Acetamide

60-35-5

Hazard Summary

Acetamide is used primarily as a solvent and a plasticizer. Workers may be exposed in the plastics and chemical industries. It causes mild skin irritation from acute (short-term) exposure. No information is available on the chronic (long-term), reproductive/developmental, or carcinogenic effects of acetamide in humans. EPA has not classified acetamide for carcinogenicity.

Please Note: The main source of information for this fact sheet is the Hazardous Substances Data Bank (HSDB) (1), a database of summaries of peer-reviewed literature. Other secondary sources include the Registry of Toxic Effects of Chemical Substances (RTECS) (2), a database of toxic effects that are not peer reviewed, and the IARC Monographs on Chemicals Carcinogenic to Humans. (3)

Uses

- Acetamide is used as a solvent, plasticizer, and a wetting and penetrating agent. (1)

Sources and Potential Exposure

- Occupational exposure to acetamide may occur for those workers in the plastics and chemical industries. (1)

Assessing Personal Exposure

- No information is available on the assessment of personal exposure to acetamide.

Health Hazard Information

Acute Effects:
- Acetamide causes mild skin irritation in humans from acute exposure. (1)
- Tests involving acute exposure of rats and mice have shown acetamide to have low to moderate acute toxicity from oral exposure. (2)

Chronic Effects (Noncancer):
- No information is available on the chronic effects of acetamide in humans or animals.
- The Reference Concentration (RfC) for acetamide is under review by EPA.
- EPA has not established a Reference Dose (RfD) for acetamide.

Reproductive/Developmental Effects:
- No information is available on the reproductive or developmental effects of acetamide in humans.
- Animal studies have not reported any significant developmental effects from exposure to acetamide. (1)

Cancer Risk:
- No information is available on the carcinogenic effects of acetamide in humans.
- Animal studies have reported liver tumors from oral exposure to acetamide. (1,3,4,5)
- EPA has not classified acetamide for carcinogenicity.

- The International Agency for Research on Cancer (IARC) has classified acetamide as a Group 2B, possible human carcinogen. (3)
- The California Environmental Protection Agency (CalEPA) has established an inhalation unit risk estimate of 2.0×10^{-5} $(\mu g/m^3)^{-1}$ and an oral cancer slope factor of 7.0×10^{-2} $(mg/kg/d)^{-1}$ for acetamide (5)

Physical Properties

- Acetamide exists as hexagonal crystals. (1)
- The odor threshold for acetamide is 140 to 160 milligrams per cubic meter (mg/m^3). (1)
- The chemical formula for acetamide is C_2H_5NO, and the molecular weight is 59.07 g/mol. (1)
- The vapor pressure for acetamide is 1 mm Hg at 65 °C, and it has a log octanol/water partition coefficient (log K_{ow}) of -1.26. (1,6)

Note: There are very few health numbers or regulatory/advisory numbers for acetamide; thus, a graph has not been prepared for this compound. The health values cited in this factsheet were obtained in December 1999.

Conversion Factors:

To convert concentrations in air (at 25°C) from ppm to mg/m^3: mg/m^3 = (ppm) × (molecular weight of the compound)/(24.45). For acetamide: 1 ppm = 2.41 mg/m^3.

Summary created in April 1992, updated in January 2000

References

1. U.S. Department of Health and Human Services. Hazardous Substances Data Bank (HSDB, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD. 1993.

2. U.S. Department of Health and Human Services. Registry of Toxic Effects of Chemical Substances (RTECS, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD. 1993.

3. International Agency for Research on Cancer (IARC). IARC Monographs on the Evaluation of Carcinogenic Risk to Humans. Supplement 7. World Health Organization, Lyon. 1987.

4. International Agency for Research on Cancer (IARC). IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man. Volume 7. World Health Organization, Lyon. 1974.

5. California Environmental Protection Agency (CalEPA). Air Toxics Hot Spots Program Risk Assessment Guidelines: Part II. Technical Support Document for Describing Available Cancer Potency Factors. 1999. Office of Environmental Health Hazard Assessment, Berkeley, CA. 1999.

6. Sigma-Aldrich Corporation. Material Safety Data Sheet on Acetamide. Sigma-Aldrich Corporation, Milwaukee, WI. 1992.