DL-Lactic acid

Product Number L 1250
Store at Room Temperature

Product Description
Molecular Formula: C₃H₆O₃
Molecular Weight: 90.08
CAS Number: 50-21-5
Melting point: 28-33 °C
Boiling point: 122 °C
Specific gravity: 1.249 (15 °C)²
Synonyms: Milk acid, 2-Hydroxypropionic acid⁴, r-Lactic acid⁵

This product is an approximately 85% (w/w) DL-lactic acid solution, containing equal amounts of D- and L-isomers. This product is a viscous liquid (syrup) with a molarity of 11.3 M, based on a density of 1.2 g/ml, a concentration of 85% (w:w) and a molecular weight of 90.08.

It has been shown that lactic acid derived from muscle glycogen can be converted into liver glycogen, which can in turn be converted into blood glucose. D-lactate was utilized four times more slowly than L-lactate, but both isomers are absorbed at the same rate from the intestine.⁵

In bacterial fermentations of milk, the lactose present in milk is hydrolyzed to glucose and galactose, and then fermented to L-, D- or DL-lactic acid. Lactic acid and casein form a curd at pH 4.6 (the isoelectric point of casein); this is important in cheese production. Certain strains of bacteria such as Lactobacillus, Streptococcus, Lactococcus, and Leuconostoc may metabolize lactic acid.⁶

Lactic acid is used as a reagent in organic synthesis (in the manufacture of adhesives). It is used in the leather, textile, and tanning industries.

It may be used as a plasticizer, a catalyst, or an acidifying agent. Lactic acid has even been used as a flavoring agent in the manufacture of tobacco products.⁷

To titrate this material, the solution can first be titrated with 1-2 N sodium hydroxide to a phenolphthalein endpoint at room temperature. However, this does not hydrolyze the lactic anhydride. The solution must be heated to boiling and the titration must be completed at this temperature.⁸

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

Preparation Instructions
This product is miscible with water (10%, v/v), yielding a clear, colorless to very faint yellow solution.

References
1. CAS Number 598-82-3, which has also been used for this compound, is retired. See www.cas.org.
3. The Merck Index, 12th ed., Entry# 5350.

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