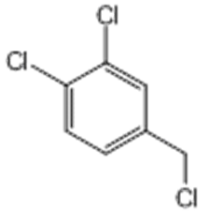
INITIAL TARGETED ASSESSMENT PROFILE

CAS No.	102-47-6
Chemical Name	**1,2-Dichloro-4-(chloromethyl)benzene**
Structural Formula	

SUMMARY CONCLUSIONS OF THE TARGETED ASSESSMENT

NOTE: The present assessment was targeted to address only the following endpoint(s): Human Health: repeated dose toxicity and *in vitro* mutagenicity. It cannot be considered as a full SIDS Initial Assessment. Summary information on exposure is also reported here. Other endpoints for human health and the environment have not been presented to OECD member countries, and thus are not included in this profile.

Rationale for targeting the assessment

Under the Japanese Chemical Substances Control Law (CSCL), risk assessment of existing chemical substances has been conducted by the government. The CSCL was amended in 2010 and 2011 and shifted toward risk-based management from hazard-based management. Chemical substances are classified as follows from April 1, 2011: (1) Class I Specified Chemical Substances (persistent, highly bioaccumulative, has long-term toxicity for humans or long-term toxicity predator animals at higher trophic level), (2) Class II Specified Chemical Substances (has long-term toxicity for humans or flora and fauna in the human living environment, has risk), (3) Monitoring Chemical Substances (persistent, highly bioaccumulative, long-term toxicity unknown), (4) Priority Assessment Chemical Substances (suspected long-term toxicity for humans or flora and fauna in the human living environment, suspected risk) and (5) General Chemical Substances (risk to humans or flora and fauna in the human living environment is sufficiently low).

1,2-Dichloro-4-(chloromethyl)benzene is classified as a General Chemical Substance based on degrees of hazard intensity and exposure estimates at the priority assessment meeting.

This targeted assessment document was originally based on the material of the priority assessment meeting provided from the chemical assessment council of Ministry of Health, Labour and Welfare (MHLW), Japan, and the toxicological profile was re-assessed for the OECD Cooperative Chemicals Assessment Programme.

Physical-Chemical Properties

1,2-Dichloro-4-(chloromethyl)benzene is solid at room temperature. Melting point is 37.5 °C, and boiling point is 241 °C. Partition coefficient between octanol and water (log K_{ow}) is estimated to be 4.08 by KOWWIN. Vapour pressure is estimated to be 9.59 Pa at 25 °C. Values of water solubility are estimated to be 15.0 mg/L and 13.0 mg/L at 25 °C by WSKOWWIN and WATERNTWIN respectively.

Human Health

A 28-day repeated dose toxicity study was conducted in rats according to the Japanese guideline and OECD Guideline 407 under GLP. Rats were administered 1,2-dichloro-4-(chloromethyl)benzene by gavage at 0 (vehicle control: 0.5% Sodium carboxymethyl cellulose), 10, 30, 100, and 300 mg/kg bw/day. At 300 mg/kg bw/day, one female died during the treatment period. At the end of the administration period, relative and absolute weights of the liver and kidney were significantly increased in males and females at 300 mg/kg bw/day. In urinalysis, urine volume and casts in urinary sediments in males and epithelium in urinary sediments in males and females increased at 300 mg/kg bw/day. In the histopathological findings, in the forestomach, hyperkeratosis was observed in males at 10 mg/kg bw/day and higher, and in females at 30 mg/kg bw/day and higher, hyperplasia of the squamous epithelium was observed in males at 30 mg/kg bw/day and higher, and in females at 10 mg/kg bw/day and higher, and edema and cellular infiltration were observed in males and females at 10 mg/kg bw/day and higher, and erosion was observed in males at 300 mg/kg bw/day. In the kidney, hyaline droplet in the tubular epithelium was observed in males of the 100 mg/kg bw/day and higher, and increased basophilic tubular epithelium, dilatation of the tubules, degeneration of the tubular epithelium, and fibrosis of the interstitium in males and females, and necrosis of the tubules and interstitial cellular infiltration in females were observed at 300 mg/kg bw/day. Increased relative weights of the liver and kidney, hyperplasia of the squamous epithelium in the forestomach, and , basophilic tubular epithelium, dilatation of the tubules, and interstitial cellular infiltration in the kidney, remained at the end of recovery period. Based on these findings at 10 mg/kg bw/day in males and females, the LOAEL of this study was considered to be 10 mg/kg bw/day.

In a bacterial mutation study using *Salmonella typhimurium* and *Escherichia coli* (OECD TG 471), 1,2-dichloro-4-(chloromethyl)benzene was negative in all *Salmonella* strains and *E.coli* with and without metabolic activation. In an *in vitro* chromosome aberration test using CHL/IU cells (OECD TG 473), 1,2-dichloro-4-(chloromethyl)benzene did not induce structural chromosomal aberrations or polyploidy with and without metabolic activation. No *in vivo* mutagenicity data are available. Based on these results, 1,2-dichloro-4-(chloromethyl)benzene is considered to be non genotoxic *in vitro*.

Agreed Hazard Conclusions

This chemical possesses properties indicating a hazard for one human health endpoint (repeated dose toxicity) targeted in this assessment.

Available Exposure

Production and import volume of 1,2-dichloro-4-(chloromethyl)benzene in Japan was not reported. However volume of production and import for the total of mono- and di-chlorobenzylchlorides in Japan was reported to be 3,000 - 4,000 tones in fiscal year 2010. Production volume in other countries is not available. 1,2-Dichloro-4-(chloromethyl)benzene is used as an intermediate for agricultural chemicals and pharmaceutical

products.