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## Product Information

### Citric acid monohydrate

#### ACS Reagent

Product Number **C1909**

Store at Room Temperature

**Exact replacement for Product Code 24,752-9**

#### Product Description

Molecular Formula:  $C_6H_8O_7 \cdot H_2O$

Molecular Weight: 210.1

CAS Number: 5949-29-1

Citric acid monohydrate softens at 75 °C and melts at approximately 100 °C.<sup>1</sup>

$pK_a = 3.138, 4.76, 6.40^1$

This product is designated as ACS Reagent grade and meets the specifications of the American Chemical Society (ACS) for reagent chemicals.

Monohydrate crystals lose water of crystallization in dry air or when heated to about 40 to 50 °C.<sup>1</sup>

Citric acid is a key metabolic intermediate. Citrate is the starting point of the tricarboxylic acid cycle. Its concentration also coordinates several other metabolic pathways. Citric acid can form complexes with various cations, particularly with iron and calcium. In animals, citric acid improves the utilization of nutritional calcium. Citric acid is produced commercially by fermentation of carbohydrates derived from corn starch and from beet molasses.<sup>2</sup>

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

Citric acid is soluble in water: 54.0% (w/w) at 10 °C, 59.2% (w/w) at 20 °C, and 84.0% (w/w) at 100 °C.<sup>1</sup> The pH of a 0.1 N solution is 2.2 at 25 °C<sup>1</sup>.

#### Storage/Stability

The use of citrate buffers (pH 3-5) in numerous applications indicates excellent stability at room temperature. Dilute solutions of citric acid (non-sterile) may ferment if left at room temperature. Non-sterile solutions should be stable for months stored at 2-8 °C.

#### References

1. The Merck Index, 12th ed., Entry# 2387.
2. Concise Encyclopedia Biochemistry, 2nd ed., Scott, T., and Eagleson, M., Walter de Gruyter (New York, NY: 1988) p. 117.

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