brussels sprouts; cherries, sweet and tart; nursery stock; parsley; pears; pistachios; and walnuts. On March 29, 2006, EPA amended the registrations of guthion products to terminate the Group 2 uses, which include caneberries, cotton, cranberries, peaches/nectarines, potatoes, and Southern pine seed orchards (EPA 2006j). This order follows up on an August 2005 notice of receipt of requests from the registrants to voluntarily cancel the Group 2 uses. Under the existing stocks provisions, distribution or sale of these products for these uses is allowed until March 31, 2006, and use of these products is allowed until September 30, 2006. On June 9, 2006, EPA proposed the cancellation of guthion usage for apples, blueberries, cherries, parsley, and pears by 2010 and cancellation of its uses on almonds, Brussels sprouts, pistachios, walnuts, and nursery stock by 2007 (EPA 2006l).

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5.4 DISPOSAL

The two methods most frequently employed for the disposal of organophosphate pesticides such as guthion are incineration and alkaline hydrolysis (NIOSH 1981). Incineration involves dissolving guthion in a flammable solvent such as alcohol followed by atomization in a suitable combustion chamber equipped with an appropriate effluent gas cleaning device.

Guthion is listed as toxic substances under Section 313 of the Emergency Planning and Community Right to Know Act (EPCRA). Disposal of wastes containing these compounds is controlled by a number of federal regulations (see Chapter 8). The EPA Office of Pesticide Programs has detailed labels for the use, storage, and disposal of all pesticides, including registered products containing guthion. All pesticide products are required to bear instructions for the storage and disposal of the pesticides and the pesticide containers. Storage and disposal instructions cover the appropriate storage of the pesticide product; disposal of any unused pesticide product or any rinse liquids resulting from cleaning of pesticide application equipment; and the disposal of the pesticide container. State and local regulations may be stricter than the federal requirements listed on the label.