

PROCESS ECONOMICS PROGRAM

SRI INTERNATIONAL
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Abstract

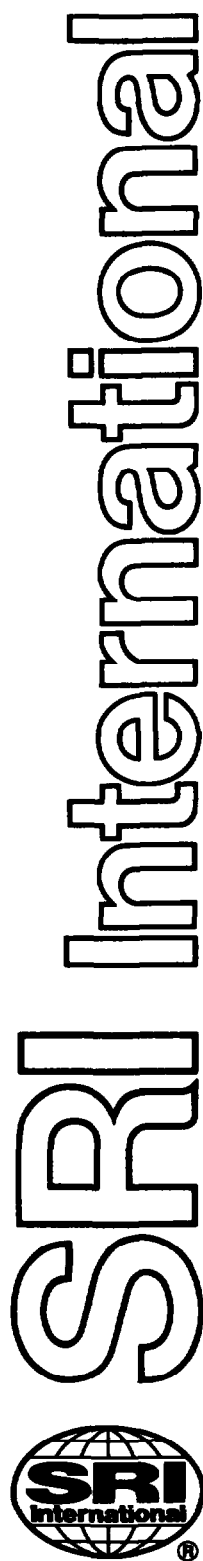
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BIOTECHNOLOGY SEPARATION PROCESSES

(December 1988)

Effluents from bioreactors are typically dilute aqueous media of cellular, intracellular, or extra-cellular products contaminated with impurities. This report is concerned with the technology for separating, recovering, and purifying the products from these media.

This report presents the typical downstream processes for the bioproduction of amino acids, pharmaceutical/clinical products, cellular products, enzymes, and industrial chemicals, and their selection considerations. It further reviews the unit operations used in these downstream processes, i.e., cell disruption, adsorption, centrifugation, chromatography, electrophoresis, extraction, filtration, and precipitation. It also contains cost correlations for selected equipment.



Report No. 188A

**BIOTECHNOLOGY
SEPARATION PROCESSES**

SUPPLEMENT A

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PROCESS ECONOMICS PROGRAM

Menlo Park, California 94025

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