



## this month's topic **Materials**

### **Epoxy Combines Toughness with Chemical and Abrasion Resistance**

Combining the benefits of epoxy resins and polyurethanes, the Master Bond Polymer System EP30D-7 offers superior strength, flexibility, abrasion resistance and toughness. This two-component epoxy is ideal for bonding, sealing, coating and encapsulating in a variety of chemical process applications. Its lower exotherm also makes it suitable for casting and potting in cross-section thicknesses of over one inch. Serviceable over the wide temperature range of  $-100^{\circ}\text{F}$  to above  $250^{\circ}\text{F}$ , EP30D-7 is designed to cure at room temperature (or more rapidly at elevated temperatures) with minimal shrinkage. The system is 100% reactive and contains no solvents or diluents. The material has a tensile strength above 1,600 psi, a Shore A hardness of 90, an elongation of more than 40%, and a dielectric constant exceeding 400 V/mL.

**Master Bond**

[www.masterbond.com](http://www.masterbond.com)

### **Solid Catalysts Enable Lower-Temperature Processing of Pre-Polymeric Mixes**

Bac2 has expanded its CSR family of latent-acid catalysts, which were previously available only in liquid form. The new solid catalysts enable safer storage, transportation and processing of pre-polymeric mixes, and they are particularly well-suited for being blended into dry mixes or added to nonaqueous pre-polymers. The most common latent catalyst salts often require too high a temperature to break down and release the acid, and weaker basic primary and secondary amines do not associate with strong acids to form a salt stable enough to prevent premature catalysis. Furthermore, high-temperature processes are energy-intensive and costly. These CSR latent

catalysts decompose rapidly at  $120^{\circ}\text{C}$ , releasing the acid so it can be used to control acid-catalyzed polymerization processes, including phenol-formaldehyde resoles, furfuryl alcohol resins, and amino-formaldehyde resins. These resins are used in the manufacture of laminates, composites, glass-reinforced plastics, foam insulation, abrasives, and other products.

**Bac2**

[www.bac2.co.uk](http://www.bac2.co.uk)

### **Water-Soluble Film Boasts Improved Crystal Clarity**



The MonoDose family of products includes water-soluble films that are used for individually packaging pre-measured doses of products. When the filled sachets are introduced to water, the film completely dissolves, releasing the product. While existing films in the MonoDose family generally have a clear appearance, they do retain a slight haze as a result of the chemical makeup of the film and the production process. By comparison, the latest addition to the family — the water-soluble MonoDose Crystal — is a new polyvinyl alcohol film that produces ultra-high-clarity sachets that are ideal for a wide variety of consumer and commercial products that are packaged in unit doses.

**MonoSol LLC**

[www.monosol.com](http://www.monosol.com)

### **Brighter Resins Improve Aesthetics and Offer Better Impact Properties**

Using Millad NX8000 clarifiers from Milliken Chemical (which are said to provide a fourfold improvement in

yellowness index and can be molded at lower temperatures), this firm now offers several new polypropylene polymer grades that provide peak brightness and improved aesthetics compared to existing offerings. The two new PP3 random copolymer grades enable the production of housewares and other products with a brighter and cleaner look. The Pinnacle 5135C3 and 5155C3 resins enable shorter cooling times and a broader processing window, which can provide cycle-time reductions of up to 26%. Lower molding temperatures can reduce energy consumption by up to 22%. The PP3 resins achieve a yellowness index rating of  $-15$ , which compares favorably to the  $-2.5$  level typical of standard clarified polypropylene.

**Pinnacle Polymers LLC**

[www.pinnaclepolymers.com](http://www.pinnaclepolymers.com)

### **Novel Copolymer Dispersion is Ideal for Adhesives Formulations**

Vinnapas EP 1400 is a high-performance base polymer characterized by high setting speed and good machine properties. This aqueous copolymer dispersion, based on vinyl acetate and ethylene (VAE), is designed for adhesives for the paper and packing, laminating, and product-assembly industries. The VAE technology makes it possible for users to simplify adhesive formulations using fewer additives, thereby reducing costs. With a glass-transition temperature of  $0^{\circ}\text{C}$ , the material also provides fast film formation, high setting speed, good machine processability, and excellent mechanical properties. It is produced without using alkylphenol ethoxylates, has a low formaldehyde content ( $<10$  ppm), and makes it possible to formulate adhesives with a low content of volatile organic compounds.

**Wacker Chemie AG**

[www.wacker.com](http://www.wacker.com)