



Product Information

Sodium citrate tribasic dihydrate

Product Number **C 0909**
Store at Room Temperature

Product Description

Molecular Formula: $C_6H_5Na_3O_7 \cdot 2H_2O$

Molecular Weight: 294.1

CAS Number: 6132-04-3

pK_a : 3.138, 4.76, 6.40¹

Synonym: Citric acid trisodium salt dihydrate

This product has been tested and found suitable for use in amino acid analysis.

Citric acid is a key metabolic intermediate. Citrate is the starting point of the tricarboxylic acid cycle, also known as the citric acid cycle or Krebs cycle. The citric acid cycle is a series of chemical reactions occurring in the cells of higher plants, animals, and many microorganisms. It is essential for the oxidative metabolism of glucose and other simple sugars. The reactions take a molecule of citric acid (originating from glucose) through several intermediate products; additional organic molecules are incorporated, and citric acid is regenerated. Each cycle releases hydrogen atoms, which are necessary for the next stage of the metabolic process to generate chemical energy for the organism. The concentration of citric acid also coordinates several other metabolic pathways.

Citric acid is used in citrate buffer, pH 3.0-6.2, and in citrate-phosphate buffer, pH 2.6-7.0.² Citric acid can form complexes with various cations, particularly with iron and calcium. In animals, citric acid improves the utilization of nutritional calcium. Sodium citrate has been used as an anticoagulant for the collection of blood.³

Citric acid is produced commercially by fermentation of carbohydrates derived from corn starch and from beet molasses.⁴

Precautions and Disclaimer

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

Preparation Instructions

Sodium citrate is soluble in water (770 mg/ml, 25 °C; 1.7 g/ml, 100 °C).¹ The pH of a 0.1 N solution is approximately 8.¹

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., Entries# 2387 and 8746.
2. Gomori, G., Preparation of Buffers for Use in Enzyme Studies. *Methods in Enzymology*, **1**, 138-146 (1955).
3. Ramsey, D.M., Anticoagulant. *J. Clin. Pathol.*, **30**, 766 (1977).
4. Concise Encyclopedia Biochemistry, 2nd ed., Scott, T., and Eagleson, M., Walter de Gruyter (New York, NY: 1988) p. 117.

MES/RXR 9/03

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