SIDS INITIAL ASSESSMENT PROFILE

CAS No.	25265-71-8 and 110-98-5
Chemical Name	Dipropylene glycol, mixed isomers and dominant isomer
Structural Formula	CH_3-CHOH-CH_2O-CH_2-CHOH-CH_3

RECOMMENDATIONS

The chemical is currently of low priority for further work.

SUMMARY CONCLUSIONS OF THE SIAR

Human Health

Dipropylene glycol (DPG) is not acutely toxic by oral (LD_{50} $\geq$13 g/kg bw/day from 7 rat studies and 17.6 g/kg bw/day from a guinea pig study), dermal (LD_{50} > 5g/kg bw/day in 2 rabbit studies) or inhalation (no deaths observed in rats and guinea pigs at 6 to 8 g/m^3) routes of exposure. DPG is slightly irritating to the skin and eyes of rabbits. Based on human data, DPG is not a skin sensitizer. Repeated exposures of rats to DPG did not result in adverse effects at levels up to 5% (estimated NOAEL is about 6.2 g/kg bw/day) in drinking water. At about 12.5 g/kg bw/day (10%), kidney lesions appeared in about 30% of the rats. Results from an OECD 422 combined repeat dose/reproductive/developmental toxicity test on the structural analogue, tripropylene glycol (TPG), demonstrated a NOAEL of 200 mg/kg bw and a LOAEL of 1000 mg/kg bw for repeated dose toxicity, with increased relative weight for liver and kidney. Metabolic fate data on TPG demonstrates that TPG is readily converted to DPG, PG, and CO_2 in rats. Thus, data from TPG are relevant to DPG. DPG did not cause fetal toxicity or teratogenicity in rats (NOAEL = 5 g/kg bw/day) or rabbits (NOAEL = 1.2 g/kg bw/day). No reproductive studies have been conducted on DPG. However, the structural analogues, propylene glycol and TPG, have been tested for reproductive effects and shown to have NOAELs of 10.1 g/kg bw in mice and 1 g/kg bw in rats, respectively. Thus, the lack of reproductive effects from TPG and the high NOAEL for PG reproductive toxicity indicate that no reproductive effects are expected in animals exposed to DPG, in the absence of maternal toxicity. DPG is not a genetic toxicant based on *in vitro* (bacterial and mammalian cells in culture) and *in vivo* (micronucleus) studies.

Environment

Dipropylene glycol (DPG) is not volatile, but is miscible with water. Air monitoring data are not available, but concentrations of dipropylene glycol in the atmosphere are expected to be extremely low because of its low vapor pressure and high water solubility. Low levels of DPG (0.4 ng/l) in drinking water were reported in one study. It is biodegraded in water and expected to be biodegraded in soil, as indicated by >70% degradation after 28d in a Zahn-Wellens test. It is not expected to bioaccumulate, with measured BCFs between 0.3 and 4.6 in fish. Measured aquatic toxicity data on fish and amphibians report toxicity at >5,000 and 3,181 mg/L, respectively. Based on QSAR data for Daphnia and algal toxicity, and the measured data for fish and amphibians, DPG is not expected to be toxic to aquatic organisms except at very high concentrations. Using an assessment factor of 100 and the fish 96-hour LC_{50}, the PNEC is >50 mg/l; if the amphibian data are used, the PNEC is 32 mg/l.

Exposure

Dipropylene glycol is produced as a byproduct of the manufacture of propylene glycol. The US production capacity of DPG was 131 million pounds (59.5 kilotonnes) in 1998; the demand was 108 million pounds (49 kilotonnes). DPG is used (percent of demand) as follows: plasticizers, 38 percent; unsaturated polyester resins, 23 percent; cosmetics and fragrances, 10 percent; polyurethane polyols, 8 percent; alkyd resins, 7 percent; miscellaneous, including solvents and functional fluids (specialty de-icers, inks, lubricants), 14 percent.

NATURE OF FURTHER WORK RECOMMENDED

No further work is recommended.