Acetamide

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sources include the Registry of Toxic Effects of Chemical Substances (RTECS) (2), a database of toxic effects that are not peer reviewed, and the IARC Monographs on Chemicals Carcinogenic to Humans.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 $2.0 \times 10^{-5} \, (\mu g/m^3)^{-1}$ and an oral cancer slope factor of $7.0 \times 10^{-2} \, (mg/kg/d)^{-1}$ 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$^3$: $mg/m^3 = (ppm) \times (molecular \ weight \ of \ the \ compound)/(24.45)$. For acetamide: $1 \ ppm = 2.41 \ mg/m^3$.

Summary created in April 1992, updated in January 2000

References


