

developmental and maternal toxicity in the developmental toxicity studies.

ii. *Chronic exposure.* In conducting this chronic dietary risk assessment EPA used the Dietary Exposure Evaluation Model software with the Food Commodity Intake Database (DEEM-FCID™) which incorporates food consumption data as reported by respondents in the USDA 1994–1996 and 1998 nationwide Continuing Surveys of Food Intake by Individuals (CSFII) and accumulated exposure to the chemical for each commodity. The following assumptions were made for the chronic exposure assessment: The chronic dietary exposure analysis assumed tolerance level residues and 100% crop treated for all registered and proposed crops excluding tomato where average field trial residues were used. DEEM (ver 7.73) default processing factors were assumed for all commodities excluding apple juice, grape juice, wine/sherry, tomato paste, and tomato puree. The processing factors for these commodities were reduced to 0.23, 0.17, 0.17, 5.0, and 5.0, respectively, based on data from processing studies.

In its objections to the earlier bifentazate tolerance action, NRDC claims that EPA relied upon unsupported and apparently arbitrary processing factors to reduce estimates of dietary exposure to bifentazate on apples and grapes. NRDC was incorrect to assert that the processing factors for apples and grapes were unsupported and arbitrary. The DEEM processing factors for apple juice and grape juice used for this action and the earlier bifentazate tolerance action are based on data from processing studies. In this action, the Agency used DEEM (ver 7.73) default processing factors when processing studies were not available. These default factors are worst case assumptions regarding pesticide partitioning into component commodity fractions. DEEM (ver 7.73) default processing factors assume that 100 percent of the pesticide that was originally present in the commodity is present in the processed fractions. This is a worst case theoretical concentration factor since it assumes that processing does not result in any reduction in pesticide content.

iii. *Cancer.* EPA has classified bifentazate as a not likely human carcinogen. Therefore, a quantitative cancer dietary exposure and risk assessment was not performed.

2. *Dietary exposure from drinking water.* The Agency lacks sufficient monitoring exposure data to complete a comprehensive dietary exposure analysis and risk assessment for

bifentazate in drinking water. Because the Agency does not have comprehensive monitoring data, drinking water concentration estimates are made by reliance on simulation or modeling taking into account data on the physical characteristics of bifentazate.

The Agency uses the FQPA Index Reservoir Screening Tool (FIRST) or the Pesticide Root Zone model/Exposure Analysis Modeling System (PRZM/EXAMS), to produce estimates of pesticide concentrations in an index reservoir. The SCI-GROW model is used to predict pesticide concentrations in shallow groundwater. For a screening-level assessment for surface water EPA will use FIRST (a tier 1 model) before using PRZM/EXAMS (a tier 2 model). The FIRST model is a subset of the PRZM/EXAMS model that uses a specific high-end runoff scenario for pesticides. FIRST and PRZM/EXAMS incorporate an index reservoir environment, and a percent crop area factor as an adjustment to account for the maximum percent crop coverage within a watershed or drainage basin.

None of these models include consideration of the impact processing (mixing, dilution, or treatment) of raw water for distribution as drinking water would likely have on the removal of pesticides from the source water. The primary use of these models by the Agency at this stage is to provide a screen for sorting out pesticides for which it is unlikely that drinking water concentrations would exceed human health levels of concern.

Since the models used are considered to be screening tools in the risk assessment process, the Agency does not use estimated environmental concentrations (EECs) from these models to quantify drinking water exposure and risk as a %RfD or %PAD. Instead drinking water levels of comparison (DWLOCs) are calculated and used as a point of comparison against the model estimates of a pesticide's concentration in water. DWLOCs are theoretical upper limits on a pesticide's concentration in drinking water in light of total aggregate exposure to a pesticide in food, and from residential uses. Since DWLOCs address total aggregate exposure to bifentazate they are further discussed in the aggregate risks in Unit III.E.

Parent bifentazate degrades rapidly in aerobic soil conditions with a half-life of approximately 30 minutes. The first degradate formed (D3598 (diazinecarboxylic acid, 2-(4-methoxy-1,1'-biphenyl-3-yl) (half-life of 7 hours)) was reported in a concentration of 95% of the applied radioactivity. D3598

degrades to D1989 (4-methylethylester) (reported at a maximum of 26% of the applied radioactivity), which is moderately persistent with an EPA-calculated half-life of approximately 96 days. Photodegradation and other routes of dissipation of parent bifentazate do not appear to be significant.

The Agency concluded that the residue of concern in drinking water is D1989. Parent and D3598 were not included as a residue of concern in drinking water due to the short half-lives of these compounds and the lack of an acute dietary endpoint (toxicity of D3598 is assumed to be equivalent to bifentazate). Since ground or surface water monitoring data to calculate a quantitative aggregate exposure are not available, EPA provided Tier I ground (SCI-GROW) and surface water (FIRST) EECs for D1989. Both models were conducted using the strawberry application scenario (one application at 0.75 lbs ai/acre; highest registered/proposed application rate). The resulting ground and surface water chronic EECs are < 0.001 ppb and 6.4 ppb, respectively.

In its objections to a separate bifentazate tolerance action, NRDC asserts that EPA failed to complete an assessment of drinking water exposure to bifentazate degradates. As stated in the **Federal Register** final rule of February 1, 2002, and restated in this document, EPA considered the environmental persistence of bifentazate and its two major metabolites D3598 and D1989. Aqueous photolysis and soil metabolism studies demonstrated that the parent bifentazate and the D3598 degrade quickly metabolize under aerobic soil conditions. Noting the lack of persistence of these two compounds and the absence of any acute dietary endpoint, EPA focused its drinking water exposure assessment for bifentazate on the degradate (D1989) that had a possibility of being present in drinking water. Accordingly, NRDC is incorrect to assert that potential exposure to bifentazate degradates in drinking water was not assessed by EPA.

3. *From non-dietary exposure.* The term "residential exposure" is used in this document to refer to non-occupational, non-dietary exposure (e.g., for lawn and garden pest control, indoor pest control, termiticides, and flea and tick control on pets). In its objections to a separate bifentazate tolerance action, NRDC asserts that EPA failed to assess and incorporate residential uses as a source of aggregate exposure. In the current risk assessment, EPA calculated short-term residential risks to homeowner applicators.