

**SIDS INITIAL ASSESSMENT PROFILE**

<b>CAS No.</b>	107-98-2
<b>Chemical Name</b>	1-Methoxypropan-2-ol
<b>Structural Formula</b>	$\text{CH}_3\text{OCH}_2\text{CHOHCH}_3$
<p style="text-align: center;"><b><u>RECOMMENDATIONS</u></b></p> <p style="text-align: center;">The chemical is currently of low priority for further work.</p>	
<p style="text-align: center;"><b><u>SUMMARY CONCLUSIONS OF THE SIAR</u></b></p> <p><b>Human Health</b></p> <p>Propylene Glycol Methyl Ether (PGME) exhibits low acute toxicity by the oral, dermal, and inhalation routes. The oral LD 50 ranges from 1,840 mg/kg in rabbits, 4,600 mg/kg in dogs, to &gt;5,000 mg/kg in rats. Dermal LD 50 values were 13-14 gm/kg in rabbits. Inhalation LC 50 values were generally above 6,000 ppm for rats, mice, and guinea pigs. PGME is not a skin sensitizer or skin irritant, and was only slightly irritating to the eye. In repeated dose studies (11 days to six months) NOAELs of 300 ppm and higher have been observed in inhalation studies using rats, mice, rabbits, guinea pigs, and monkeys. Effects observed included sedation, hepatic changes, and decrease in body weight gain. NOAELs (oral) of 459.5 mg/kg and 919 mg/kg were observed in rat studies lasting 13 and 5 weeks, respectively. Observations included central nervous system (CNS) effects, enlarged livers and weight loss. In reproductive toxicity testing, effects observed at 3000 ppm appear to be related to decreased maternal body weights and secondary to general toxicity and nutritional stress. Decreased maternal body weights were also noted at 1000 ppm. The NOAELs observed in the two-generation study were 300 ppm for adults and 1,000 ppm for offspring. Studies in rats, mice, and rabbits showed that PGME was not teratogenic (two inhalation and three gavage studies with teratogenicity NOAELs of 3000 ppm and 800 to 2000 mg/kg, respectively). Commercial PGME is a mixture of two isomers (<math>\alpha</math> and <math>\beta</math>). The <math>\beta</math>-isomer is metabolized to 2-methoxypropionic acid; a known animal teratogen. Although commercially available PGME contains less than 0.5% of the <math>\beta</math>-isomer, for consistency with the earlier studies, the PGME tested in the animal studies described here was altered to contain approximately 2% of the <math>\beta</math>-isomer. The weight of the evidence indicates that PGME is not genotoxic. In a 2-year bioassay, there were no statistically significant increases in tumors in rats and mice. In humans, volunteers' eyes were slightly irritated at doses greater than 100 ppm for 1-2 hours; doses of 750 ppm were strongly irritating; and CNS depression was observed at 1,000 ppm. At 300 ppm, mild eye and nasal irritation occurred within 5 minutes and became intolerable after 1 hour. Human exposures to concentrations of PGME greater than 150 ppm are expected to be self-limiting due to irritation effects.</p> <p><b>Environment</b></p> <p>PGME is not persistent in the environment and is not expected to bioaccumulate in food webs. The half-life of PGME in air is estimated to be 3.1 hours due to direct reactions with photochemically generated hydroxyl radicals. PGME is readily biodegraded under aerobic conditions.</p> <p>Although environmental monitoring data are not available for PGME, fugacity-based modeling indicates that PGME is likely to partition to water compartments in the environment (surface water, groundwater) with small to negligible amounts remaining in other environmental compartments (air, soil, sediment, and fish). Acute toxicity testing in fish, invertebrates, and algae indicate a very low order of toxicity with effect concentration exceeding 1,000 mg/L. Using an assessment factor of 100 for the fish 96 hour LC 50 of 20,800 mg/L, a PNEC of 208 mg/L was derived.</p> <p><b>Exposure</b></p> <p>Approximately 100,000 to 500,000 tons of PGME are produced worldwide each year. Within the US, approximately 145 million pounds of PGME were produced in 1999 (Appendix A). According to the Chemical Economics Handbook (SRI International), in the USA, a production volume of 165 million pounds of PGME is estimated for 2000.</p>	

In 1995, approximately 420 million pounds (190,000 metric tons) were produced worldwide with an estimated annual growth rate of 0.7% - 2.0% according to producer specification. Commercially available PGME contains less than 0.5% of the  $\beta$ -isomer as is required by European Union labeling regulations. PGME is used in the manufacture of propylene glycol methyl ether acetate, as well as in a wide variety of industrial and commercial products, including paints, varnishes, inks, and cleaners. In the US, PGME is used as follows: 34% propylene glycol methyl ether acetate (PMA) production; 30% surface coatings; 23% cleaners; 7% adhesives/electronics; and 6% inks. Exposures to PGME are likely to occur for workers and consumers. Inhalation exposures to relatively high concentrations of PGME are believed to be self-limiting due to the irritant effects of the chemical. Use of protective gloves to minimize absorption is recommended when prolonged dermal exposures to PGME are anticipated.

**NATURE OF FURTHER WORK RECOMMENDED**

No recommendation.