Abstract
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POLYCARBONATE VIA DOW PHOSGENATION PROCESS
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ABSTRACT

PEP has studied a number of polycarbonate processes over the years in a series of reports [PEP050-PEP050E]. Many of the designs have focused on patents by the largest industry players like SABIC and Bayer. Recent studies have focused on non-phosgene routes because of the hazards associated with using phosgene, and because research trends on new technology are aimed away from phosgene. However, many facilities continue to operate phosgene-based process technology, so this review revisits phosgenation technology in the market. Rather than simply rehash designs based on previous reports using Bayer and GE patents, this Review focuses on technology mainly from Dow Chemical patents. Plug flow polymerization and custom designed agglomeration are some aspects unique to the Dow style configuration.

This PEP Review, similar to all PEP Reviews and PEP Reports, represents an internally developed conceptual design and economic evaluation of process technology disclosed in patents and other public domain literature. The technology depicted here is derived primarily from Dow Chemical patents. We have entitled this PEP Review as “Polycarbonate via Dow Phosgenation Process” for brevity, but no explicit Dow operational information or data was used in the effort. Therefore, we can offer no guarantee, either explicit or implied, that the process technology exactly matches any Dow Chemical facility. Neither Dow Chemical nor Styron (the current owner of Dow’s polycarbonate business) supplied any additional information, nor confirmed or denied any aspect of the design. However, we do believe that the design suitably represents Dow technology as spelled out by various patents sufficiently to estimate the economics of the technology within the accuracy attributed to conceptual design evaluations.
POLYCARBONATE VIA DOW PHOSGENATION PROCESS

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November 2011

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