

DuPont Sustainability Activities 2008

Putting Science to Work...Sustainable Solutions

New Products/Processes/Applications

Renewably Sourced

- DuPont expanded its renewably sourced portfolio of offerings for the packaging market with the launch of new DuPont™ Biomax® TPS thermoplastic starch and DuPont™ Biomax® PTT (polytrimethylterephthalate) injection moldable resin.
- DuPont has introduced DuPont™ Active Layer RS renewably sourced moisture barrier films for use in carpet cushioning. Active Layer RS films contain a minimum of 20 percent renewably sourced content by weight, derived from naturally occurring fatty acids, and replaces existing moisture barrier films that are entirely petroleum-based. The product's initial application is in carpet cushioning from Carpenter Company, one of the largest producers of carpet cushioning in the U.S.
- Breakthrough bio-based ingredient, Zemea® propanediol, has been independently evaluated by NSF International and now is listed in the CleanGredients® database as passing the U.S. Environmental Protection Agency (EPA) Design for the Environment (DfE) screen. Zemea® is produced and marketed by the DuPont Tate & Lyle Bio Products joint venture.
- New Biomax® Thermal increases the temperature threshold of PLA, extending its use to non-chilled food packaging applications. DuPont is expanding its DuPont™ Biomax® packaging offerings to include renewably sourced Biomax® Thermal 300 heat-stabilizing modifier that allows polylactic acid (PLA) thermoformed packaging to withstand elevated temperatures during transport, storage and use. Its introduction extends the use of PLA -- a bio-based alternative to petrochemical-derived products -- to applications beyond chilled foods and beverages.

Energy Efficiency

- DuPont announced the global availability of Hybrid Membrane Technology (HMT) fiber in air filtration bag applications for industrial and commercial manufacturing. The product increases cycle time up to nine times over the incumbent polyester felt, with an improvement in energy efficiency. These fibers capture up to 10 to 15 times more dust and particulates in the air compared to incumbents, providing a cleaner environment for workers and consumers inside and outside manufacturing facilities.
- DuPont announced that its reinforced DuPont™ Zytel® nylon resin has replaced steel in exhaust system parts on all Volkswagen vehicles built on the current Golf platform, cutting weight of the component by nearly 50 percent.
- Bollig & Kemper, a German manufacturer of coatings for the European auto industry, has signed a license agreement for DuPont EcoConcept, a patented coatings technology that enables auto manufacturers to realize substantial reductions in energy use, environmental emissions and capital costs.

- When construction on the Old Faithful Visitor Education Center at Yellowstone National Park is complete, it will have been outfitted with DuPont™ Tyvek® Weather Barrier Systems. The DuPont products used in the building, along with others throughout the park, are helping to reduce Yellowstone's overall energy consumption, as well as prepare it for increased visitation while mitigating risk to its natural resources.

Recycled Content

- DuPont launched a new collection of surfaces – the DuPont™ Zodiac® Terra Collection – with four new colors that contain at least 50 percent pre consumer recycled glass.

Emission Reductions

- DuPont started up a plant in El Paso, Texas, and in the process of starting up a facility in Linden, N.J., that will help refineries reduce their environmental footprints with on-site spent sulfuric acid regeneration and sulfur gas recovery services with significant reductions in sulfur dioxide emissions. The custom-designed DuPont facilities that are built on refiners' facilities will provide for efficient and environmentally superior management of the sulfur gas processing while providing a cost effective and reliable sulfuric acid regeneration service for the refineries.

Green Chemistry

- DuPont achieved a significant milestone with the registration of 125 patent families consisting of more than 600 patents and applications worldwide for DuPont™ Cyrel® flexographic printing technologies. Cyrel® FAST is a dry, thermal technology for processing flexo plates exposed digitally by the Cyrel® Digital Imager or conventionally with film. The Cyrel® FAST system completely eliminates conventional chemical solvents and aqueous washout solutions. In addition to the environmental benefits, the technology reduces platemaking times by up to 70 percent, saving customers time and money over alternative processing methods.

Safer

- To help address infection control during everyday hospital operations and minimize risks during times of health crisis, DuPont™ Corian® solid surface, has been selected by the Washington Hospital Center for its emergency department. The product recently was incorporated into a children's ward at the Roswell Park Cancer Institute in Buffalo, N.Y.
- M-25 portable fuel cell, which combines DuPont's direct methanol technology with SFC Smart Fuel Cell AG's commercially proven fuel cell systems, products, and integration expertise, has been deployed for its first limited use in the field for the U.S. Army. DuPont's fuel cell technology represents a major breakthrough in portability that will benefit soldiers through significant weight reduction, while providing a prolonged source of power.
- DuPont™ Kevlar® XP™, a new patented technology that provides ballistic and trauma protection in a more comfortable body armor solution was launched.
- Launched a new DuPont™ Tychem® BR garment, certified to the National Fire Protection Agency (NFPA) 1994 Class 2, 2007 edition standard. The new DuPont™

Tychem® garment is lighter weight and less cumbersome than a traditional fully encapsulated suit. It provides increased vapor and liquid protection, is easier and faster to change into and is more cost-effective than traditional garments.

- DuPont and Epcon Communities announced an agreement to provide the DuPont™ StormRoom™ with Kevlar® to Epcon's 138 builder franchisees in 30 states. The agreement makes DuPont a national account supplier to Epcon Communities, allowing consumers purchasing an Epcon Communities home to have access to the StormRoom™ and incorporated into the existing home design.
- DuPont submitted documentation related to DuPont™ Light Stabilizer 210, a new titanium dioxide product with a sizeable percentage of particles in the nanoscale, as a demonstration of its support for the new U.S. Environmental Protection Agency (EPA) Nanoscale Materials Stewardship Program (NMSP). This submission is the first received by the EPA under the new program.

Research and Customer Service Centers and Capacity Expansions

- DuPont opened the first storm shelter testing center in Delaware. The multi-million dollar facility will allow the company to test different materials for its DuPont™ StormRoom™ with Kevlar®. DuPont also will use the site to develop new technologies that will further help protect people and property during dangerous storms.
- Construction will begin soon on a research center in Hong Kong and a manufacturing facility in Shenzhen to support the rapidly growing photovoltaic (PV) solar energy industry.
- To meet the needs of the fast-growing photovoltaic (PV) solar energy market, DuPont will expand production of DuPont™ Solamet® thick film metallization pastes at its Electronic Materials DuPont Dongguan Ltd. (EMDD) facility in China
- The cellulosic ethanol joint venture, DuPont Danisco Cellulosic Ethanol LLC (DDCE), broke ground for its first pilot-scale biorefinery and state-of-the-art biofuels research and development facility in Vonore, Tenn. The joint venture partnered with the University of Tennessee Research Foundation, through Genera Energy LLC, to develop the pilot facility and the agronomic supply chain for switchgrass in Tennessee. The facility will convert non-food feedstocks, including corn cob and switchgrass, into ethanol and will allow for commercial introduction without the need for demonstration scale testing.

Partnerships

- DuPont and Arcadia Biosciences, Inc., launched a research and commercial agreement to improve nitrogen use efficiency in corn. Under the agreement, DuPont business Pioneer Hi-Bred has exclusive rights to Arcadia's proprietary technology for improving nitrogen use efficiency in corn

- DuPont and the United States Department of Agriculture (USDA) Agricultural Research Service (ARS) are teaming up to find new ways to detect an E. coli strain in beef that, even in low concentrations, can cause severe illness.
- DuPont and BP have announced that the partnership to develop and commercialize biobutanol is targeting advanced metabolic pathways for 1-butanol as well as other higher octane biobutanol isomers. The companies also announced that testing of these advanced biofuels demonstrates the use of biobutanol can increase the blending of biofuels in gasoline beyond the current 10 percent limit for ethanol without compromising performance.
- DuPont and Genencor, a division of Danisco A/S, agreed to form DuPont Danisco Cellulosic Ethanol LLC, a 50/50 global joint venture to develop and commercialize the leading, low-cost technology solution for the production of cellulosic ethanol -- a next generation biofuel produced from non-food sources – to address a \$75 billion global market opportunity.
- DuPont and The Energy and Resources Institute (TERI) signed a memorandum of understanding (MoU) to promote the cause of green building design and certification in India.

Part of the Dialogue...Part of the Solution

Market Trends

- Nearly seven out of 10 U.S. consumers (65 percent) are willing to pay more for products made with renewable resources. The nationally representative survey, sponsored by DuPont and Mohawk Industries, queried 1,001 U.S. homeowners to identify consumers' personal attitudes and behavior toward environmental responsibility.
- A survey conducted by DuPont and the Society of Automotive Engineers (SAE) shows that environmental issues top the list of challenges facing the automotive industry, outranking cost reduction for the first time in 14 years.

Contributions

- DuPont, through its Pioneer Hi-Bred business, announced that it is making publicly available genomic sequences of a major fungal pathogen of corn plants to enable scientists worldwide to more quickly complete the sequence of this pathogen and to accelerate disease-resistance studies. Pioneer is donating the sequences to GenBank®, the publicly available genetic sequence database of the National Institutes of Health (NIH).
- DuPont announced a \$1 million contingent donation to fund the establishment of a permanent home for the World Food Prize in Des Moines. The donation will support the transformation of the former Des Moines Public Library into the Norman E. Borlaug Hall of Laureates and will be administered through DuPont business Pioneer Hi-Bred.

- DuPont will partner with customers and make an initial donation of more than 30 innovative products and services worth nearly \$750,000 to help rebuild homes and businesses in tornado-ravaged Greensburg, Kan. The donation also includes funding for two Habitat for Humanity homes.

Thought Leadership

- “China has a major opportunity to innovate, influence and grow in pursuit of sustainability,” DuPont Chairman and CEO Charles O. Holliday, Jr. said at the ninth annual China Development Forum. “In 2020, sustainability will be a fact of life for all industries, all governments, and all societies around the world. Technology will continue to shape our lives and livelihoods in ways that are both expected and unexpected. Because of the sheer size and influence of the Chinese economy, China is in a unique position to influence how these technologies will evolve and take shape,” said Holliday
- Leading scientists from around the world convened for a three-day project review meeting focused on enhancing drought tolerance in plants. Hosted by DuPont business Pioneer-Hi-Bred, the intent of the meeting is to share research information among public and private organizations in order to help increase farm productivity, alleviate poverty and improve the human condition in drought-prone areas of the world
- DuPont Nutrition & Health President Craig F. Binetti told participants at the World Economic Forum that developing partnerships with local governments, businesses and universities while continuing to pursue scientific breakthroughs in nutrition research are the keys to elevating global nutrition.
- “DuPont science will help the world’s farmers increase their productivity and meet the growing global demand for grain,” said William S. Niebur, DuPont vice president -- DuPont Crop Genetics Research & Development, at an investors’ conference. “This is an extraordinary time in agriculture globally. It is critical that we use our best scientific tools to ensure global food security through sustainable increases in agricultural productivity,” Niebur said at the annual Merrill Lynch Agricultural Chemicals Conference.
- “More can be done now to increase the amount of grain farmers harvest from their land and help address the strong and growing global demand for grain,” Mike Gumina, vice president of DuPont business Pioneer Hi-Bred, told a United Nations Food and Agriculture Organization Conference. “Improved farming practices and technology exist today that could help farmers in both developed and developing countries increase their productivity,” Gumina said at the conference on world food security.
- DuPont Group Vice President James C. Borel told a special United Nations meeting on the global food crisis that providing farmers in developing countries access to improved agricultural technologies and farming techniques is critical in addressing the global food crisis. Speaking on behalf of the private sector for the International Chamber of Commerce, Borel gave the U.N. Economic and Social Council (ECOSOC) business and industry’s perspective on immediate and long-term solutions to the food crisis.

- Citing population growth as the fundamental driver in the new global economic reality, DuPont Chairman and CEO Chad Holliday said this is a unique time for transformation and called on the United States to improve its global competitiveness by setting specific goals and then driving to achieve them in definite timeframes. His remarks were before the Detroit economic Club. In his remarks, Chad called on the U.S. government to consider a “Detroit Project,” a national program to develop a new, energy-efficient vehicle. The new vehicle would be designed with the highest safety and environmentally responsible standards in mind with a goal of delivering vehicle designs that achieve 75 miles per gallon.

External Recognition

- DuPont has received five awards from the American Chemistry Council (ACC), all focused on the company’s energy conservation efforts. The five award-winning projects alone have the full-year impact of reducing DuPont’s energy use by 2.7 trillion BTUs, the equivalent of the electricity needed to power 25,000 homes.
- DuPont has been named "Super Company 2008" -- one of the best places to work -- in Mexico for the seventh consecutive year by Expansion business magazine and the Top Companies consulting firm.
- The DuPont Altamira site in Mexico recently received a “Quality Award” from its national government for its actions in taking care of the environment. The site was awarded in the technical innovation and human capital categories.
- DuPont business Pioneer Hi-Bred has been voted the top “large place to work” in the life sciences industry by *The Scientist* magazine’s 6th annual web-based survey. Pioneer has placed first in the survey three times and has consecutively been among the top 30 since the survey began in 2003.
- The Singapore Chemical Industry Council has awarded DuPont Singapore with “Responsible Care Awards” in the following areas: employee health & safety, process safety, community awareness, emergency response and distribution.
- The Society of Automotive Engineers (SAE) International Cooperative Research Program, released a report validating that HFO-1234yf, co-developed by DuPont, is safe to use in mobile air conditioning, and that of all the proposed alternatives considered, HFO-1234yf has significant environmental benefits. The report concluded that HFO-1234yf offers “the greatest potential to meet environmental and consumer needs.”