Abstract
Process Economics Program Report No. 204
ECONOMICS OF PETROCHEMICAL COMPLEXES
(February 1991)

Resurgence of the basic petrochemicals industry during the second half of the 1980s has resulted in many grass roots petrochemical complexes being planned for the early to mid-1990s, in a variety of global locations.

In this report we evaluate the economics of new petrochemical complexes in 10 regions of the world, using prevailing market prices during the fourth quarter of 1989. The regions studied are Brazil, Western Canada, China, Indonesia, Japan, Saudi Arabia, South Korea, Taiwan, the U.S. Gulf Coast, and West Germany.

We evaluate production economics for ethylene based on five alternative feedstocks (ethane, propane, butane, wide range naphtha, and atmospheric gas oil). The ethylene derivatives evaluated are high-density polyethylene, linear low-density polyethylene, ethylene glycol, ethylene dichloride, polyvinyl chloride, styrene, polystyrene, linear alpha olefins, and ethanol. Propylene derivatives evaluated are propylene homopolymer, propylene block copolymer, acrylonitrile, propylene glycol, cumene, 2-ethylhexanol, and isopropyl alcohol.

We then convert the production economics for ethylene and for individual ethylene and propylene derivatives to site-specific economics for each of the 10 regions. Lastly, we combine data from the individual steam cracker and olefin derivative studies to create four petrochemical complex configuration and we evaluate the region-specific production economics for each complex configuration.
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