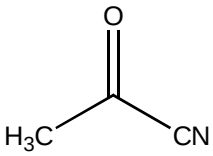
SIDS INITIAL ASSESSMENT PROFILE

CAS No.	75-05-8
Chemical Name	Acetonitrile
Structural Formula	

CONCLUSIONS AND RECOMMENDATIONS

This chemical is a candidate for further work.

SHORT SUMMARY WHICH SUPPORTS THE REASONS FOR THE CONCLUSIONS AND RECOMMENDATIONS

Acetonitrile is a volatile, colourless liquid with high water solubility. This chemical is used as a solvent in various extractions, the dissolution of cationic textile dyes, and is widely used in research and analytical laboratories.

Acetonitrile is considered readily biodegradable, and a log P_{ow} of -0.34 indicates low potential for bioaccumulation. PEC:PNEC for each scenario is less than one, indicating low concern over this chemical for the environment. Terrestrial organism data does not exist, but the calculated PEC_{soil} at regional and continental levels versus $PNEC_{aquatic\ organisms}$ is less than one, indicating low concern.

This chemical is readily absorbed from the gastrointestinal tract and through the skin and lungs, and all three routes of exposure lead to systemic effects. Acetonitrile is readily absorbed through the skin. This chemical is not of concern for consumers.

This chemical is widely distributed upon exposure and there are no indications that repeated dosing leads to accumulation in animal tissues. Exposure to this chemical produces symptoms characteristic of cyanide intoxication. Data from long and short-term studies showed that wide variations in both inter and intraspecies susceptibility exists. Acetonitrile is determined to be irritating to the eye but does not show corrosivity to the skin and eyes.

The results from one well-conducted subchronic inhalation study shows that mice are one of the most sensitive species; NOAEL is 100ppm. Acetonitrile did not induce gene mutations in bacteria, and showed weak clastogenic activity in mammalian cells. Weakly positive results have been reported for an *in vivo* mutagenicity test. In male rats, inhalatory exposure at 400ppm, a marginal increase in neoplasms was reported based upon an increased incidence of hepatocellular adenomas and carcinomas (when the data was combined). In the same study there was no evidence of carcinogenic activity in females. No fertility changes have been reported in animal studies, and acetonitrile is not considered to be toxic to fetuses at doses below those causing maternal toxicity.

Acetonitrile has not been detected in consumer products, and calculated high margins of safety, indicate no concern to human safety following indirect exposure from the environment.

NATURE OF FURTHER WORK RECOMMENDED

There is a need for further information and/or testing:

- Sensitization: Need for testing for skin sensitization.
- Mutagenicity: Additional well-validated, *in vivo*, study in order to detect chromosome damage required.
- Workers: Work practices and the activities, information on the duration and frequency described.