

PROCESS ECONOMICS PROGRAM

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Abstract

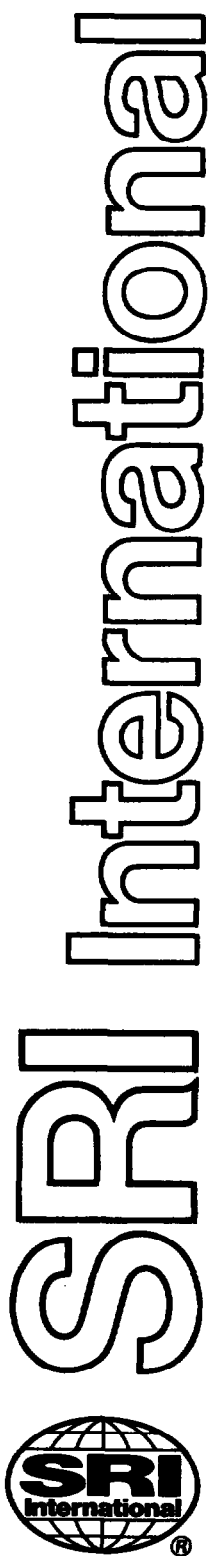
Process Economics Program Report No. 84A

SULFURIC ACID

(June 1985)

New (1980s) sulfuric acid plants that feed elemental sulfur are designed to recover much more energy from the process than was heretofore economically feasible, because energy prices have risen more rapidly than construction costs during the last decade. The retrofitting of old 1970s plants to increase energy recovery is also economically attractive in many cases. This report evaluates and compares typical new, old, and retrofitted plants.

In the United States and some other countries, for example, Canada, pollution control regulations have forced or will force sulfide ore processors to modernize their production units. The modernization usually entails replacing air with oxygen or oxygen-enriched air; this change increases the sulfur dioxide concentration in the off-gas from the ore processing unit. Thus, in the modernized unit, the associated sulfuric acid plant uses a sulfur dioxide concentration of 10-13.5 mol% in the feed to the converter, whereas in older plants, the concentration is 4-9 mol%. The higher concentration lowers the capital cost of the plants and reduces the net energy usage. The report evaluates this type of sulfuric acid plant, and illustrates the effect of sulfur dioxide concentration on costs.



Report No. 84A

SULFURIC ACID

SUPPLEMENT A

by **LLOYD M. ELKIN**

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A private report by the
PROCESS ECONOMICS PROGRAM

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For detailed marketing data and information, the reader is referred to one of the SRI programs specializing in marketing research. The CHEMICAL ECONOMICS HANDBOOK Program covers most major chemicals and chemical products produced in the United States and the WORLD PETROCHEMICALS Program covers major hydrocarbons and their derivatives on a worldwide basis. In addition, the SRI DIRECTORY OF CHEMICAL PRODUCERS services provide detailed lists of chemical producers by company, product, and plant for the United States and Western Europe.

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