PCMax™
Polycarbonate Technology

TECHNOLOGY ADVANTAGES

- **Safety:** Minimal inventory of phosgene, independent containment, high integrity safety system
- **Wide Range of Products and Product Applications:** Melt flow rate from 2.5 to 40
- **Low Base Color:** Easy to color
- **High Thermal Stability of Product:** Critical for blends and electronic applications
- **Consistent Product Properties**

VERSATILE POLYMER FOR THE WORLD’S GROWING NEEDS

Polycarbonate (PC) is a high-performance material used in a variety of products such as electronics, construction materials, data storage and automobiles. PC is strong and impact-resistant, yet delivers optical clarity and superior heat insulation properties.

PC consumption is expected to increase globally. As more cell phones, computers and automobiles are sold, more PC will be needed to satisfy the demand for those consumer products.

KBR offers polycarbonate synthesis and compounding technologies that produce a wide range of product grades and deliver high-quality products with minimal capital investment.

PCMAX: A PHOSGENE-BASED PC TECHNOLOGY

By choosing KBR PCMax, clients can make high-quality polycarbonate for specialty applications, including some specs that cannot be achieved with nonphosgene-based technology.

PCMax is an engineering process and service that is reliable, mature and proven. Interfacial PC technology has over 25 years of commercial operation. We license and design both PC synthesis and compounding plants for use around the world.

PCMax delivers several advantages over competing PC technologies:

- Wide range of product grades, with melt flow ratings (MFR) ranging from 2.5 to 40
- Superior molecular weight control
- Consistent low base color
- High thermal stability
- Simple and stable operations
- Lower capital and operating costs
- Capability to transition quickly from one product to another
- Agglomeration and devolatilization technology produces low residual solvent and catalyst in polymer
- Demonstrated single-train capabilities greater than 80 kta polycarbonate

KBR is also a global licensor of complementary phenolics technologies, offering world-class phenol and bisphenol-A (BPA) licensed engineered packages in addition to polycarbonate technology. An integrated phenolics offering from KBR provides advantages in raw materials, utilities, OPEX and maintenance costs.

**PROCESS OVERVIEW**

The PCMax process is based on the traditional interfacial process, where bisphenate is phosgenated in the presence of an organic solvent to form the polycarbonate. This reaction takes place in two phases: an aqueous phase of sodium bisphenate, and an organic phase of methylene chloride where the pre-polymer is formed and dissolved in the organic phase. The polycarbonate in the methylene chloride is then neutralized with aqueous HCl and washed with water, followed by the devolatilization of the methylene chloride with steam and then dried. Compounding occurs in a separate operation where PC flakes are densified and compounded with additives to produce the desired finished PC products.