

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT

INTEROFFICE COMMUNICATION

TO: File for Ethoxy, Tallow Alcohol (CAS # 61791-28-4)

FROM: Doreen Lehner, Toxics Unit, Air Quality Division

DATE: May 4, 2010

SUBJECT: Screening Level for Ethoxy, Tallow Alcohol (CAS # 61791-28-4)

The screening level (ITSL) for ethoxy, tallow alcohol is set at the default level of 0.1 ug/m³ based on an annual averaging time.

Ethoxy, tallow alcohol (also known as alcohols, tallow, ethoxylated, or tallow alcohols, ethoxylated, or peg-6 tallow ether, or polyethylene glycol 300 tallow ether, etc.) is a mixture and not one specific compound and may look like a white powder or be waxy in appearance. Historically, the higher alcohols, including ethoxylated, tallow alcohol, are derived from natural fats, oils, and waxes and are known as fatty alcohols. This compound is in the detergent range alcohols that have 12 or more carbon atoms and are used in a wide variety of detergent and surfactant applications. The detergent alcohols tend to be straight chain materials and are unbranched. Natural or synthetic detergent alcohols are usually described as middle cut (12 through 15 carbon atoms) or heavy cut (16 through 18 carbon atoms), corresponding to the distillation fractions of coconut alcohol. Alcohols derived from USA-made by-product tallow have a more stable source of raw materials (Kirk-Othmer, 1978).

The uses of detergent range alcohols include: as detergents for emollient and foam control; surfactants and softeners; in the petroleum industry is used as lubrication for drilling; emulsifier, lubricant, dispersant, antirust agent, foamer, viscosity index improver, antioxidant, and oil field chemical; in agriculture as an evaporation suppressant; as a chemical intermediate in the production of specialty chemicals; in plastics as a mold-release agent, antifoam, emulsion polymerization agent, antistatic agent, and plastisol stabilizer; as a plasticizer, emulsion polymerization surfactant, and stabilizer; in the textile industry as a finish; in cosmetics and pharmaceuticals as a biocide; in the pulp and paper industry; in the food industry as a flavor component and antioxidant; in rubber, paint and coatings; in metalworking; and in mineral processing as a flotation agent (Kirk-Othmer, 1978).

A literature review was conducted on March 8th, 2010 to determine if toxicity data was available to set an initial threshold screening level (ITSL) for ethoxy, tallow alcohol. The following references and databases were searched to derive the above screening level: EPBCCD, Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS), National Institute for Occupational Safety and Health (NIOSH), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)/Biological Exposure Indices (BEI), ADQ library, National Toxicology Program (NTP) Study Database, International Agency for Research on Cancer (IARC), Chemical Abstracts Service (CAS) Online, National Library of Medicine (NLM) online, Canadian Center for Occupational Health and Safety (CCOHS) Registry of Toxic Effects of Chemical Substances (RTECS) and EPA Aggregated Computational Toxicology Resource (ACToR) Database.

A rat acute oral LD₅₀ of 1 g/kg was found in the EPA TSCA database (US EPA, 1992), but little information was provided regarding how the study was performed. It was determined there was not adequate toxicity data available to set an ITSL. Therefore, according to the Michigan Department of Natural Resources and the Environment Air Quality Division Rule 232 section (1)(i) "if an initial threshold screening level cannot be determined....then the initial threshold screening level = 0.1 µg/m³" and Rule 232 section (2)(c) states, "If the initial threshold screening level is derived from as in subrule (1)...(i) of this rule, then the averaging time is annual." (Part 232, 1994).

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References:

Kirk-Othmer. 1978. Encyclopedia of Chemical Technology 3rd Edition. Volume 1. A to Alkanolamines. John Wiley & Sons, Inc., New York. ISBN 0-471-02037-0. pp 717-754.

Part 232, Methodology for Determining Initial Threshold Screening Level, of the Natural Resource and Environmental Protection Act, Act 451 of the Public Acts of 1994, being Sections 336.1232(1) and 336.1232(2) of the Michigan Compiled Laws Annotated.

U.S. EPA. 1992. Alcohols, Tallow, Ethoxylated. Document I.D. 88-920004959. Initial Submission: Acute Toxicity Studies on Alkylethoxylates in Rats, Dogs and Monkeys with Attachments and Cover Letter Dated 080592.

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