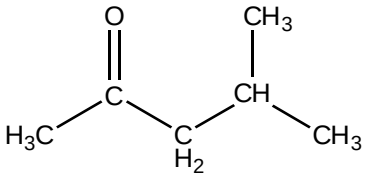
SIDS INITIAL ASSESSMENT PROFILE

CAS No.	108-10-1
Chemical Name	Methyl Isobutyl Ketone
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

Methyl Isobutyl Ketone (MIBK) estimated annual production was of the order of 60,000-80,000 metric tonnes in the US, and 290,000-310,000 metric tonnes in 1995-96, worldwide. The major use of MIBK is as an industrial or commercial solvent used in paints and coatings formulations. It is also used as a chemical intermediate and as a process solvent. MIBK is typically manufactured via an enclosed, continuous process, via the aldol condensation of acetone, to form diacetone alcohol. Diacetone alcohol is subsequently dehydrated to a site-limited intermediate, mesityl oxide which is subsequently hydrogenated to MIBK. For internal plant uses, MIBK is transported through closed pipelines and stored in tanks. MIBK is transported by bulk tank cars and trucks.

MIBK is not expected to persist in the environment. In water, MIBK has been shown to be readily biodegradable. MIBK is expected to volatilize rapidly from water or soil, where rapid photodegradation would occur. Bioconcentration is not expected to be an important fate process. MIBK has a low degree of toxicity for aquatic organisms. The lowest reported toxicity threshold for any species is 136 mg/l (8day IC50(blue algae)). Toxicity to higher order plants has not been reported.

MIBK has been studied extensively, showing a low degree of toxicity by oral, dermal or inhalation routes. MIBK has been shown to be a slight dermal irritant and can be expected to be no more than moderately irritating to eyes. In several studies with human volunteers exposed to up to 200 ppm, MIBK caused reversible irritation and CNS symptoms.

The major effects noted from repeated exposures to high concentrations of MIBK were associated with the liver and kidney. In a 13-week oral study in rats, the NOAEL was determined to be 250 mg/kg, and in a 14-week inhalation study in mice and rats, the NOAEL was 1000 ppm.

In inhalation developmental toxicity studies in rats and mice, maternal toxicity and fetotoxicity were seen at 3000 ppm. Effects in the dams included decreased body weight gain, increased liver and kidney weights, decreased food consumption, and in mice, maternal deaths. Reduced fetal body weights and delayed ossification were noted in both species. Increased resorptions were noted for mice. 1000 ppm was considered to be the NOEL for both maternal animals and offspring. In an additional study, exposures of rats and mice for up to 1000 ppm 6hr/d, 5days/week for 14 weeks did not affect testicular

weights or histology of male or female reproductive organs.

Available data on MIBK indicate that it may result in some neurological effects and may enhance the neurotoxicity of other chemicals. Most genotoxicity studies show negative results for MIBK. For example, MIBK was negative in a Salmonella reverse mutation test, a cell transformation assay using BALB/3T3 cells, an unscheduled DNA synthesis assay, and a mouse bone marrow micronucleus test.