Siloxane D_5 in Drycleaning Applications

Fact Sheet

EPA has received results of a cancer study on Siloxane D_5 in rodents, submitted under TSCA section 8(e). The results of this study indicate that there may be a cancer hazard associated with D_5. However, the Agency has not conducted a risk assessment for D_5, and, therefore, is not in a position to characterize potential risks to human health or the environment associated with D_5 use in drycleaning.

What is "Siloxane D_5"?

Decamethylcyclopentasiloxane, or D_5, is an odorless, colorless liquid that has many consumer and industrial applications. D_5 is used as an ingredient in a number of personal health and beauty products, including deodorants, antiperspirants, cosmetics, shampoos, and body lotions. It is also used as a drycleaning solvent and in industrial cleaning.

Have other studies been conducted?

The subject cancer study is one of a broad range of toxicological studies on D_5 and several other siloxanes that are being conducted voluntarily by the Dow Corning Corporation under a Memorandum of Understanding signed with EPA in 1996.

What were the preliminary results of the study?

In February 2003, EPA received from Dow Corning the preliminary results of a two-year chronic toxicity and carcinogenicity study on D_5 using rats. In this study, groups of 60 male and 60 female Fischer 344 rats were exposed to vapor concentrations of 0, 10, 40, or 160 ppm of D_5 for 6 hours per day, 5 days per week, for 24 months. The preliminary results show that female rats exposed to the highest concentration of D_5 exhibited a statistically significant increase of uterine tumors.

In July 2005, EPA received the final results of the two-year study in rats, which confirmed the significant increase in uterine tumors following exposure to 160 ppm of D_5, the highest concentration tested in the study. No significant increase in tumors was observed at lower doses.

How were the results submitted?

Dow Corning submitted the results of their study under section 8(e) of the Toxic Substances Control Act (TSCA). Section 8(e) requires that U.S. chemical manufacturers notify EPA of information that could support a conclusion of substantial risk of injury to health or the environment. Section 8(e) submissions most often contain toxicity data, but may also contain information on exposure, environmental persistence, or actions being taken to reduce human health and environmental risks.

How will EPA follow up?

EPA has received the work agreed upon in the MOU and a Public Docket has been established to make data and information developed through this MOU available to the public. The docket number EPA-HQ-OPPT-2009-0180 can be accessed through http://www.regulations.gov. Docket materials include more than 88 reports assessing potential toxicity and exposure, annual progress reports, science briefings, and related TSCA section 8(e) notices and additional submissions concerning D_5 and five other siloxanes that were subject to the MOU.

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