

result in non-occupational, non-dietary exposure: Driveways, parking areas, brick and gravel pathways, patios, and along sidewalks and bare ground. In addition to residential sites on which imazapyr is registered, there is the possibility of recreational exposure for post application exposure from the registered use on golf courses and fairgrounds and exposure from incidental ingestion and dermal exposure from swimming in treated water from the proposed aquatic weed control use. The risk assessment was conducted using the following exposure assumptions:

i. *Residential handler.* Short-term (1 to 30 days) dermal and inhalation exposure from mixing, loading and application via sprinkler can occur. For the Outdoor Residential Exposure Task Force study reviewed, the Health Effects Division (HED) used a hose-end sprayer as surrogate data for the sprinkler can scenario. The registered label states that the product offers long-term weed control and prevents re-growth for up to one year with a single application; therefore only short-term handler exposures are anticipated.

ii. *Residential post-application.* Adults and children are anticipated to have short-term dermal exposures; however, given that the product is not intended for lawn use, dermal exposures by adults and children are considered to be negligible as compared to recreational post-application exposures. (See fairground post-application). However, toddlers could potentially ingest soil from treated bare ground in the residential use scenario. The assumptions used to assess the soil ingestion scenario were: Day of treatment residues are assumed to be available for short-term exposure, toddler body weight is estimated at 15 kg, 100 % of application rate is available in the top 1 cm of soil for soil ingestion exposures, and a toddler can possibly ingest 100 mg soil/day.

iii. *Golfer post-application.* Golfer exposure assumptions are: One round of golf (18 holes) takes 4 hours and an average golfer plays 18 times per year, so short-term dermal exposures are anticipated. Inhalation exposures are considered to be negligible since the vapor pressure of imazapyr was reported by the registrant to be $<2 \times 10^{-7}$ mm Hg (vs. HED ExpoSAC vapor pressure threshold of 1×10^{-5} mm Hg). 5% of the maximum application rate is available as turf transferrable residues (TTR) available on Day 0 (assumes no dissipation). The transfer coefficient (TC) for dermal exposure is assumed to be 500 cm²/hr based on golfers wearing

short pants and short-sleeved shirts. The exposure estimate for child golfers is 1.7 times the adult exposure estimate to account for differences in body weight and surface area. Maximum labeled application rate is 0.0041 lb ae/A broadcast liquid formulation applications.

iv. *Fairground post-application.*—a. The following assumptions were used to assess dermal exposures to adults and toddlers after contact with treated lawns: Adult and toddler body weights are 70 kg and 15 kg respectively, 5% of the maximum application rate represents fraction of imazapyr available as dislodgeable foliar residue (DFR) on the day of treatment. Dermal TC for adults is 14,500 cm²/hr, and for toddlers, 5,200 cm²/hr with an exposure duration of 2 hours.

b. To assess hand-to-mouth exposures for toddlers after contact with treated turf, the following assumptions were used: residues are assumed to be available for the short-term and intermediate-term exposure durations. Toddler body weight is 15 kg, hand surface area is 20 cm², and a toddler performs 20 hand-to-mouth events per hour for short-term exposures. 5% of application rate represents fraction of imazapyr available for transfer to hands on the day of treatment with a 50% saliva extraction factor. 100% of the application rate is available in the top 1 cm of soil for soil ingestion exposures, and a toddler can ingest 100 mg of soil a day. The exposure duration is 2 hours per day.

c. To assess object-to-mouth exposures for toddlers after contact with treated turf, the following assumptions were used: Residues are assumed to be available for the short-term and intermediate-term exposure durations, the toddlers' body weight is 15 kg, 20% of the application rate is available as dislodgeable residues on the day of treatment, the object area is 25 cm², 100% of the application rate is available in the top 1 cm of soil for soil ingestion exposures, a toddler can ingest 100 mg of soil a day, and the exposure duration is 2 hours per day.

v. *Swimmer post-application.* For incidental ingestion and dermal exposure, the following assumptions are made: The worst-case estimate of imazapyr in the top one-foot of the water column in a treated waterbody is 550 ppb. 100% of this concentration is assumed available for ingestion at a rate of 0.05 L/hr. The exposure duration is 2 hours a day for non-competitive adult and child swimmers. Body weights of 70 kg for adults, 29 kg for children, and 15 kg for toddlers are assumed. For dermal exposure, the body surface area

of an adult is 20,670 cm² and 14,580 cm² for toddlers and children. The permeability coefficient is assumed at 5.85×10^{-5} cm/hr.

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 imazapyr has a common mechanism of toxicity with other substances or how to include this pesticide in a cumulative risk assessment. Unlike other pesticides for which EPA has followed a cumulative risk approach based on a common mechanism of toxicity, imazapyr 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 imazapyr 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 final rule for Bifenthrin Pesticide Tolerances (62 FR 62961, November 26, 1997).

D. Safety Factor for Infants and Children

1. *In general.* Section 408 of the FFDCA provides that EPA shall apply an additional ten-fold margin of safety for infants and children in the case of threshold effects to account for prenatal and postnatal toxicity and the completeness of the data base on toxicity and exposure unless EPA determines that a different margin of safety will be safe for infants and children. Margins of safety are incorporated into EPA risk assessments either directly through use of a MOE analysis or through using uncertainty (safety) factors in calculating a dose level that poses no appreciable risk to humans.

2. *Prenatal and postnatal sensitivity.* No prenatal or postnatal sensitivity was found.

3. *Conclusion.* There is a complete toxicity data base for imazapyr and exposure data are complete or are estimated based on data that reasonably accounts for potential exposures. The Agency has determined that the Special FQPA SF of 10x can be reduced to 1x because: