



## PERP Report 2017-5: Bisphenol-A (BPA)

“Bisphenol-A (BPA)” is one in a series of reports published as part of the 2017 Process Evaluation/Research Planning (PERP) Program.

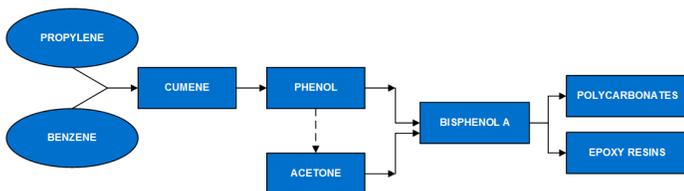
### Report Overview:

Technology for the production of Bisphenol-A (BPA) is almost entirely based on condensation of phenol with acetone, and is quite mature, with several well established licensed processes. Most technology development has centered on replacing the HCl catalyst with an ion-exchange resin (IER) catalyst with a mercapto-based promoter, as well as distillation and crystallization processes for BPA purification. Resin bound promoters are favored by some licensors on the basis that they are greener and easier to handle than free mercaptan.

BPA process technology is available for license from several companies, including Badger and MEXEO. Some producers also have their own proprietary technology which they do not license widely (e.g., Covestro and Mitsui).

BPA is used almost entirely to make polycarbonate plastic and epoxy resins. Polycarbonate is the largest application and accounted for 65 percent of BPA demand in 2016. BPA also functions as a chemical intermediate since it can be readily halogenated, hydrogenated, and sulfonated.

BISPHENOL-A VALUE CHAIN



This PERP report offers a review of chemistry, technology, process economics and market trends of BPA. The following issues are addressed in the report:

- Who are the main technology holders of BPA? Who licenses and/or owns its technology?
- What is the current status of health concerns associated with BPA in North America and Europe?
- What are some of the strategic and business considerations surrounding BPA?
- What are some of the recent development trends on the technology for producing BPA?
- Who are the top ten producers of BPA?

- How the process economics for IER or HCl catalyst based BPA processes compare across several different global locations?
- What is the estimated global consumption of BPA for polycarbonate and epoxy resins in 2016?
- How is the BPA market situation in Asia? Is the region short or long in BPA?

### Process Economics

Detailed BPA cost of production estimates are presented for:

- Ion Exchange Resin Catalyst; USGC Basis
- Ion Exchange Resin Catalyst; Western Europe Basis
- Ion Exchange Resin Catalyst; China Basis
- Hydrochloric Acid Catalyst; USGC Basis
- Hydrochloric Acid Catalyst; Western Europe Basis
- Hydrochloric Acid Catalyst; China Basis)

### Market Review

Global BPA consumption was estimated at more than 5.6 million tons in 2016. This PERP report provides an overview of global and regional demand, supply, and trade balances for BPA. Also included is an overview of key BPA end-use applications such as polycarbonate resins, epoxy resins, unsaturated polyester resins, phenoxy resins, polysulfone resins, and BPA/formaldehyde resins.

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