

## **Patricia D. Hastings**

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**To:** "NJinPAS Network" <NJinPASNetwork@AESOP.RUTGERS.EDU>  
**Sent:** Monday, February 09, 2004 12:00 PM  
**Subject:** N-Methyl Carbamate Cumulative Assessment Group Pesticides Determined

**Action:** EPA has determined that for the **cumulative reassessment** of the carbamate group of pesticides, it was appropriate to divide the carbamates into three distinct subgroups according to differing toxic effects: (1)N-methyl carbamates, (2) thiocarbamates, and (3) dithiocarbamates. They also determined that the following **eleven N-methyl carbamates** will be assessed and evaluated in the N-methyl carbamate cumulative risk assessment document. These carbamates all display cholinesterase (ChE)-inhibiting activity, have current active registrations, and are expected to contribute to the carbamate cumulative risk assessment through quantitatively meaningful exposure scenarios.

1. aldicarb,
2. aldoxycarb,
3. carbaryl,
4. carbofuran,
5. formetanate HCl,
6. methiocarb,
7. methomyl,
8. oxamyl,
9. pirimicarb,
10. propoxur, and
11. thiodicarb.

EPA expects a preliminary cumulative assessment will be available for public comment by the Spring of 2005. EPA will announce its availability and request public comments in a future Federal Register Notice.

**Background:** Section 408(b)(2)(D)(v) and (vi) of the Federal Food Drug and Cosmetic Act (FFDCA), as amended by Food Quality Protection Act of 1996 (FQPA), specifies that when determining the safety of a pesticide, EPA shall base its risk assessment on aggregate exposure and available information concerning the cumulative effects to human health that may result from exposure to pesticides and other substances that have a common mechanism of toxicity. EPA has determined that certain substances in the carbamate class of pesticides share a common mechanism of toxicity. We have posted EPA's table of the summary criteria for grouping the carbamates (as posted in the original Federal Register Notice) @ <http://www.pestmanagement.rutgers.edu/NJinPAS/carbamateCAGcriteria.pdf> .

See the Federal Register Notice cited below for specifics on the approach, process, and reasoning used by the EPA in identifying, categorizing, and selecting the N-methyl carbamate pesticides which have been designated as a common mechanism group (CMG). Although all of the carbamate pesticides appeared to share a similar chemical structure, they differed in the types of toxic effects they caused. So, EPA divided the carbamate group into three distinct subgroups: N-methyl carbamates, thiocarbamates, and dithiocarbamates.

The N-methyl carbamate mechanism of action is acetylcholinesterase inhibition. However, the thiocarbamates and dithiocarbamates are not included in the CMG for cholinesterase-inhibiting carbamates as it was determined that acetylcholinesterase inhibition was not their principal mechanism of toxicity. Given this, they do not make effective insecticides. Rather, these pesticides are used as herbicides or fungicides. Neuropathology is the primary effect of concern for these chemicals.

**Source:** [Federal Register: February 4, 2004 (Volume 69, Number 23)][Notices][Page 5340-5344]  
<http://www.epa.gov/fedreg/EPA-PEST/2004/February/Day-04/index.html>. See also EPA's 'A Science Policy on a Common Mechanism of Toxicity: The Carbamate Pesticides And the Grouping of Carbamate with the Organophosphorus Pesticides'; draft document. August 30, 1999 @ <http://www.epa.gov/scipoly/sap/1999/september/carbam.pdf>

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