



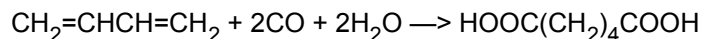
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## About Adipic Acid

**Adipic Acid** is an organic compound with the formula  $(\text{CH}_2)_4(\text{COOH})_2$ . It is the most important of the dicarboxylic acids from the industrial perspective. Approximately 2.5 billion kilograms of this white crystalline powder are produced annually, predominantly as a precursor for the production of nylon 66. **Adipic Acid** rarely occurs in nature.

Historically, **Adipic Acid** was prepared from various fats by oxidation. Currently, **Adipic Acid** is made from a mixture of cyclohexanone and cyclohexanol called "KA oil," the abbreviation of "ketone-alcohol oil." The KA oil is oxidized using nitric acid to produce **Adipic Acid**, via a multistep pathway. Early in the reaction, cyclohexane is converted to the ketone, which releases the nitrous acid.

Several methods have been developed by carbonylation of butadiene. For example, the hydrocarboxylation proceeds as follows:



A method has been reported that uses principles of green chemistry where water is the only by-product. Cyclohexene is oxidized with hydrogen peroxide using a tungstate-based catalyst and a phase transfer catalyst. Again, the only waste product is water.