



United States
Environmental Protection
Agency

Prevention, Pesticides
and Toxic Substances
(7510C)

EPA 739-R-07-007
September 2007

Reregistration Eligibility Decision for Trimethoxysilyl Quaternary Ammonium Chloride Compounds

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

CERTIFIED MAIL

Dear Registrant:

This is to inform you that the Environmental Protection Agency (EPA) has completed its review of the available data on the trimethoxysilyl quaternary ammonium chloride compounds (trimethoxysilyl quats). The Reregistration Eligibility Decision (RED) was approved and signed on September 25, 2007.

Based on the Agency's review of the trimethoxysilyl quats, the Reregistration Eligibility Decision (RED) and supporting documentation are now being published. A Notice of Availability will be published in the *Federal Register* announcing the publication of the RED.

The RED and supporting documents for the trimethoxysilyl quats will be available to the public in EPA's Pesticide Docket EPA-HQ-OPP-2007-0831 at <http://www.regulations.gov>

Please note that the attached RED document pertains only to the trimethoxysilyl quats compounds and presents the Agency's conclusions on risks associated with the uses of these compounds. Based on the information contained in our files, these compounds have been identified as low risk chemicals. This document also identifies generic and product-specific data for which the Agency intends to issue Data Call-Ins (DCIs). As part of the RED, the Agency has determined that the trimethoxysilyl quats are eligible for reregistration.

If you have questions pertaining to this document, please contact Melba Morrow at (703) 308-2716. Note that DCIs with all pertinent instructions will be sent to the registrant at a later date. Additionally, for product-specific DCIs, the first set of required responses will be due 90 days from the receipt of the DCI letter. The second set of required responses will be due eight months from the receipt of the DCI letter. For questions regarding product reregistration please contact Velma Noble at (703) 308-6233.

Sincerely,



Frank T. Sanders
Director, Antimicrobials Division

REREGISTRATION ELIGIBILITY DECISION

for

Trimethoxysilyl Quaternary Ammonium Chloride Compounds

List C

Case No. 3148

Approved By:

A handwritten signature in black ink, appearing to read "Frank T. Sanders", written over a horizontal line.

Frank T. Sanders
Director, Antimicrobials Division
September 25, 2007

ABSTRACT

The Environmental Protection Agency (EPA or the Agency) has completed its human health and environmental review for the reregistration case 3148; Trimethoxysilyl Quaternary Ammonium Chloride Compounds, and is issuing its risk management decision. There are currently 30 active products for this group of compounds. This includes chemical codes 107401, 107403, 107409 and 169160. Chemical code 107403 is a trihydroxysilyl quat compound that has been included in this action. The decision to include this compound is based on the finding that when exposed to water, the trimethoxysilyl quats undergo a chemical reaction which leads to the formation of trihydroxysilyl quats.

The following Reregistration Eligibility Decision (RED) addresses the use of the trimethoxysilyl and trihydroxysilyl quats as bacteriostatic and fungistatic treatments in human clothing and bedding, household areas, carpets and upholstery. These products are also used as material preservatives in the manufacturing of paints, coatings, and concrete. Collectively, these compounds will be referred to as trimethoxysilyl quats.

II. CHEMICAL OVERVIEW

A. Regulatory History

The trimethoxysilyl quats are registered as active ingredients as bacteriostatic, algastatic and fungistatic compounds. The first products containing a trimethoxysilyl quat were registered in January 1960. There are currently a total of 30 registered products for PC Codes 107401, 169160, 107403 and 107409. The Agency has determined that the Reregistration Eligibility Decision (RED) will include all of the aforementioned products, which includes a trihydroxysilyl quat (107403). This decision is supported by the finding that when the methoxysilyl quat compounds are exposed to water, there is a reaction which leads to the formation of hydroxysilyl quat compounds.

Trimethoxysilyl quat and trihydroxysilyl quat containing products are currently used as a material preservative treatment for materials such as those used in human clothing and bedding, carpets and upholstery. The trimethoxysilyl quats are used as surface treatments in household areas and bathroom areas. These products are also used in the manufacturing of paints, coatings, and in concrete. There are no inert uses or tolerances for this reregistration case.

B. Chemical Identification:

Table 1 contains information on the chemicals included in this RED.

Table 1: Physical and Chemical Properties

Chemical name	1-Octadecanaminium-N,N-dimethyl-N-{3-(trimethoxysilyl)propyl}-chloride	1-tetradecanaminium, N,N-dimethyl-N-(3-(trimethoxysilyl)propyl)-chloride	1-Decanaminium,N-Didecyl-N-methyl-N-{3-(trimethoxysilyl)propyl}-chloride	1-octadecanaminium-N,N-dimethyl-N-(3-(trihydroxysilyl)propyl)-chloride
Empirical Formula	C ₂₆ H ₅₈ ClNO ₃ Si	C ₂₂ H ₅₀ ClNO ₃ Si	C ₂₇ H ₆₀ ClNO ₃ Si	C ₂₃ H ₅₂ ClNO ₃ Si
CAS #	27668-52-6	41591-87-1	6895920-6	199111-50-7
OPP Chemical Code	107401	107409	169160	107403
Molecular Weight	496.30	440.31	510.3	454
Physical State	liquid	liquid	liquid	liquid
Color	Pale yellow to off white	Clear yellowish	Light to dark amber	clear
Melting Point	267 C	245 C	272 C	306 C
Boiling Point	617 C	570 C	628 C	702 C
Specific Gravity	0.99	1.012	0.85	1.0
Vapor Pressure	5.8 x 10 ⁻¹⁴ mm Hg	1.7 X 10 ⁻¹²	2.4 x 10 ⁻¹⁴	1.85 x 10 ⁻²¹

Basic Manufacturers: Aegis Environmental Mgt, Inc., Sishield Technologies Inc., Sanitized Inc., Microbioguard, International Biochemical Industries, Inc.

C. Use Profile

The following section provides information on the currently registered uses of the trimethoxysilyl quat products. Included is an overview of the use sites and application methods for these compounds. Please refer to appendix A for a comprehensive table of uses of the trimethoxysilyl quats that are eligible for reregistration.

Type of Pesticide: Material preservatives, bacteriastatic, fungistatic, antimicrobial and algaestatic treatments

Use Sites: Trimethoxysilyl quats are used in industrial, commercial, institutional and residential premises.

Use Classification: Trimethoxysilyl quats are general use pesticides.

Formulation Types: Trimethoxysilyl quats are formulated as a soluble concentrate for both manufacturing and end use products and as a ready to use solution for end use products.

Application Rates/Methods: As a materials preservative and surface treatment, trimethoxysilyl quats are applied by open pour methods or by spraying, dipping or soaking, depending upon the material that is being treated. The application rates vary based on product and use site. A complete list can be found as part of Appendix A.