



MEMORANDUM

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Assistant Director

FROM: Susan Edmiston, Environmental Program Manager II
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[Original signed by S. Edmiston]

DATE: June 16, 2011

SUBJECT: METHAMIDOPHOS MITIGATION

In February 2006, Department of Pesticide Regulation (DPR) scientists completed the risk characterization document (RCD) for methamidophos. The assessment addressed risks associated with (1) occupational exposures (e.g., applicators, mixers and loaders handling methamidophos, and fieldworkers performing tasks in treated fields), (2) ambient and off-site exposures to bystanders, and (3) dietary exposures from consuming methamidophos-treated food.

Inhibition of acetylcholinesterase is the critical endpoint for acute, subchronic and annual exposure scenarios. A no observable effect level (NOEL) of 3.0 mg/kg/day was used to assess the margins of exposure (MOE) for acute occupational exposure. A NOEL of 0.75 mg/kg/day was used to assess MOEs for seasonal and annual occupational exposure. From these NOELs, estimates were made of occupational exposure for mixer/loader/applicators, flaggers, and post-application work tasks. A MOE of at least 100 is generally considered adequate to protect people from the toxic effects of a chemical when the toxicology endpoints are derived from animal studies. From these calculations, the use of methamidophos results in unacceptable acute, seasonal and chronic exposures to persons in the occupational setting (Table 1).

Table 1
DPR Methamidophos Margins of Exposure (MOE) for Activities of Concern

Work Task	Acute	Seasonal	Chronic
M/L/A	3-45	3-44	8-130
Flaggers	1-14	1-14	1-14
Fieldworkers	>100	>100	>100

In May 2006, the DPR management issued a risk management directive (RMD) for methamidophos. Because methamidophos is both an active ingredient and an active breakdown product of acephate, aggregate exposure could be considered. However, the RMD directed staff to consider only methamidophos as an active ingredient:



1. Review currently registered labels to determine if U.S. EPA recommended label amendments have been implemented.
2. Prepare appropriate mitigation measures for mixers, loaders and flaggers for situations not addressed by label amendments. The proposed mitigation measures should be developed with the intent of meeting a goal of raising the MOE for these occupational scenarios to 100.

United States Environmental Protection Agency (U.S. EPA) Actions

In 2002, U.S. EPA announced an interim reregistration eligibility decision (IRED) for methamidophos. Cotton uses were to be phased out over five years, discontinued by 2007. The decision also included a number of label amendments that are necessary in order for methamidophos products to be eligible for reregistration. These amendments are:

- All applications must be made using enclosed cab tractors or enclosed cockpits;
- Flaggers must be in enclosed vehicles or mechanical flaggers be used; or ground positioning system (GPS) equipment must be used; and
- Cotton use would be given a 5-year phase out period to allow for transition to alternatives.

In addition to the amendments to mitigate occupational risk, the following label amendments were included to reduce the risks to terrestrial birds and mammals:

- A maximum of two applications per season to cotton during the phase out period; and
- Maximum of four or less applications per season to tomatoes (except for current SLN registrations with less than three applications would remain as written).

In July 2009, U.S. EPA issued a notice of receipt of request by the registrant to voluntarily cancel their registrations of products containing methamidophos. The requests would terminate the last methamidophos products registered for use in the United States (<http://www.epa.gov/fedrgstr/EPA-PEST/2009/July/Day-22/p17171.htm>). In September 2009, U.S. EPA announced the order for the cancellation of methamidophos, effective December 31, 2009. The effective cancellation dates for all FIFRA 24(c) Special Local Need registrations was also December 31, 2009. Sales of existing stocks were allowed until December 31, 2010. Persons other than the registrant may continue to use the products until existing stocks are exhausted (<http://www.epa.gov/fedrgstr/EPA-PEST/2009/September/Day-23/p22921.htm>).

Assessment of Need for Additional Mitigation Measures

Methamidophos use in California has declined greatly over the past decade. In 2000, a total of 76,865 pounds were applied to 16 different crops/sites. A total of 17,934 pounds of methamidophos was applied in 2009 to seven different crops/sites, with the greatest use on

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alfalfa (13,305 pounds applied). The last remaining product in California was inactivated in May 2011. It can be continued to be sold in California by dealers until May 2013. It can be continued to be used until existing stock are gone. Since production for use in California has ceased and the registrant can no longer sell methamidophos, the amount in the channels of trade are likely to be small. Therefore, Worker Health and Safety Branch (WHS) scientists determined that the continued use of existing stock is likely to pose minimal health risks. I recommend that DPR consider the methamidophos mitigation complete with the voluntary cancellation of all product registrations.

cc: Ann Prichard, Environmental Program Manager II, Registration Branch
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