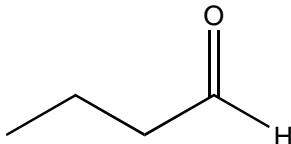


**SIDS INITIAL ASSESSMENT PROFILE**

|                           |  |
|---------------------------|--|
| <b>CAS No.</b>            | 123-72-8   |
| <b>Chemical Name</b>      | Butyraldehyde  |
| <b>Structural Formula</b> |  |

**CONCLUSIONS AND RECOMMENDATIONS**

The chemical is currently considered of low priority for further work.

**SHORT SUMMARY WHICH SUPPORTS THE REASONS FOR THE CONCLUSIONS AND RECOMMENDATIONS**

Butyraldehyde is a water-white organic liquid with very low odor threshold and flash point, and relatively high water solubility. The estimated annual production of butyraldehyde in the United States is on the order of 600,000 to 900,000 metric tonnes, and it is used extensively as an intermediate. Production of butyraldehyde and conversion to other chemicals take place in closed systems because of the volatile nature of this chemical. More than 90 % of all butyraldehyde produced is consumed on-site, and the remainder is sold to domestic customers who then consume it during synthetic processes. Less than 0.05 % is lost to the environment.

U.S. EPA toxic Release inventory figures indicate that, because of its volatility, virtually all of the butyraldehyde released goes into the air. Butyraldehyde undergoes photolysis in air, and is biodegradable in water and soil, both aerobically and anaerobically. Computer modeling and actual tests indicate that butyraldehyde is substantially removed from the atmosphere by photolysis and reaction with hydroxy radicals. The small amount that does remain in water or soil is degraded both aerobically and anaerobically. Limited monitoring for butyraldehyde in surface waters confirms this with concentration values ranging from 6 to 15 µg/L. Monitoring in ambient air beyond facility sites indicates levels typically below 1 ppb.

Butyraldehyde has been tested for aquatic toxicity in daphnia, 3 fish species, 2 algae species, 3 protozoan species, and 2 bacterial species. The range of EC<sub>50</sub>s was from 13.7 to 195 mg/L, and the range of MICs was from 4.2 to 100 mg/L. Based on its estimated bioconcentration factor of 3, it is not likely that butyraldehyde would bioaccumulate. No data were found regarding toxicity to plants or other terrestrial organisms, but soil levels of butyraldehyde are expected to be negligible due to high volatility and rapid degradation. Butyraldehyde may be considered to be moderately toxic to aquatic organisms, however, virtually all of the butyraldehyde released into the environment goes into the air.

Occupational exposure is expected to be low since production of butyraldehyde and conversion to other chemicals takes place in closed systems. Workplace exposure levels are typically below 1 mg/L on an 8-hour time-weighted-average. This chemical is not present in consumer products, therefore there is no expected consumer exposure.

Most of the identified hazards are associated with butyraldehyde's irritant properties. Solvents are known to cause irritation by defatting and drying of tissues. No specific target organs or toxic endpoints were identified in repeated dose studies. Butyraldehyde was negative in the Ames test, negative for chromosome aberrations in human

lymphocytes, but male Q strain mice showed evidence of chromosome damage during spermatogenesis. These equivocal results fail to implicate butyraldehyde as a specific mutagenic chemical. Although no data were available on reproductive and developmental toxicity test, it is unlikely that butyraldehyde would be a specific reproductive or developmental toxin under realistic conditions because its irritant properties limit exposure, and its chemical reactivity further restricts it from reaching specialized reproductive or developmental target tissues in substantial amounts.

#### **NATURE OF FURTHER WORK RECOMMENDED**