

Lactic Acid, Its Salts, and Esters

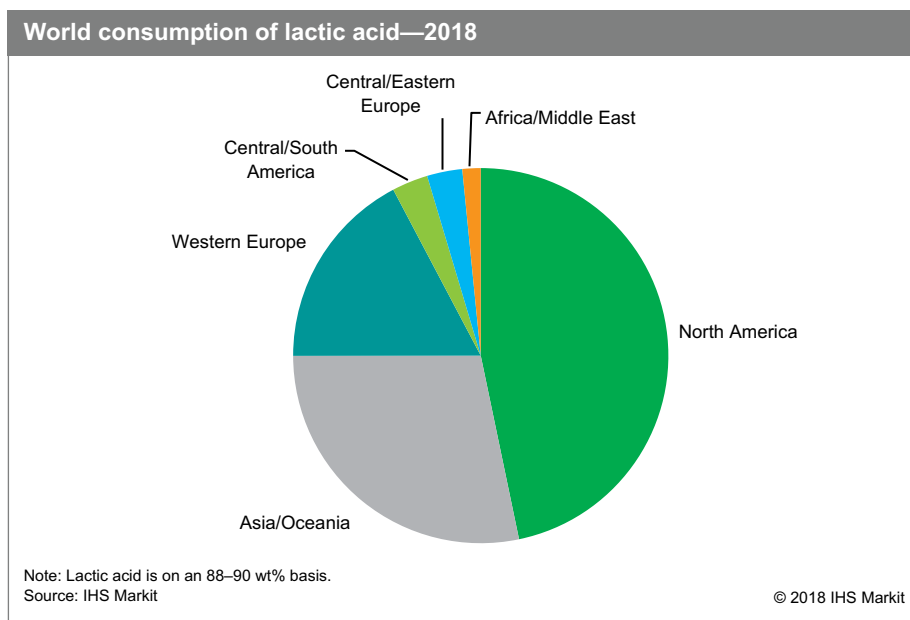
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Abstract

Lactic acid is widely used as an acidulant, flavor enhancer, and shelf-life extender in foods and beverages; its sodium and potassium salts have preservative and antimicrobial properties. Lactic acid also serves as the starting material for ethyl lactate, an environmentally friendly solvent, and polylactic acid (PLA), a biodegradable polymer.

North America was the largest consumer of lactic acid in 2018. Polylactic acid production was the major end use for lactic acid; food and beverage applications were second in importance. In Asia and Oceania—the second-largest consuming region—food and beverage applications drove consumption, with industrial end uses and PLA manufacture playing smaller roles.

The following pie chart shows world consumption of lactic acid, including consumption of lactic acid as such as well as its use in the production of derivatives (salts, esters, PLA, etc.):



Food and beverage applications accounted for the largest share of global lactic acid consumption in 2018. PLA manufacture was the second-largest end use. By 2023, PLA manufacture is expected to be the leading application for lactic acid.

Worldwide lactic acid consumption is forecast to increase at an average annual rate of 5–6% from 2018 to 2023. Robust demand growth is expected in China and Other Asia (especially Thailand) as a result of increased PLA production. In other regions, more moderate consumption growth is expected.

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In the United States, lactic acid consumption is driven by the growing PLA market. Demand for PLA in food-packaging applications and other established end uses continues to increase, and consumption of lactic acid for new industrial applications such as three-dimensional (3D) printing filament is growing (from a small base). Expansion of US lactic acid consumption for food and beverages will be somewhat limited by competition from alternative antimicrobial solutions such as vinegar.

Western European lactic acid use is driven by consumption in food and beverages. At present, the region has very limited PLA production capacity, relying on imports to satisfy demand. Consumption of lactic acid is expected to grow moderately during 2018–23.

In China, the food and beverage sector is the largest end-use segment; lactic acid and its salts serve as acidulants and preservatives, respectively. Consumption of lactic acid for PLA production (currently a comparatively small-volume end use) will increase significantly during the forecast period. Average annual consumption of lactic acid for PLA manufacture is expected to grow at double-digit rates during 2018–23. China is a significant exporter of lactic acid.

In Japan, the food and beverage sector is the largest end use for lactic acid, followed by industrial applications, pharmaceuticals, and personal care products. Japanese consumption of lactic acid and its derivatives is expected to grow moderately over the next five years. Japan relies on domestic production of lactic acid as well as on imports from China, Thailand, and other countries.

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