A new family of high-perfo with renewable resources

DuPont Engineering Polymers announced at the National Society of Plastics Engineers (NPE) conference at Chicago in June 2006 that it is moving forward with plans to produce a new family of high-performance thermoplastic resins and elastomer products made with renewable resources.

by Dr Nandan Rao, Global Technology Director, DuPont Engineering Polymers

DuPont Engineering Polymers is on track with plans to produce a new family of high-performance thermoplastic resins and elastomer products made with renewable resources.

The new products are DuPont™ Sorona® polymer and DuPont™ Hytrel® made with renewable resources. The key ingredient in Sorona® is Bio-PDO™, which is derived from corn sugar using a patented and proprietary fermentation process. Bio-PDO™ is a replacement for petrochemical-based, 1,3-propanediol (PDO) and/or 1,4-butanediol (BDO). DuPont Hytrel® made with renewable resources will be produced using a new DuPont polyol made with Bio-PDO™.

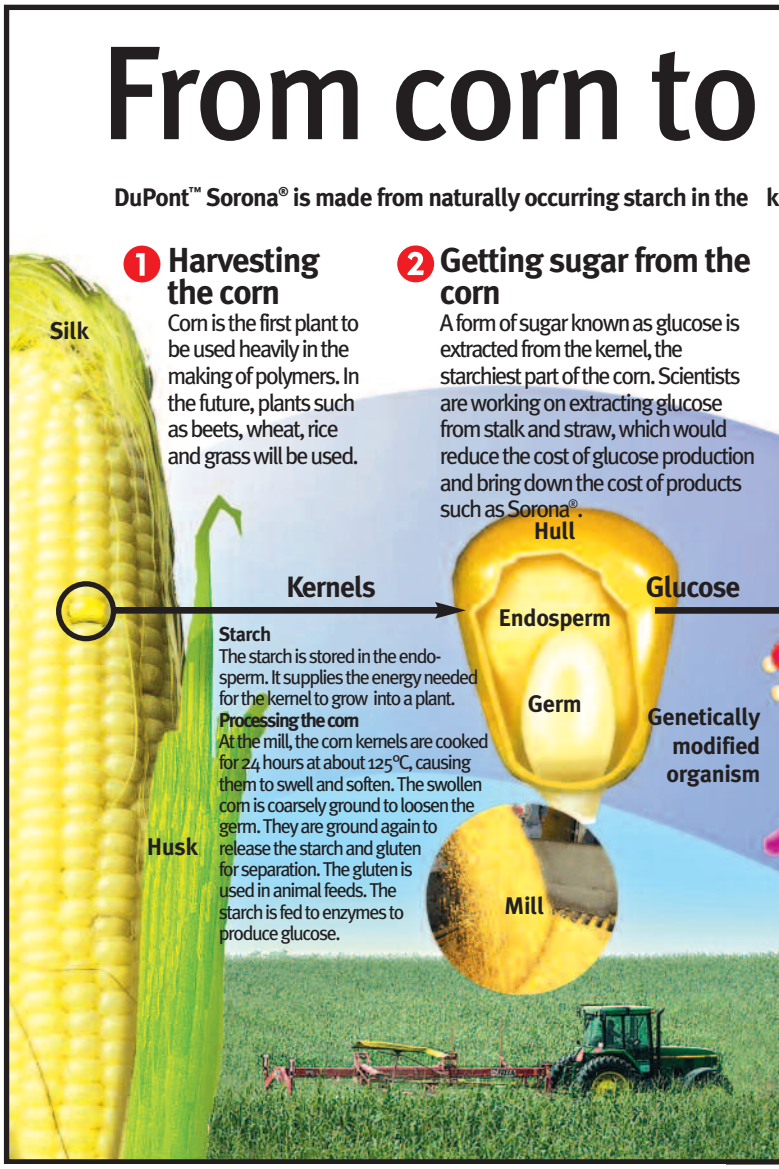
DuPont™ Sorona® with Bio-PDO™ will be available in mid-2007 and DuPont™ Hytrel® with renewable resources will be available in the fourth quarter of 2007.

With these new products, DuPont will be able to offer customers the benefits of renewably-sourced materials – reduced dependence on petrochemical sourcing and a positive impact on the environmental life cycle of their products. In addition to replacing petrochemicals with renewable resources, the manufacturing of Bio-PDO™ requires approximately 40 percent less energy to produce than its petrochemical-based counter-part – saving the equivalent of about 38 million litres *(10 million gallons)* of gasoline per year, based on annual production volumes of 45,000 tonnes *(100 million pounds)* of Bio-PDO™.

Both of these new products will contribute to DuPont's corporate goal of deriving 25 percent of its revenue from non-depletable resources by 2010.

The performance and processing characteristics of both Sorona® and Hytrel® made with renewable resources are as good as or better than those of current products made wholly from petrochemicals. Each of the new polymers based on renew-able resources has special per-formance attributes that may drive choices in some applications.

Among engineering plastics, Sorona® exhibits performance and processing characteristics similar to PBT (polybutylene terephthalate). In addition to good strength and stiffness, the polymer has improved surface appearance and gloss, and good dimensional stability making it very attractive in a range of uses for automotive parts and components, electrical and electronic systems and industrial and consumer products.



Preliminary evaluations comparing Hytrel® made with renewable resources to current Hytrel® show improvements in prop-erties such as temperature range and elastic recovery. Moreover, applications for Hytrel® made with renewable resources are extensive. Examples of major uses include extruded hose and tubing for automotive and other industrial uses, blow molded boots for automotive constant-velocity joints, and injection-molded parts such as air bag doors and energy dampers.

Today, many of our customers are looking for high-performance and high quality products that are based on sustainable solutions – from renewable resources to those that offer cradle-to-cradle business propositions. DuPont Engineering Polymers is aggressively seeking and developing new technologies and manufacturing techniques that offer the benefits of renewable materials to our customers and the entire value chain. Companies with a buying preference for products based on non-petrochemical sources, either because of concerns with raw material availability or because of the

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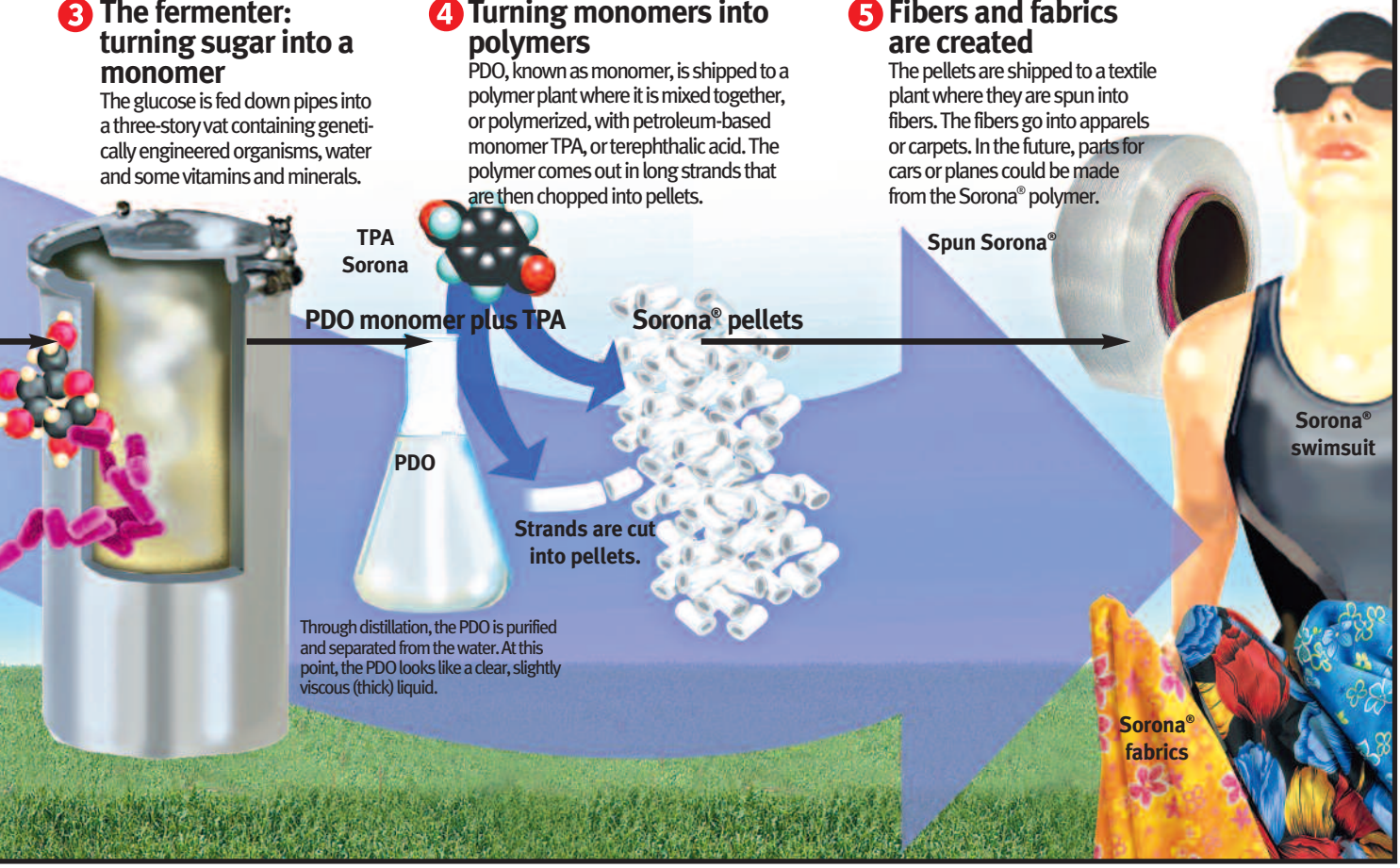
polymers and fibers

ernels of corn. In the next five years, researchers plan to find ways to use starch from the entire plant.



The key ingredient in DuPont™ Sorona® polymer is Bio-PDO™, which is derived from corn sugar using a patented and proprietary fermentation process.

societal benefits, will likely be very interested in these developments.

Making engineering polymers from renewable resources

Loudon, Tennessee (USA) will be home for the world's largest aerobic fermentation plant for the production of Bio-PDO™. The plant is owned and operated by DuPont Tate & Lyle BioProducts, an equally-owned joint venture of DuPont and Tate & Lyle. It is scheduled to come on stream later this year and will produce 100 million pounds of Bio-PDO™ (over 45,000 metric tons) per year.

Sorona® polymer is made by polymerizing Bio-PDO™ with either terephthalic acid (TPA) or dimethyl terephthalate (DMT). Sorona® polymer with Bio-PDO™ will be produced at the DuPont plant in Kinston, North Carolina (USA), and ready-to-mold compounds will be produced in Parkersburg, West Virginia (USA).

Both Hytrel® products have polymer chains consisting of hard and soft segments. Hytrel® made with renewable resources will offer soft segments produced with a bio-based polyol instead of a petrochemical polyol. The bio-based polyol and Hytrel® made with renewable resources can be produced in DuPont's existing facilities.

DuPont is a world leader in the development and manufacturing of high performance materials that provide environmentally sustainable solutions through the use of bio-based manufacturing processes and renewable, farm-grown feedstocks, rather than petroleum.

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