Department of Pesticide Regulation

Brian R. Leahy
Director

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Governor

MEMORANDUM

TO: Dr. Marylou Verder-Carlos
Assistant Director
Pesticide Programs Division

HSM-16005
(No. assigned after issuance of memo)

FROM: Lisa Ross, Ph.D.
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Chief, Worker Health and Safety Branch
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[*Original signed by L. Ross*]

DATE: January 15, 2016

SUBJECT: COMPLETION OF BENOMYL MITIGATION

Benomyl (methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate) is a systemic fungicide used to control a wide range of fungal diseases of fruits, nuts, vegetables, field crops, turf, and ornamentals. Benomyl entered the risk assessment process because of teratogenicity, oncogenicity, reproductive toxicity, and adverse effects on the liver caused by chronic exposure. Department of Pesticide Regulation staff completed a risk assessment in 1999.

The risk assessment concluded that Margins of Exposure (MOE), based on toxicity data available at the time, for mean daily occupational exposures were greater than 100. 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. When the mean short term occupational exposures were combined with potential daily dietary exposure, the MOEs still remained greater than 100.

Margins of exposure for annual occupational exposure, or combined occupational exposure and potential annual dietary exposure, were greater than 100. Maximum Likelihood Estimates (MLEs) of excess lifetime risks of cancer from occupational exposure to benomyl ranged from 0.1×10^{-6} to 4×10^{-6} with 95th percentile upper bounds ranging from 0.1×10^{-6} to 6×10^{-6}. MLEs of excess lifetime risks of cancer from combined occupational and potential annual dietary exposure to benomyl ranged from 4×10^{-6} to 9×10^{-6}, with the 95th percentile upper bounds ranging from 7×10^{-6} to14×10^{-6}.

The MOEs for potential daily and annual dietary exposure for all population subgroups were greater than 100. The MLE of the excess lifetime risk of cancer for the U.S. population was 5×10^{-6}, with a 95th percentile upper bound estimate of 8×10^{-6}.

Seven of the U.S. Environmental Protection Agency's tolerances for benomyl on agricultural commodities existing in 1999 provided MOEs less than 100 for theoretical daily dietary exposure to one or more subgroups if commodities are consumed with residues at the tolerance level.

No mitigation of risks is necessary at this time because no products containing benomyl are currently registered in California. However, if products containing benomyl are registered in California in the future, a risk assessment should be considered. Your approval of this conclusion is requested.

cc: Kevin Solari, Environmental Program Manager I (Supervisory)

APPROVAL

[*Original signed by M. Verder-Carlos*] January 25, 2016
Marylou Verder-Carlos, Assistant Director Date