

products ending by December 31, 2001. However, the Agency conducted a dietary assessment using United States Department of Agriculture (USDA) Pesticide Data Program (PDP) monitoring data for benomyl, measured as MBC to estimate residues of thiophanate methyl because MBC is a common metabolite of both benomyl and thiophanate methyl. PDP data were available for apples, bananas, beans, cucurbits, peaches and strawberries. The PDP analytical method employs a hydrolysis step that converts any benomyl present to MBC. MBC is then quantitated and corrected for molecular weight, and results are measured as the sum of benomyl and MBC. Therefore, using MBC data to estimate thiophanate methyl residues may be a conservative approach in that it may overestimate thiophanate methyl residues.

Monitoring data on benomyl from the PDP were used to estimate dietary exposure to MBC, for apples, apple juice, bananas, succulent beans, cantaloupes, cucumbers, peaches, strawberries, citrus, and fruiting vegetables.

EPA assessed risk scenarios for thiophanate methyl under acute, chronic, and short-term and intermediate-term exposures. Risk estimates were calculated for the residues of toxicological concern, the parent compound thiophanate methyl,

and its metabolites methyl 2-benzimidazolyl carbamate plus 2-amine-1-H-benzimidazole (MBC+2-AB).

To update the previous risk assessment, thiophanate-methyl acute and chronic dietary exposure assessments were conducted using the most current version of the Dietary Exposure Evaluation Model software with the Food Commodity Intake Database (DEEM™-FCID), Version 1.3), which incorporates consumption data from USDA's Continuing Surveys of Food Intakes by Individuals (CSFII), 1994–1996/98. The 1998 CSFII survey focused on children from birth to 9 years old and greatly expanded (by several fold) the number of children aged birth to 4 years. Importantly, the supplemental survey was designed in a manner such that the results from the 1998 CSFII survey could be combined with the 1994–96 survey. The data in this newer CSFII survey (termed the 1994–1996/98 CSFII) are based on the reported consumption of more than 20,000 individuals over two non-consecutive survey days and is considered to be a more appropriate and more robust data set than the 1989–91 CSFII survey, which was used in the previous assessment.

The most current version of DEEM™-FCID was used for all dietary risk estimates calculated, and existing uses, as well as the proposed section 18 uses

(blackberries, tomatoes and fruiting vegetables) were included. When calculating risk estimates from MBC+2-AB, an FQPA safety factor of 10 was applied for all infant and children population subgroups. Percent of crop treated information was also incorporated for most established uses and for all of the section 18 uses.

The acute and chronic dietary risk estimates for thiophanate methyl were <100% of the acute and chronic Population Adjusted Doses (aPAD and cPAD) at the 99.9<sup>th</sup> exposure percentile for the general U.S. population and all population subgroups. The acute and chronic dietary risk estimates for MBC +2-AB were also <100% of the aPAD and cPAD at the 99.9<sup>th</sup> exposure percentile for the general U.S. population and all population subgroups. EPA generally has no concern for exposures below 100% of the PADs, because the PADs represent the level at or below which daily aggregate dietary exposure over a lifetime will not pose appreciable risks to human health. The most highly exposed subgroup for all risk estimates calculated was children 1–2 years.

Table 1 summarizes the percentages of aPADs and cPADs for all scenarios for the overall U.S. population and for the most highly exposed population subgroup (children 1–2 years).

TABLE 1.—ACUTE AND CHRONIC DIETARY RISK ESTIMATES FOR THIOPHANATE METHYL EXISTING AND PROPOSED USES

Population Subgroup	aPAD Utilized		cPAD Utilized	
	TM	MBC +2-AB	TM	MBC +2-AB
U.S. population	6%	2%	<1%	<1%
Children (1–2 years)	22%	58%	2%	10%

The acute drinking water assessment, based on simultaneous dietary exposure to both MBC and thiophanate methyl (which was converted to MBC equivalents) resulted in Drinking Water Levels of Comparison (DWLOCs) for the overall U.S. population of 5,833 parts per billion (ppb), and for children (1–2 years) of 72 ppb (the population subgroup with the lowest DWLOC). All acute DWLOCs were well above the acute Estimated Environmental Concentrations (EECs) for ground water and surface water, at 3 and 44 ppb, respectively.

The chronic drinking water assessment, based on simultaneous dietary exposure to both MBC and thiophanate methyl (which was converted to MBC equivalents) resulted

in chronic DWLOCs for the overall U.S. population of 870 ppb, and for children (1–2 years) of 22 ppb (the population subgroup with the lowest DWLOC). All chronic DWLOCs were well above the chronic EEC for ground water of 3 ppb. The chronic DWLOCs were also above the chronic EEC for surface water of 23–24 ppb, except for that of the most highly exposed subgroup, children (1–2 years), which is slightly below the EEC with a chronic DWLOC of 22 ppb. However, given the conservative nature of the screening-level approach to estimated drinking water risks, and the equivalent levels of the chronic DWLOC and EEC (22–23–24 ppb), the Agency does not believe this represents a significant risk or concern for chronic aggregate exposures.

Short-term aggregate exposure takes into account residential exposure plus chronic exposure to food and water (considered to be a background exposure level). Thiophanate methyl and MBC are currently registered for uses that could result in short-term residential exposure and the Agency has determined that it is appropriate to aggregate chronic food and water and short-term exposures for thiophanate methyl and MBC.

All residential exposures are considered to be short-term. The Margins of Exposure (MOEs) (converted to MBC equivalents) for aggregate short-term exposure to thiophanate methyl are as follows: Oral exposure of children (1–6 years) is 670; dermal exposure of children (1–6 years) is 1,000; and