Abstract
Process Economics Program Report 236
CHEMICALS FROM RENEWABLE RESOURCES
(March 2001)

Driven by environmental concerns and the concept of sustainability, the chemical industry has seriously begun exploring bio-based or renewable feedstocks for producing chemicals. This transition to renewable feedstocks is impossible, however, without the development of the appropriate technology and infrastructure. Some of the technology developments which are needed and are currently underway include knowledge of biochemical and fermentation fundamentals and related progress in process technology and agricultural economics.

This report focuses on two chemicals that have had significant technical progress made towards developing routes from renewable feedstocks. The first is lactic acid which is already primarily manufactured by fermentation. The other is succinic acid, which is currently produced petrochemically but may be produced from renewable feedstocks in the future.

The conventional fermentation process for making lactic acid is difficult to scale-up due to the large quantity of salt wastes that are generated. Several new biotechnology-based developments are underway that promise to allow large scale lactic acid production at more efficient process economics. This PEP Report provides a detailed technical and economic comparison of conventional and newly developed fermentation processes for making lactic acid.

Succinic acid could serve as an intermediate to produce several larger volume chemicals if its price were to come down dramatically. Current production is based on petrochemical routes, but fermentation technology has been developed to make use of low cost renewable feedstocks. We evaluate the attractiveness of making succinic acid by fermentation in this PEP Report.

For those in the chemical industry, this report will be useful for the comparative economics it provides, as well as for its extensive review of the issues associated with renewable feedstocks. The report reviews the renewable feedstock infrastructure that is in place today and also provides some pricing history. An industry status section provides the state of the lactic acid and succinic acid markets and producers.
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