2-Acetylaminofluorene

53-96-3

Hazard Summary

2-Acetylaminofluorene is used by scientists to study the carcinogenicity and mutagenicity of aromatic amines. No information is available on the acute (short-term), chronic (long-term), reproductive, or developmental effects of 2-acetylaminofluorene in humans. It has caused a variety of tumors in laboratory animals. EPA has not classified 2-acetylaminofluorene for carcinogenicity.

Please Note: The main sources of information for this fact sheet are the Hazardous Substances Data Bank (HSDB) (1), a database of summaries of peer-reviewed literature, The Handbook of Toxic and Hazardous Chemicals and Carcinogens (2), and The 8th Report on Carcinogens (4). Other secondary sources include the Registry of Toxic Effects of Chemical Substances (RTECS) (3), a database of toxic effects that are not peer reviewed and The Merck Index (5).

Uses

• 2-Acetylaminofluorene is frequently used in the laboratory by biochemists and technicians as a positive control in the study of liver enzymes and the carcinogenesis and mutagenicity of aromatic amines. (1,2,4)

Sources and Potential Exposure

- Exposure to 2-acetylaminofluorene may occur via inhalation or dermal contact in laboratories where it is being used in the study of carcinogenesis. Occupations at greatest risk of exposure are organic chemists, chemical stockroom workers, and biomedical researchers. (1,2)
- Release to the environment is not significant since less than 20 pounds per year are consumed in the United States and no manufacturers produce this compound in the United States. (1,2)

Assessing Personal Exposure

• No information was located regarding the measurement of personal exposure to 2-acetylaminofluorene.

Health Hazard Information

Acute Effects:

- No information is available on the acute health effects of 2-acetylaminofluorene in humans.
- Acute animal exposure tests in mice have demonstrated 2-acetylaminofluorene to have moderate acute toxicity by oral exposure. (3)

Chronic Effects (Noncancer):

- No information is available on the chronic health effects of 2-acetylaminofluorene in humans or animals.
- EPA has not established a Reference Concentration (RfC) or a Reference Dose (RfD) for 2-acetylaminofluorene.

Reproductive/Developmental Effects:

- No information is available on the reproductive or developmental effects of 2-acetylaminofluorene in humans.
- Following a single injection, mainly skeletal defects, but also cleft lips, palates, and cerebral hernias, were

Cancer Risk:

- No information is available on the carcinogenic effects of 2-acetylaminofluorene in humans.
- In rats exposed to 2-acetylaminofluorene in their diet, tumors of the liver, bladder, renal pelvis, Zymbal gland (in the ear canal), colon, lung, pancreas, and testis have been reported. (1,2,4)
- Tumors of the liver, bladder, and kidney have been observed in mice exposed to 2-acetylaminofluorene in their diet. (1,2,4)
- Bladder and liver tumors have also been observed in other laboratory animals. (1)
- EPA has not classified 2-acetylaminofluorene for carcinogenicity.
- The Department of Health and Human Services (DHHS) has classified 2-acetylaminofluorene as being reasonably anticipated to be a human carcinogen, based on sufficient evidence of carcinogenicity in experimental animals. (4)

Physical Properties

- 2-Acetylaminofluorene is also called N-2 fluorenyl acetamide. (1)
- The chemical formula for 2-acetylaminofluorene is $C_{15}H_{13}NO$, and its molecular weight is 223.26 g/mol. (5)
- 2-Acetylaminofluorene occurs as a tan, crystalline solid that is insoluble in water. (1,5)
- The odor threshold for 2-acetylaminofluorene has not been established.
- The log octanol/water partition coefficient (log K_{ow}) for 2-acetylaminofluorene is 3.22. (1)

Note: There are very few health numbers or regulatory/advisory numbers for 2-acetylaminofluorene; thus, a graph has not been prepared for this compound. The health values cited in this factsheet were obtained in December 1999.

Conversion Factors (only for the gaseous form):

To convert concentrations in air (at 25°C) from ppm to mg/m $\frac{3}{3}$ = (ppm) × (molecular weight of the compound)/(24.45). For 2-acetylaminofluorene: 1 ppm = $9.13 \text{ mg/m}^{\circ}$.

Summary created in April 1992, updated in January 2000.

References

- 1. U.S. Department of Health and Human Services. Hazardous Substances Databank (HSDB, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD. 1993.
- 2. M. Sittig. Handbook of Toxic and Hazardous Chemicals and Carcinogens. 2nd ed. Noyes Publications, Park Ridge, NJ. 1985.
- 3. 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.
- 4. U.S. Department of Health and Human Services. The 8th Report on Carcinogens, 1998 Summary. Public Health Service, National Toxicology Program, 1998.
- 5. The Merck Index. An Encyclopedia of Chemicals, Drugs, and Biologicals. 11th ed. Ed. S. Budavari. Merck and Co. Inc., Rahway, NJ. 1989.