



PROCESS ECONOMICS PROGRAM

SRI INTERNATIONAL
Menlo Park, California
94025

Abstract

Process Economics Program Report No. 135

NATURAL GAS LIQUIDS

Natural gas liquids (NGL) are the C₂+ liquefied hydrocarbons which are recovered above ground in natural gas field facilities or in gas processing plants. The report concerns the technology and economics of NGL recovery in gas processing plants by the following three most important processes in commercial use today:

- Expander
- Cascade refrigeration
- Refrigerated absorption.

The principal products are ethane, propane, isobutane, n-butane, and C₅+ natural gasoline. Capital investment and production costs have been calculated for the expander and cascade refrigeration processes at two natural gas liquids contents (2.32 and 6.26 gal/1,000 scf) and two levels of ethane recoveries (86 and 50%), and for the refrigerated absorption process at the same two natural gas liquids contents but only 50% ethane recoveries.

The study shows that, for an equivalent ethane recovery, the expander process has the lowest energy consumption as well as the lowest investment and product value (production cost +25%/yr ROI), followed by the cascade refrigeration and refrigerated absorption processes, in that order.

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JAMES J. L. MA

contributions by: CHING-SHIEN WU

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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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