nylon carpet squares represented carpet and fabric squares represented furniture. Transferable residues were measured by wiping the sample surfaces with gauze pads. Residue levels from different rooms were pooled for each type of material. The maximum geometric mean of all the measured surface residues for a given surface type was used to represent the measured residue for that surface, at the specified time intervals. Airborne residues were determined by drawing air through a sampling apparatus for 1 hour periods at designated intervals. Exposures were calculated for three age categories of residents: an infant, a 12 year old child, and an adult. The infant was assumed to weigh 7.5 kg, have a body surface area of 4.8 ft², and have a respiratory volume of 0.5 m3/hr. The child was assumed to weigh 40.5 kg, have a body surface area of 14.8 ft², and have a respiratory volume of 0.9 m³/hr. The adult was assumed to weigh 70 kg, have a body surface area of 21 ft2, and have a respiratory volume of 1.0 m3/hr. In addition, they were assumed to be exposed 24, 15, and 15 hours/day, respectively. Assumptions about clothing were not specified; rather dermal exposure was expected to occur over 50 percent of the body surface. Individuals were assumed to contact a 50 square foot contact area in a 4-hour interval. Exposure was assumed to occur 365 days/year.

(1) Crack and crevice. To calculate exposure following application of wettable powders to cracks and crevices, EPA assumed that 64 oz. of a 1.1 percent solution by weight (total of 0.73 oz.) would be applied once a year for cleanout treatment and 16 oz. of a 0.5 percent solution by weight (total of 0.083 oz.) would be applied 11 times a year for maintenance treatments. Residents were assumed to be exposed 365 days per year over a 70-year lifetime. Dissipation was assumed to be 60 percent, and dermal absorption was assumed to be 50 percent of the residue on skin surfaces, because dermal absorption increases with length of time exposed (Refs. 7, 18, 23, and 24).

To calculate concentrations of propoxur in the air of treated houses, EPA pooled air concentration data for all rooms to yield an average air concentration of $5.1 \,\mu$ g/m³. Absorption by the inhalation route was assumed to be 100 percent. The hours/day of inhalation exposure were the same as for dermal exposure. Total dermal and inhalation exposure was calculated at 2.8×10^{-4} mg/kg/day (Ref. 23).

EPA realizes exposure could also arise from an oral route. For example, residues could settle on food preparation surfaces or on food. Another potential source of oral exposure could arise from residues on toys or other similar items. In 1989, EPA reviewed the Miles study which measured amounts of propoxur found on surfaces following crack and crevice residential treatment, but the exposure assessment did not address potential oral exposure. At this time EPA does not have a methodology to derive estimates of oral exposure based on residues on these surfaces, food, or toys (Ref. 22). EPA believes that if it were possible to quantify oral exposure resulting from residential use of propoxur, it is unlikely it would greatly change the exposure estimates for this chemical.

(2) *RTU liquids.* Using the wettable powder exposure assessment, EPA also estimated post application exposure following 12 applications per year of a 0.5 percent RTU product by a PCO (Ref. 23). Reducing this exposure threefold, EPA estimated post application exposure following four applications per year of a 0.5 percent RTU liquid propoxur product by an RA. Exposure was estimated at 9.3×10^{-5} mg/kg/day (Ref. 19).

(3) Aerosols. Miles Inc. elected not to submit an aerosol spray study for post-application human exposure to aerosol products, so EPA used the post application exposure data from the crack and crevice spray study as a surrogate. EPA adjusted the crack and crevice data to reflect the quantity of a.i. applied during application of a 16 oz. can of 1 percent propoxur aerosol four times per year for 70 years. Total dermal and inhalation exposure was estimated at 5.7×10^{-5} mg/kg/day (Refs. 20 and 25).

(4) Total release aerosol foggers. To estimate post application exposure from total release aerosol foggers, EPA used the assumptions of the exposure assessment developed for post application exposure following aerosol use. Thus, the total release aerosol fogger (and also the aerosol) exposure assessment is based on the crack and crevice data. EPA believes it is reasonable to use the crack and crevice data to estimate total release aerosol fogger exposure for the following reasons. First, the crack and crevice study showed that residues are found throughout the house even though a limited area was treated. A similar distribution of residues would be expected with total release aerosol foggers. Second, the total amount of material released in a total release aerosol fogger is much less than the total amount applied in a crack and crevice application. Third, residues would be deposited on surfaces that people rarely contact, such as ceilings. Exposure (dermal and inhalation) was estimated at 5.7×10^{-5} mg/kg/day (Refs. 6, 20, and 25).

b. *Pest strip study*. After Miles Inc. submitted an unacceptable post application exposure study (Ref. 26), EPA updated a 1985 exposure assessment for impregnated strips. This assessment was based on a study in the technical literature (Ref. 27).

(1) Pest strips. EPA assumed that dermal exposure is negligible and 100 percent of propoxur inhaled by the individual is absorbed. Furthermore, the individual was assumed to be exposed 24 hours/day, 365 days/year for 70 years of an average lifetime, and the strips replaced when efficiency diminishes (Refs. 6, 7, and 28). EPA believes these exposure estimates are conservative because the only remaining registrations for pest strips are in areas where human exposure is minimal, such as communications boxes. Inhalation exposure was estimated at 1.1×10^{-4} mg/ kg/day.

(2) *Tick and flea collars.* The registrants were not required to submit data on residents' post application exposure to the propoxur found in tick and flea collars. Using data from the impregnated strips study, EPA estimated exposure to residents from surrogate data based on propoxur pest strips (Ref. 26) and dogs. EPA assumed that respiratory absorption is 100 percent, and the exposure is constant over a 70-year lifetime. Inhalation exposure was estimated at 6.3×10^{-6} mg/kg/day (Refs. 6, 7, and 28).

c. Other post application exposure estimates. Residents' (including children's) post application exposures from shelf paper, enclosed or containerized baits, and other pet products, including dab-ons and aerosols, have not been estimated but are believed to be negligible (Refs. 6 and 19). EPA believes post application exposure to granular products will not exceed that from aerosol and would probably be much less. (Ref. 9)