



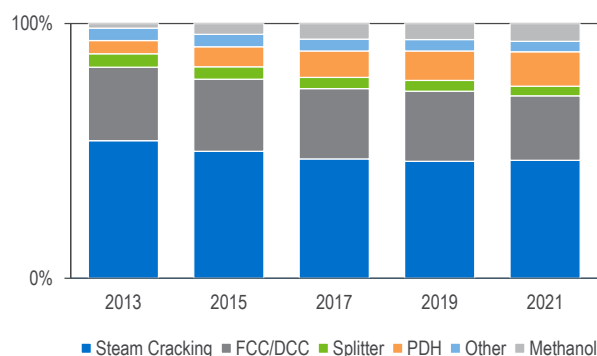
TECH 2021S1: Advances in Propane Dehydrogenation

Advances in Propane Dehydrogenation is one in a series of reports published as part of NexantECA's 2021 Technoeconomics – Energy & Chemicals (TECH) program.

Overview

Historically, the conventional routes to propylene production were as a byproduct of olefins production such as steam cracking, or recovery from refinery processes like fluid catalytic cracking. More recently, methanol-based propylene has become prevalent, but with the advent of the shale gas revolution in the United States, steam cracking focused more on lighter feedstocks, reducing propylene byproduct production. Furthermore, investments in ethane and NGL export capacity from the United States contributed to the conversion to lighter steam cracker feedstocks in other parts of the world, creating an imbalance in the conventional supply of propylene and leading to the growth in on-purpose propylene processes such as propane dehydrogenation.

Propylene Production Profile



This report provides a detailed description of the five PDH technologies offered for license and presents an analysis of the process economics for each offering.

The report addresses key issues such as:

- What are the differences between the different PDH technology offerings?
- Where are PDH plants in operation across the globe today and which technologies do they use?
- What is the cost competitiveness of the different PDH offerings, and which regions in the world provide attractive investment opportunities?

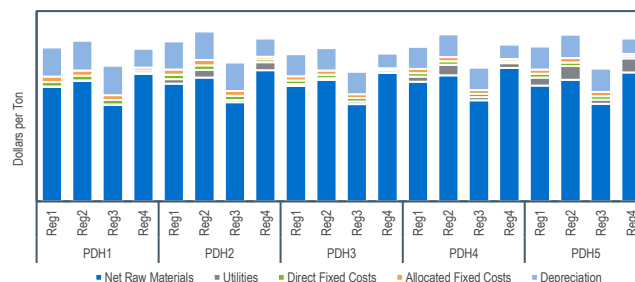
Commercial Technologies

This report covers in detail the three types of PDH technology (fixed bed, moving bed, and fluidized bed) that are available from five different technology licensors. The major technology licensors include Honeywell UOP, Lummus Technology, thyssenkrupp, Dow, and KBR.

Process Economics

Detailed cost of production estimates for the five PDH technology offerings are presented in this report under a typical world scale design basis. Regional production economics and investment analysis are provided for investments made in Western Europe, Middle East, China, and United States.

Regional Cost of Production Comparisons



Commercial Overview

Propylene is a primary petrochemical precursor in the production of five key derivative products that account for over 85 percent of global propylene consumption. Polypropylene production alone makes up two-thirds of global propylene consumption, with propylene oxide, acrylonitrile, cumene, and acrylic acid rounding out the top five largest consumers.

This report includes an overview of the supply, demand, and trade of propylene on both a global and regional basis including a market outlook to 2025, and recent business and capacity developments in propane dehydrogenation.



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The TECH program (formerly known as PERP) is globally recognized as the industry standard source of process evaluations of existing, new and emerging of interest to the energy and chemical industries.

TECH's comprehensive studies include detailed technology analyses, process economics, as well as commercial overviews and industry trends. Reports typically cover:

- Trends in chemical technology
- Strategic/business overviews
- Process Technology:
- Chemistry
- Process flow diagrams and descriptions of established/conventional, new and emerging processes
- Process economics – comparative costs of production estimates for different technologies across various geographic regions
- Overview of product applications and markets for new as well as established products
- Regional supply and demand balances for product, including capacity tables of plants in each region
- Regulatory and environmental issues where relevant

Subscription Options

A subscription to TECH comprises:

- PDF reports including detailed technology analyses, process economics, as well as commercial overviews and industry trends
- Cost of production tables in spreadsheet format
- Consultation time with the project team

An annual subscription to TECH includes twenty reports published in a given program year. Reports can also be purchased on an individual basis, including reports from previous program years.

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Technology and Costs comprises the Technoeconomics – Energy & Chemicals (TECH) program, the Biorenewable Insights program (BI), and the new Cost Curve Analysis. These programs provide comparative economics of different process routes and technologies in various geographic regions.

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