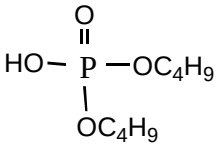
SIDS INITIAL ASSESSMENT PROFILE

CAS No.	107-66-4
Chemical Name	Dibutyl phosphate
Structural Formula	

CONCLUSIONS AND RECOMMENDATIONS

It is currently considered of low potential risk and low priority for further work.

SHORT SUMMARY WHICH SUPPORTS THE REASONS FOR THE CONCLUSIONS AND RECOMMENDATIONS

Dibutyl phosphate is stable liquid and the production volume is ca. 6 tonnes/year in 1990 – 1993 in Japan and 150 - 250 tones/year in 1990 in Germany. This chemical is used as a catalyst for cross-linking in the paint industry. This chemical is stable in neutral, acidic or alkaline solution, and is considered as “inherently biodegradable”. The life time may be relatively long in the environment.

PECs have been calculated based on several models considering its physico-chemical properties (e.g. molecular weight, water solubility, vapour pressure and partition coefficient). The estimated concentrations were 2.4×10^{-14} mg/l (air), 2.5×10^{-7} mg/l (water), 1.9×10^{-6} mg/kg (soil), 1.5×10^{-6} mg/kg (sediment). PEC_{global} was also calculated as 2.5×10^{-7} mg/l, based on a default scenario.

For the environment, various NOEC and LC_{50} values were gained from test results; LC_{50} = 110 - 130 mg/l (acute fish); EC_{50} = 210 mg/l (acute daphnia); EC_{50} = 92 mg/l (acute algae); NOEC = 66 mg/l (long-term daphnia reproduction). Therefore, the chemical is considered to be slightly toxic to fish. From the lowest chronic toxicity data to daphnia (21 d-NOEC of 66 mg/l, applying an assessment factor of 100 a PNEC of 0.66 mg/l can be estimated. Since the PEC is lower than the PNEC, the environmental risk is presumably low.

No monitoring data at work place and environment have been reported. The chemical is produced in closed system, and no data for consumer use are available. Based on the physico-chemical properties, the total exposed dose indirectly through the environment was estimated as 3.1×10^{-6} mg/man/day. Also, the daily intake through drinking water is estimated as 5.1×10^{-7} mg/kg/day and through fish is calculated as 3.7×10^{-8} mg/kg/day. No data on occupational exposure are available.

The chemical showed no genotoxic effects in bacteria and chromosomal aberration test *in vitro*.

In a combined repeat dose and reproductive/developmental toxicity screening test, main toxic effects on stomach, bladder and organs related to excretion routes were observed in parental rats. Hepato-toxic effects such as hepatocyte swelled and liver weight increased were also observed. From the view point of reproductive/developmental end-points, there was not any significant effect on fertility or reproductive performance in parental rats. Only a tendency of the decrease in number of live pups was seen at the highest dose (1000 mg/kg/day). The NOEL was 30 mg/kg/day for repeated dose toxicity and 300 mg/kg/day for reproductive toxicity.

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In conclusion, no further testing is needed at present considering its toxicity and exposure levels.

NATURE OF FURTHER WORK RECOMMENDED