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Citric Acid

About

Citric Acid exists in greater than trace amounts in a variety of fruits and vegetables, most notably citrus fruits. Lemons and limes have particularly high concentrations. **Citric Acid** can constitute as much as 8% of the dry weight of these fruits.

At room temperature, **Citric Acid** is a white crystalline powder. It can exist either in an anhydrous (water-free) form or as a monohydrate. The anhydrous form crystallizes from hot water. The monohydrate will form when **Citric Acid** is crystallized from cold water. The monohydrate can be converted to the anhydrous form by heating above 78°C. **Citric Acid** also dissolves in absolute ethanol at 15° C.

In chemical structure, **Citric Acid** shares the properties of other carboxylic acids. When heated above 175°C, it decomposes through the loss of carbon dioxide and water. **Citric Acid** leaves a white crystalline precipitate.

Citric Acid is a slightly stronger acid than typical carboxylic acids. This is because the anion can be stabilized by intermolecular hydrogen-bonding from other protic groups on **Citric Acid**.

The discovery of **Citric Acid** has been credited to the 8th century Islamic alchemist Jabir Ibn Hayyan. Medieval scholars in Europe were aware of the acidic nature of lemon and lime juices since the 13th century. The chemical was first isolated in 1784 by the Swedish chemist Carl Wilhelm Scheele, who crystallized it from lemon juice. Industrial-scale **Citric Acid** production began in 1890 based on the Italian citrus fruit industry.

In 1893, C. Wehmer discovered that penicillium mold could produce **Citric Acid** from sugar. However, microbial production of **Citric Acid** did not become industrially important until WWI disrupted Italian citrus exports.