

determines that the exemption is "safe." Section 408(c)(2)(A)(ii) of the FFDCA defines "safe" to mean that "there is a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue, including all anticipated dietary exposures and all other exposures for which there is reliable information." This includes exposure through drinking water and in residential settings, but does not include occupational exposure. Section 408(b)(2)(C) of the FFDCA requires EPA to give special consideration to exposure of infants and children to the pesticide chemical residue in establishing a tolerance and to "ensure that there is a reasonable certainty that no harm will result to infants and children from aggregate exposure to the pesticide chemical residue. . . ." Additionally, section 408(b)(2)(D) of the FFDCA requires that 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 performs a number of analyses to determine the risks from aggregate exposure to pesticide residues. First, EPA determines the toxicity of pesticides. Second, EPA examines exposure to the pesticide through food, drinking water, and through other exposures that occur as a result of pesticide use in residential settings.

III. Toxicological Profile

Consistent with section 408(b)(2)(D) of the FFDCA, EPA has reviewed the available scientific data and other relevant information in support of this action and considered its validity, completeness and reliability and the relationship of this information to human risk. EPA has also considered available information concerning the variability of the sensitivities of major identifiable subgroups of consumers, including infants and children.

Bacillus pumilus is a ubiquitous and naturally occurring bacteria found in soil. The results of the acute toxicology and pathogenicity studies required of the petitioner under section 408(d)(2)(A) of the FFDCA in support of its petition for a temporary exemption from the requirement of a tolerance for *Bacillus pumilus* strain QST2808 indicate negligible to no mammalian toxicity. In addition, no pathogenicity was observed in any of the tests conducted with the *Bacillus pumilus* strain QST2808 Technical product.

The toxicology and pathogenicity data generated by AgraQuest, Inc in support of this temporary exemption from the

requirement of a tolerance are summarized below.

1. *Acute oral toxicity and pathogenicity rats* (OPPTS Harmonized Guideline 885.3050; Master Record Identification Number (MRID) 451366-04). Fifteen male and fifteen female rats each were administered 4.1×10^9 cfu of *Bacillus pumilus* strain QST2808 Technical and observed for 14 days. Based on the data, *Bacillus pumilus* strain QST2808 does not appear to be toxic, infective, and/or pathogenic in rats, when dosed at 4.1×10^9 cfu/animal. Classification: Acceptable; Toxicity Category IV. (C. Etsitty's Memorandum to John L. Kough, dated 1/7/02 (hereinafter referred to as "BPPD Review - 1/7/02").

2. *Acute dermal toxicity* (OPPTS Harmonized Guideline 885.3100; MRID 451366-05). Five male and five female rabbits were dermally treated with 2g/kg body weight *Bacillus pumilus* strain QST2808 Technical for 24 hours and observed for the following 14 days. The acute lethal dose (LD₅₀) is greater than 2,000 mg/kg. Classification: Acceptable; Toxicity Category III. (BPPD Review - 1/7/02).

3. *Primary eye irritation* (OPPTS Harmonized Guideline 870.2400; MRID 452679-01). Three male rabbits each were administered 0.1 mL of QST2808 Technical in the everted lower lid of one eye and then observed for 72 hours. Based on the data, QST2808 Technical showed minimal effects to the eye. Classification: Acceptable; Toxicity Category IV. (BPPD Review - 1/7/02).

4. *Acute injection toxicity/pathogenicity* (OPPTS Harmonized Guideline 885.3200; MRID 451366-07). Eighteen male and eighteen female rats each were dosed at 1.6×10^8 cfu *Bacillus pumilus* strain QST2808 Technical intravenously and monitored over a period of 28 days. A gross necropsy was performed on all rats. Based on the data, the test organism was not toxic, infective, or pathogenic to rats. Classification: Acceptable. (BPPD Review - 1/7/02).

5. *Acute pulmonary toxicity/pathogenicity* (OPPTS Harmonized Guideline 885.3150; MRID 451366-06). Eighteen male and eighteen female rats each were administered 1.6×10^8 cfu *Bacillus pumilus* strain QST2808 Technical by a single intratracheal dosage and monitored over a period of 35 days for clinical signs of toxicity. Necropsy studies showed no significant signs of abnormalities due to the test organism. Based on the data, *Bacillus pumilus* strain QST2808 was not toxic, infective, and/or pathogenic to rats when dosed at 1.6×10^8 cfu/animal.

Classification: Acceptable. (BPPD Review - 1/7/02).

6. *Acute Inhalation toxicity* (OPPTS Harmonized Guideline 870.1300). Results of the acute pulmonary toxicity/pathogenicity (MRID 451366-06) performed with *Bacillus pumilus* strain QST2808 Technical indicate that it is not toxic, infective, and/or pathogenic to rats when dosed at 1.6×10^8 cfu/animal. For the purposes of this specific action, the Agency has determined that the acute pulmonary toxicity/pathogenicity data are adequate to support and/or fulfill this particular data requirement.

7. *Primary dermal irritation* (OPPTS Harmonized Guideline 870.2500; MRID 452679-02). Each of three male adult rabbits were treated dermally with 0.5 mL QST2808 Technical for 4 hours and observed for the following 72 hours. Based on the data, no abnormal clinical signs were noted. Approximately 60 minutes after patch removal, very slight erythema was noted on one of the three rabbits with resolution by 24 hours. When dosed with QST2808 Technical at 0.5 mL/animal, QST2808 Technical was essentially non-irritating. Classification: Acceptable; Toxicity Category IV. (BPPD Review - 1/7/02).

8. *Hypersensitivity incidents* (OPPTS Harmonized Guideline 885.3400). The registrant reported (November 1, 2000) no incidents to date.

9. *Immune response*. There is no information to suggest that *Bacillus pumilus* strain QST2808 has an effect on the immune system. The submitted toxicity/pathogenicity studies in rodents indicated that following several routes of exposure, the immune system is still intact and able to process and clear the active ingredient (MRID 451366-04; 451366-06, and 451366-07).

Based on the data generated in accordance with the Tier I data requirements set forth in 40 CFR § 158.740(c), the Tier II and Tier III data requirements were not triggered and, therefore, not required in connection with this action. In addition, because the Tier II and Tier III data requirements were not required, the residue data requirements set forth in 40 CFR § 158.740(b) also were not required.

IV. Aggregate Exposures

In examining aggregate exposure, section 408 of the FFDCA directs EPA to consider available information concerning exposures from the pesticide residue in food and all other non-occupational exposures, including drinking water from ground water or surface water and exposure through pesticide use in gardens, lawns, or