

Benzaldehyde

Answers to Frequently Asked Health Questions

What is benzaldehyde?

Benzaldehyde is a colorless, aromatic liquid that has a pleasant almond-like odor. It quickly evaporates (turns from a liquid to a gas) upon exposure to the air.

How is benzaldehyde used?

Benzaldehyde is mainly used as a food and flavoring additive and can be found in many foods, including baked goods, frozen dairy, fruit juice, soft candy, gelatin pudding, non-alcoholic beverages, alcoholic beverages, hard candy, and chewing gum [Fenaroli, 2005].



Benzaldehyde is also used in dyes, fragrances (perfumes, deodorants, etc.), pharmaceuticals (drugs), personal care items (shave gels, moisturizing gels/creams, bath soaps, etc.), as artificial flavoring (cherry and almond flavors), and as an additive for one or more types of tobacco products. It is



also used as a solvent for oils, resins, and cellulose fibers.

Where do you find benzaldehyde in the environment?

Everywhere. Benzaldehyde is naturally found in almonds, apples, peaches, cherry and apricot kernels, and other *Prunus* species (fruits that have pits). Benzaldehyde can also be naturally found in essential oils including hyacinth, citronella, orris, cinnamon, sassafras, labdanum ("rock rose") and patchouli (type of mint) [Fenaroli, 2005]. Benzaldehyde has also been found in melon, grapes, tea and whisky [Leffingwell, 1998]. Benzaldehyde can also be found in combustion by-products in car and truck exhaust, wood fires and tobacco smoke.

A Swedish study of indoor dust detected benzaldehyde in 373 out of 389 homes. This suggests that the occurrence in the home would reflect its widespread use in household products. (Nilsson et al, 2005).



What happens to benzaldehyde in the environment?

Benzaldehyde is not a persistent chemical, meaning it does not stay long in the environment. If released to the atmosphere, benzaldehyde is broken down quickly by the

air and sunlight and has a half-life of about 30 hours. Benzaldehyde can be carried as dust particles in the air and can be removed by rain and fallout. If released to soil or water, it is expected to biodegrade [Hazardous Substance Data Bank – HSDB].

What happens to benzaldehyde in my body?

Benzaldehyde can be absorbed through skin and/or lungs and is then distributed to high blood flow organs. After being metabolized to benzoic acid, it is naturally removed in the urine. It does not bio-accumulate (build up) in any specific tissue type and there was little acute (immediate) toxicity seen in laboratory studies.

What are the health effects?

Dermal Toxicity

Based on the examination of the available laboratory data and a detailed consideration of the chemistry involved in dermal reactions, Patlewicz *et al.*, (2001) concluded that benzaldehyde was not a skin-sensitizer.

Reproductive and Developmental Toxicity

In assessing the teratogenic (causing malformations of an embryo or fetus) potential of benzaldehyde, the Joint FAO/WHO Expert Committee on Food Additives (JECFA) concluded, "...the data reviewed were sufficient to demonstrate a lack of teratogenic and reproductive potential" [JECFA, 2002]

How can benzaldehyde affect my health?

Benzaldehyde is considered to be a Generally Regarded As Safe (GRAS) food additive in the United States by the FDA and is accepted as a flavoring substance in the European Union. The Environmental Working Group (EWG), Skin Deep Cosmetic Database lists benzaldehyde overall chemical hazard on the low end of the hazard scale.

Does benzaldehyde cause cancer (carcinogen)?

Benzaldehyde was evaluated by the National Toxicology Program (NTP), which found no evidence of carcinogenicity in rats, and some evidence of **tumorigenicity** in mice (non-malignant, benign tumors – or non-cancerous tumors). Benzaldehyde has been used as a carcinostatic drug, or a drug that slows or inhibits the growth of cancerous tumors in lab animals and humans. The NTP does not list benzaldehyde as either a *Known* or *Reasonably Anticipated* human carcinogen (Report on Carcinogens, Twelfth Edition 2011).

References:

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Where Can I Get More Information?

Ohio Department of Health
Bureau of Environmental Health and
Radiation Protection
Radiological Health and Safety Section
246 N. High Street
Columbus, Ohio 43215
Phone: (614) 644-2727

This fact sheet was developed in
cooperation with the Agency for Toxic
Substances and Disease Registry