n-Butyl acetate

Updated: November 2018

CAS number 123–86–4

Butyl acetates can occur naturally, and they are present in various plant tissues. All of the butyl acetate isomers have been found to occur naturally in a range of fruits and food products. They may be released to the environment from industrial plants during their manufacture and use, as well as following their use as solvents in products such as lacquers, inks, coatings, and adhesives. Butyl acetates may also be formed in the atmosphere as a product of the photochemical oxidation of other chemicals. Butyl acetates released to the environment are likely to volatilize to the atmosphere, where they will undergo photochemical oxidation reactions with hydroxyl radicals and chlorine atoms. Butyl acetates in solution will undergo hydrolysis reactions. Butyl acetates are readily biodegradable. Their physicochemical properties suggest that butyl acetates will not bind to soil or be bio-accumulated. Butyl acetates have been detected in river water. Occupational exposure to butyl acetate particles and vapour may occur in workplaces involving painting, printing, lacquering, or glueing [WHO].

n-Butyl acetate is butyl acetate isomer. It is colourless, flammable liquid with fruity odour [WHO].

n-Butyl acetate is found in bananas, in sunflower stems been apricots and plums and in nectarines. It is formed during fermentation in yeast and has also been detected in a wide variety of food products, including milk, cheese, beer, rum, brandy, wine, whiskey, cocoa, black tea, coffee, roasted nuts, vinegar, and honey [WHO].

The most common method for creating normal butyl acetate is via the esterification of a butanol isomer and acetic acid which are heated in the presence of a strong acid (e.g. sulphuric acid) [Solventis].

Usage and exposure

n-Butyl acetate is used as a food flavorant, in paint industry, glue manufacture, lacquering furniture, spray painting [WHO].

It is generally used as a solvent, during the production of lacquers, natural gums and synthetic resins [Sigma-Aldrich].

n-Butyl acetate is released to the environment during its use in lacquers, inks, coatings, and adhesives [WHO].

Routs of exposure

n-Butyl acetate is absorbed by the respiratory tract, the skin, and the gastrointestinal tract.

Target organ

Eyes, skin, respiratory system, central nervous system [CDC. NIOSH Pocket Guide].

Metabolism

n-Butyl acetate may be readily hydrolyzed to acetic acid and their respective alcohols (n-butanol, isobutanol, and sec-butanol) in the blood, liver, small intestine, and respiratory tract [WHO].

n-Butyl acetate is probably excreted via exhaled air and urine both as the unchanged compound and as metabolites after transformation in the body [WHO].

Health hazards

Data on the acute inhalation toxicity of n-butyl acetate are highly inconsistent**.** However, the results of a recent well designed and performed experiment indicate that the toxicity of n-butyl acetate following a single 4-h inhalation is low, with no deaths occurring at exposures up to approximately 45 000mg/m3. Additionally, n-butyl acetate has low acute toxicity by the oral and dermal routes [WHO].

Most results indicate that n-butyl acetate is, at most, only slightly irritating to the skin and eyes, although there is some indication of more severe irritation with certain exposure conditions [WHO].

n-Butyl acetate have been tested for skin sensitization potential, with negative results [WHO].

Published data on systemic toxicity following repeated exposure are limited to n-butyl acetate [WHO].

Short term exposure: The substance is irritating to the eyes and the respiratory tract. The substance may cause effects on the central nervous system. Exposure far above the OEL could cause lowering of consciousness, headache, drowsiness, narcosis [CDC].

Long term or repeated exposure: The liquid defats the skin [CDC; CDC. NIOSH Pocket Guide].

References:

- CDC. n-Butyl acetate. https://www.cdc.gov/niosh/ipcsneng/neng0399.html
- CDC. NIOSH Pocket Guide to Chemical Hazards: n-Butyl acetate. https://www.cdc.gov/niosh/npg/npgd0072.html
- Sigma-Aldrich. n-Butyl acetate. https://www.sigmaaldrich.com/catalog/product/supelco/442666u?lang=en&region=IL&gclid=EAIaIQobChMI-8zO-a_03gIVA-h3Ch1rsAgHEAAYAiAAEgKSTPD_BwE
- Solventis. n-Butyl acetate. https://www.solventis.net/products/esters/normal-butyl-acetate
- WHO. BUTYL ACETATES. http://www.who.int/ipcs/publications/cicad/cicad64.pdf