

pesticide concentrations in an index reservoir. The screening concentration in ground water (SCI-GROW) model is used to predict pesticide concentrations in shallow ground water. For a screening-level assessment for surface water EPA will use FIRST (a Tier I model) before using PRZM/EXAMS (a Tier II 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.

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 percent reference dose (%RfD) or percent population adjusted dose (%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 pyriproxyfen they are further discussed in the aggregate risk sections in Unit III.E.

EPA determined that the residue of concern in water is pyriproxyfen *per se*. Drinking water estimates include surface water EECs based on the linked PRZM/EXAMS models and the SCI-GROW regression model, which was developed from studies with different hydrology and study conditions. Both models assumed a maximum seasonal application rate of 0.11 lb active ingredient per acre, applied 3 times per year. (The registered use for citrus). Based on the PRZM/EXAMS and SCI-GROW models the EECs of pyriproxyfen for acute exposures are estimated to be 2.15 parts per billion (ppb) for surface water and 0.006 ppb for ground water. The EECs for chronic exposures are estimated to be 0.40 ppb for surface water and 0.006 ppb for ground water.

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).

Pyriproxyfen is currently registered for use on the following residential non-dietary sites: Residential sites for flea and tick control products (home

environment and pet treatments) as well as products for ant and roach control (indoor and outdoor applications). Formulations include carpet powders, foggers, aerosol sprays, liquids (shampoos, sprays, and pipettes), granules, bait (indoor and outdoor), and impregnated materials (pet collars).

The risk assessment was conducted using the following residential exposure assumptions: There is a potential for short-term dermal and inhalation exposures to pet owners and homeowners who apply products containing pyriproxyfen (handlers); however, EPA did not identify any short-term dermal or inhalation endpoints. Because no short-term dermal or inhalation endpoints could be identified, EPA expects no short-term dermal or inhalation risks from exposure to pyriproxyfen. There is also a potential for non-dietary oral exposures (hand-to-mouth exposures) and dermal exposure following applications around the home and on pets for flea and tick control (carpet powder and pet shampoo). Short- and intermediate-term non-dietary oral and long-term dermal exposure assessments were included for toddlers since EPA selected toxicology endpoints for these exposures and toddlers are expected to have higher exposures than adults from treated home environments and pets due to their behavior patterns. Although EPA did not select a long-term non-dietary oral endpoint for pyriproxyfen, EPA used the chronic endpoint for the chronic (long-term) aggregate risk assessment.

Toddlers could potentially be exposed to pyriproxyfen residues on treated carpets, floors, furniture, and pets as follows: (i). Hand-to-Mouth: Short-, intermediate, and long-term hand-to-mouth exposures by toddlers from treated carpets, flooring (the efficacy of carpet powders is approximately 365 days); (ii). Hand-to-mouth: Short- and intermediate-term hand-to-mouth exposures by toddlers from petting treated animals (shampoos, sprays, spot-on treatments and collars). Long-term hand-to-mouth exposures by toddlers from petting treated animals (pet collars; efficacy of pet collars up to 395 days); (iii). Dermal: Long-term dermal exposures from treated carpets, flooring, and pets. (iv). Ingestion of granules or bait by toddlers (acute, episodic event): For the granular ingestion scenario, the Agency believes that if a toddler were to be exposed to a pellet/granular formulation (i.e., ant bait), the event is most likely to be "episodic," that is, a one time occurrence and not likely to be repeated. It is not likely that a toddler would repeatedly locate and ingest very

small, sand colored granules. For pyriproxyfen, EPA did not select an acute dietary endpoint, since an appropriate endpoint could not be attributed to a single oral dose; therefore, no granular assessment was performed.

Exposure and risk estimates from post-application exposure to indoor crack and crevice treatments are not presented in this assessment as indoor broadcast treatments (i.e., carpet powders and sprays) are anticipated to have a higher exposure potential. Additionally, the Agency acknowledges that pet owners could retreat the home environment and/or the pet near the end of the efficacy period identified on the product labels. However, there are no chemical-specific residue data for pyriproxyfen to determine the dissipation rate of residues or whether residues may be additive upon retreatment. Therefore, a Tier I assessment was performed based on Day 0 residues without accounting for daily residue dissipation. EPA anticipates that this assessment is protective as pyriproxyfen residues would be expected to dissipate from Day 0 residue values.

4. *Cumulative exposure to substances with a common mechanism of toxicity.* Section 408(b)(2)(D)(v) of the FFDCA requires that, when considering whether to establish, modify, or revoke a tolerance, the Agency consider "available information" concerning the cumulative effects of a particular pesticide's residues and "other substances that have a common mechanism of toxicity."

EPA does not have, at this time, available data to determine whether [pyriproxyfen] has a common mechanism of toxicity with other substances. Unlike other pesticides for which EPA has followed a cumulative risk approach based on a common mechanism of toxicity, EPA has not made a common mechanism of toxicity finding as to pyriproxyfen and any other substances and pyriproxyfen does not appear to produce a toxic metabolite produced by other substances. For the purposes of this tolerance action, therefore, EPA has not assumed that pyriproxyfen has a common mechanism of toxicity with other substances. For information regarding EPA's efforts to determine which chemicals have a common mechanism of toxicity and to evaluate the cumulative effects of such chemicals, see the policy statements released by EPA's Office of Pesticide Programs concerning common mechanism determinations and procedures for cumulating effects from substances found to have a common