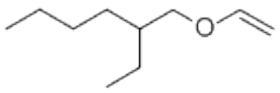
INITIAL TARGETED ASSESSMENT PROFILE

CAS No.	103-44-6
Chemical Name	2-Ethylhexyl vinyl ether
Structural Formula	

SUMMARY CONCLUSIONS OF THE TARGETED ASSESSMENT

NOTE: The present assessment is targeted to address only the following endpoint(s): Human Health: acute toxicity, 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, hazard assessment of existing chemical substances via environmental exposure has been conducted. If a chemical substance is evaluated as "not biodegradable (persistent)" and "not highly bioaccumulative", at least, a 28-day repeated dose toxicity and two *in vitro* mutagenicity studies are required as screening studies for hazard evaluation regarding human health. If a chemical is evaluated as having potential of long-term toxicity for human health, the chemical is classified as a Type II Monitoring Chemical Substance. If not, the chemical is of low priority for further action. Type II Monitoring Chemical Substances undergo risk-based management; at first, annual production volumes of those substances are monitored.

2-Ethylhexyl vinyl ether was evaluated as "not biodegradable (persistent)" and "moderately bioaccumulative" by METI (Ministry of Economy, Trade and Industry, Japan). Biodegradation and bioaccumulation are not part of the targeted assessment and therefore not presented in ITAP. In order to determine whether this chemical is classified as a Type II monitoring chemical substance, the initial hazard assessment of 2-ethylhexyl vinyl ether was conducted for the repeated dose toxicity and mutagenicity by MHLW (Ministry of Health, Labour and Welfare, Japan) in 2007.

This targeted assessment document was originally based on the material from the chemical assessment council of MHLW, and the toxicological profile was re-assessed for the OECD Cooperative Chemicals Assessment Programme.

Physical-chemical properties

2-Ethylhexyl vinyl ether is a clear colorless liquid at standard temperature and pressure. The melting point and boiling point are -100 °C and 177.7 °C, respectively. The measured value of partition coefficient between octanol and water (log Kow) is 5.5. Vapour pressure is estimated to be 229 Pa at 25 °C. The measured value of water solubility is 1.8 mg/L at 25 °C.

Human Health

The oral LD_{50} in rats was 1350 mg/kg bw, and the dermal LD_{50} in rabbits was 3.56 mL/kg bw (equivalent to 2.9 mg/kg bw).

A 28-day repeated dose toxicity study in rats was conducted according to the Guideline under the Chemical Substances Control Law of Japan in compliance with GLP. In this study, 2-ethylhexyl vinyl ether was administered via gavage at 0 (vehicle control: olive oil), 8, 30 and 125 mg/kg bw/day for 28 days. No treatment-related death were observed in treated animals. No adverse effects were observed on clinical signs, results of manipulative test, grip strength, motor activity, or body weight. Urinary occult blood was observed in

males at 125 mg/kg bw/day. On blood chemistry examination, an increase in the ALP in males at 30 mg/kg bw/day and in females at 125 mg/kg bw/day was observed, and increases in the total cholesterol and the phospholipid were observed in males and females at 125 mg/kg bw/day. An increase in relative liver weight was observed in males at ≥30 mg/kg bw/day and in females at 125 mg/kg bw/day. An increase in relative kidney weight and relative testis weight were observed in males at 125 mg/kg bw/day. Histopathologically, the hypertrophy of centrilobular hepatocytes was observed in males at ≥30 mg/kg bw/day and in females at 125 mg/kg bw/day, single cell hepatocyte necrosis was also observed in male and female at 125 mg/kg bw/day. Eosinophilic body in the tubular cell in the kidney was observed in males at 125 mg/kg bw/day. Based on increases in the ALP and relative liver weight, and the hypertrophy of centrilobular hepatocytes observed in males at 30 mg/kg bw/day and in females at 125 mg/kg bw/day, the NOAELs of repeated dose oral toxicity are considered to be 8 mg/kg bw/day in males and 30 mg/kg bw/day in females.

In a bacterial mutation study (OECD TG 471) using *Salmonella typhimurium* and *Escherichia coli*, 2-ethylhexyl vinyl ether was negative with or without metabolic activation. In an *in vitro* chromosome aberration test (OECD TG 473) using CHL/IU cells, 2-ethylhexyl vinyl ether was also negative with or without metabolic activation. Based on these results, 2-ethylhexyl vinyl ether is not considered to be genotoxic *in vitro*.

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

Exposure

Production and/or import volume of alkyl vinyl ether in Japan (sponsor country) was reported to be less than 1,000 tonnes in fiscal year 2010 according to the notification of annual manufactured and/or imported quantities under Chemical Substances Control Law. Production and/or import volume of 2-ethylhexyl vinyl ether is not available. Production volume in the world is not available.

2-Ethylhexyl vinyl ether is used as a raw material for resins or as an intermediate for pharmaceutical products and fragrances. 2-Ethylhexyl vinyl ether is also used in insecticides, adhesives and viscosity index improver.