

lower than the rate approved for thiophanate methyl in this year's emergency exemption. However, the Agency believes that most growers used the benomyl rate, because the emergency exemption was approved later in the use season and thus fewer applications than were authorized were actually used. Furthermore, if the higher rate were used, the impact would be lessened by the fact that juice is a blended commodity. Therefore, although the DWLOC is exceeded, the acute dietary risk from food and water does not exceed the Agency's level of concern.

For the chronic exposure assessments, average residues from field trial data and average percent crop treated estimates were used.

Using these exposure assumptions, EPA has concluded that exposure to thiophanate methyl and MBC will utilize the following percentages of the chronic Population Adjusted Dose (cPAD) for the U.S. population: Thiophanate methyl - 0.7%; MBC - 1.0% and total thiophanate methyl plus MBC - 1.7%. The major identifiable subgroup with the highest aggregate exposure is children (1-6 years) and EPA has concluded that aggregate dietary exposure to thiophanate methyl and MBC will utilize the following percentages of the cPAD: Thiophanate methyl - 2.3%; MBC - 26% and total thiophanate methyl plus MBC - 28%. EPA generally has no concern for exposures below 100% of the cPAD because the cPAD represents the level at or below which daily aggregate dietary exposure over a lifetime will not pose appreciable risks to human health. The aggregate chronic DWLOC's are as follows: 858 ppb for the general U.S. population; 69 ppb for females (13-50 years); 22 ppb for infants (< 1 year); and 18 ppb for children (1-6 years). The aggregate surface water EECs for thiophanate methyl is 0.7 ppb; 14 ppb for MBC and 14.7 ppb for thiophanate methyl plus MBC. Therefore, the chronic aggregate risks do not exceed the Agency's level of concern.

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 use 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 dermal exposure of females (13-50 years) is 1,315. The MOEs for aggregate exposure to MBC from the use of MBC as an in-can preservative are 670 for dermal exposure and 770 for exposure via inhalation. The MOEs (converted to MBC equivalents) for the total thiophanate methyl and MBC aggregate exposure are as follows: 630 for oral and dermal exposure of children (1-6 years); 770 for exposure via inhalation for females (13-50 years); and 620 for oral and dermal exposure for females (13-50 years). Although the MOEs below 1,000 exceed the Agency's level of concern, when considering the conservative method of exposure estimation previously discussed, and the negotiated risk mitigation whereby the registrant has agreed to conduct hand-press studies to help refine this assessment, the risks do not exceed the Agency's level of concern.

Aggregate cancer risk for U.S. population. The total thiophanate methyl and MBC dietary cancer risk is 8.5×10^{-7} for existing and new uses. The cancer risk from non-occupational residential exposure is 3.7×10^{-7} . The aggregate cancer risk is 1.2×10^{-6} . This risk estimate includes cancer risk from both thiophanate methyl and MBC on food including all pending uses and section 18 uses, thiophanate methyl exposure from treating ornamentals, thiophanate methyl exposure from performing post-application lawn activities, and exposure from applying paint containing MBC. This is considered to be a high-end risk scenario since it is not expected that someone would treat ornamentals, perform high exposure post-application activities, and apply paint containing MBC every year for 70 years. Therefore, this estimate is considered to be a conservative estimate. Additionally, the cancer risk estimate based on the highest EEC (thiophanate methyl plus MBC EEC) is 9.6×10^{-7} . This is also a very high-end risk estimate since it is based on the maximum rate being applied every season for 70 years. Thus, food plus water (assuming that the modeled surface water EEC is equivalent to concentrations in finished drinking water) plus non-occupational residential cancer risk is 2.2×10^{-6} which is still within the range considered as negligible. In addition, the cancer risk estimates using benomyl/MBC PDP monitoring data to estimate thiophanate methyl residues

are below 1×10^{-6} for thiophanate methyl existing uses, new uses, and the amortized section 18 use on citrus and blueberry. Therefore, the risks do not exceed the Agency's level of concern.

Based on these risk assessments, EPA concludes that there is a reasonable certainty that no harm will result to the general population, and to infants and children from aggregate exposure to thiophanate methyl and MBC residues.

V. Other Considerations

A. Analytical Enforcement Methodology

Adequate enforcement methodology is available to enforce the tolerance expression. The method may be requested from: Calvin Furlow, PIRIB, IRSD (7502C), Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave., NW, Washington, DC 20460-0001; telephone number: (703) 305-5229; e-mail address: furlow.calvin@epa.gov.

B. International Residue Limits

The Codex Alimentarius Commission has established maximum residue limits (MRLs) for thiophanate methyl residues in/on various plant and animal commodities. Codex MRLs for thiophanate methyl are currently expressed as MBC. The Codex MRL residue definition and the U.S. tolerance definition, previously expressed as only thiophanate methyl, have been incompatible and will remain incompatible even with the recent revision of the U.S. tolerance definition, since the revised tolerance definition includes both thiophanate methyl and MBC. Additionally, there is a 1.0 ppm Codex MRL for thiophanate methyl on mushroom. The 0.01 ppm tolerance being established by this document will not harmonize with Codex.

C. Conditions

The pesticide, thiophanate methyl, is to be mixed at 1.4 lbs. active ingredient (a.i.) (2 lbs. product) with 80 to 100 lbs. of gypsum, limestone, or chalk. This mixture will then be used to coat spawn grains (approximately 1,600 units) before mixing the spawn into the mushroom growing substrate. The substrate will then be applied to bed surface before spawning.

VI. Conclusion

Therefore, the tolerance is established for residues of thiophanate methyl and its metabolite, (methyl 2-benzimidazolyl carbamate (MBC), expressed as thiophanate methyl, in or on mushroom at 0.01 ppm.