

**The following summarizes the document published in September of 2007 by the EPA with regards to their review of available data on the trimethoxysilyl and trihydroxysilyl quats.**

*This document can be provided upon request.*

- The EPA, “The Agency” believes there is reasonable certainty of no harm resulting from exposure to the trimethoxysilyl quats as an active ingredient to the general population and to infants and children in particular. This is based on the existing toxicity data which supports the finding that these products did not elicit a toxic response when administered to laboratory animals at the limit dose level. In addition, in conducting a human health hazard assessment, the Agency found that there were no endpoints of concern for the oral and dermal routes of exposure.
- The Agency believes that the trimethoxysilyl quats have minimal potential to cause human health or environmental risks and has determined that a qualitative approach to assessing human health and ecological risks from exposure to the trimethoxysilyl quats is appropriate.
- There are no concerns for carcinogenicity for the trimethoxysilyl quats based on the results of the mutagenicity studies and the lack of any systemic toxicity being observed in the toxicity database.
- The FQPA Safety Factor (as required by the Food Quality Protection Act of 1996) is intended to provide an additional 10-fold safety factor (10X) to protect for special sensitivity in infants and children to specific pesticide residues in food, drinking water, residential exposures, or to compensate for an incomplete database. The FQPA Safety Factor has been reduced to 3X based on: (1) the potential for significant contact of infants and children through the proposed homeowner uses for this active ingredient and (2) no evidence of increased susceptibility in the prenatal developmental study in rats nor is there evidence of neurotoxicity to the offspring. It should be pointed out that at this time, there are no risks of concern which would require the use of a FQPA safety factor.
- Aggregate exposure will typically include exposures from food, drinking water, residential uses of a pesticide and other non-occupational sources of exposure. Residential exposure to the trimethoxysilyl quats is likely; however, there are no toxicological endpoints of concern. An aggregate risk assessment was therefore not conducted for this chemical.
- The occupational exposure assessment for the trimethoxysilyl quats addresses potential exposures and risks to humans who may be exposed in “occupational settings.” An occupational risk assessment is required for an active ingredient if certain toxicological criteria are triggered and there is potential exposure to handlers (mixers, loaders, applicators, etc.) during use or to persons entering treated sites after application is complete. For the trimethoxysilyl quats there is potential for exposure; however, there are no toxicological endpoints of concern according to a review of the available toxicity data.
- EPA consulted the following sources of information for human poisoning incidents related to the trimethoxysilyl quats: (1) OPP Incident Data System (IDS), (2) California Department of Pesticide Regulation (1982-2004) and (3) National Pesticide Information Center (NPIC). There were no human incidents reported for the trimethoxysilyl quats in these data bases.

- Appendix A summarizes the uses of the trimethoxysilyl quats that are eligible for reregistration. Appendix B identifies the generic data requirements that the Agency reviewed as part of its determination of reregistration eligibility of the trimethoxysilyl quats and lists the submitted studies that the Agency found acceptable.
- Based on the evaluation of the trimethoxysilyl quats, the Agency has determined there are no human health or ecological risks of concern.
- An FQPA Safety Factor of 3X was recommended for the trimethoxysilyl quat compounds. Although there are no food uses for these compounds, it is likely that infants and children will be exposed to these compounds through the existing uses. The FQPA Safety Factor was reduced to 3X, based on the findings that there was no evidence of increased susceptibility in the prenatal developmental study in rats and there was no evidence of neurotoxicity to the offspring.

**Partial list of approved uses using spray, dip and/or soak applications:**

- Hard non-porous surfaces
- Human Bedding
- Human Footwear
- Human Clothing/Apparel
- Upholstery
- Diapers
- Carpets
- Toweling
- Garbage Cans
- Concrete Additive
- Textiles, sails, ropes, fire hose
- Coatings
- Adhesives
- Roofing Materials
- Air Filters (vacuum, A/C units, automobiles, aquariums)
- Polyurethane foam and cellulose products, cleaning buffers
- Curtains
- Draperies
- Non-food contact countertops
- Blankets/bedspreads
- Aquarium filler material
- Automotive and vehicle parts
- Awnings

Reference: [https://www3.epa.gov/pesticides/chem\\_search/reg\\_actions/reregistration/red\\_PC-107401\\_25-Sep-07.pdf](https://www3.epa.gov/pesticides/chem_search/reg_actions/reregistration/red_PC-107401_25-Sep-07.pdf)