Chlor-Alkali Process Summary

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Ron Smith
Sr. Principal Analyst
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Abstract

In this process summary, we review current chlor-alkali production processes and present key features and production economics of four competing processes: (1) mercury cell, (2) diaphragm cell, (3) membrane cell, and (4) membrane cell with oxygen depolarized cathode (ODC), in four major global regions. The process economics include estimated capital costs, variable costs, direct costs, plant cash costs, and full production costs in second quarter 2016 (snapshot economics). We also present carbon footprint and water consumption comparison data for the four competing processes. A brief market overview summarizes the global supply and demand and end-use markets and demand drivers. The status of chlor-alkali process licensors and their offerings are also discussed.

The second quarter 2016 snapshot economics are obtained by using unit price of raw materials, by-products, utilities, labor, and construction cost at the time. To take into account of the fluctuation of prices, this review highlights a new iPEP Spectra™ cost module, developed by the IHS Chemical Process Economics Program (PEP), in which production economics are presented in a time series from 2000 to second quarter 2016, quarterly. The iPEP Spectra™ data module is written in Microsoft Excel pivot tables, which provides a powerful interactive tool to allow our clients maximum flexibility in selecting competing technology and production location and comparing production cost at various levels, such as variable costs, cash costs, or full production costs, as well as margins. The cost module is attached with this process summary on the PEP website. An iPEP Spectra™ historical economics comparison provides a more comprehensive way to compare economics of competing technologies over a long period of time, leading to a more valid investment decision.
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IHS Customer Care:
Americas: +1 800 IHS CARE (+1 800 447 2273); CustomerCare@ihs.com
Europe, Middle East, and Africa: +44 (0) 1344 328 300; Customer.Support@ihs.com
Asia and the Pacific Rim: +604 291 3600; SupportAPAC@ihs.com