

Ketones Encyclopedia Article

Ketones

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Ketones

Ketones belong to a class of organic compounds known as carbonyls. They contain a **carbon** atom linked to an oxygen atom with a double bond ($C=O$). **Acetone** (dimethyl ketone) is a ketone commonly used in industrial applications. Other ketones include methyl ethyl ketone (MEK), methyl isobutyl ketone (MIBK), methyl amyl ketone (MAK), isophorone, and diacetone alcohol.

As solvents, ketones have the ability to dissolve other materials or substances, particularly polymers and adhesives. They are ingredients in lacquers, epoxies, polyurethane, nail polish remover, degreasers, and cleaning solvents. Ketones are also used in industry for the manufacture of **plastics** and composites and in pharmaceutical and photographic film manufacturing. Because they have high evaporation rates and dry quickly, they are sometimes employed in drying applications.

Some types of ketones used in industry, such as methyl isobutyl ketone and methyl ethyl ketone, are considered both hazardous air pollutants (HAP) and volatile organic compounds (VOC) by the EPA. As such, the **Clean Air Act** regulates their use.

In addition to these industrial sources, ketones are released into the **atmosphere** in **cigarette smoke** and car and truck exhaust. More "natural" environmental sources such as forest fires and volcanoes also emit ketones. Acetone, in particular is readily produced in the atmosphere during the oxidation of organic pollutants or natural emissions. Ketones (in the form of acetone, beta-hydroxybutyric **acid**, and acetoacetic acid) also occur in the human body as a byproduct of the **metabolism**, or break down, of fat.

Resources

Periodicals

Wood, Andrew. "Cleaner Ketone Oxidation." *Chemical Week* (Aug 1, 2001).

Other

U.S. National Library of Medicine. *Hazardous Substances Data Bank*. [cited May 2002]. <<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>>.

Organizations

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