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U.S. Ethane Utilization – Domestic Petrochemical Production Versus Exports

Report Overview

Subjects Addressed:

- What are the alternatives for U.S. ethane utilization?
- What is the structure of the ethane value chain for both domestic use and for exports, and how will the structure change going forward?
- What will be the future U.S. ethane availability and pricing?
- How cost competitive will ethane be for domestic use and exports?
- What impact will the shale gas ethane revolution in the U.S. have on the U.S. and global petrochemical business?
- How will changes in U.S. ethane supply and pricing impact the comparative economics of the supply of chemical and petrochemical products from these markets to the main end-use markets of the Americas, Europe and Asia.

One of the side benefits of the U.S. shale gas boom has been the production of large quantities of ethane. Today, U.S. ethane supply exceeds demand, fractionation capacity to recover it, and pipeline capacity to transport it to markets. As a result, increasing amounts of ethane are being left in the natural gas to boost heating value, and reinjected where necessary.

Approximately 9 million metric tons per year (mtpy) of new U.S. ethane-based ethylene capacity is considered by Nexant to be firm. An additional 14 mtpy of capacity is at various stages of development. Final approval of this additional capacity depends on obtaining the required permits, ethane supply commitments, final capital cost estimates, and corporate approval and financing. However, ethane export has emerged as a real alternative which needs to be assessed.

The report addresses the following key issues:

Existing and Forecast U.S. Ethane Supply and Demand

Natural gas production is forecast as one key driver of ethane availability as is the outlook for ethane content in U.S. natural gas. Forecast demand considers ethane left in natural gas, ethane use for domestic petrochemical production, and ethane exports.

Comparative Economics of Ethane as a Feedstock for Domestic Petrochemical Production versus for Ethane Exports

The report compares the current and future economics of ethane as a domestic feedstock for ethylene and polyethylene production versus ethane export to Europe, South America, or Asia, used as a petrochemical feedstock for the respective products in crackers modified to use ethane. The competitiveness of U.S. polyethylene exports to these regions are compared with local production based on ethane imports from the United States.

Ethane Price Forecast

U.S. ethane price is forecast based on projected supply and demand and the economics of use a domestic petrochemical feedstock and in exports.

Competitiveness with Alternative Downstream Product Technologies

The study assesses the competitiveness of ethane-based ethylene and polyethylene production either in the United States or in Asia with methanol to olefin (MTO) technology followed by polyethylene production. It compares coal-based methanol to MTO in China or MTO in China based on imported methanol from the United States or other advantaged natural gas location.

The report provides a valuable resource for chemical and petrochemical companies in deciding how to respond to one of the greatest potential opportunities in the U.S. petrochemicals industry in a generation.

For information regarding the ***U.S. Ethane Utilization – Domestic Petrochemical Production Versus Exports*** report, please contact STMC@nexant.com.

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