



12 Companies Receive Awards at GPEC® 2010

The Plastics Environmental Division of the Society of Plastics Engineers honored a dozen companies with Environmental Stewardship Awards and Clean Technology Awards at the GPEC® 2010 Conference in Orlando, Florida, on March 8-10. The recipients of the awards and their award categories are:

Arkema Inc. of Philadelphia, Pennsylvania, USA, in the category “Plastic Materials From Renewable Sources.” Arkema’s Pebax® RNew is the first engineering thermoplastic elastomer range made from renewable resources. Pebax RNew and RNew



Mizuno Wave Creation 10 cushioned running shoes, produced with Arkema’s Pebax RNew.

100 are polyether block amide (PEBA)-type materials based on a natural vegetable oil extracted from a non-edible crop. These new resins magnify the outstanding features of PEBA through a favorable crystalline structure of the polyamide 11 phase.

Normalized fossil energy requirements for production, as well as greenhouse gas emissions, are reduced compared with similar products based on petroleum resources. www.arkema-inc.com.

BIOtech Products LLC, of Randolph, New Jersey, USA, for “New Environmental Technologies in Conventional Plastic Materials.” BIOchem™ organometallic additives render conventional plastics biodegradable (in accordance with



John Schleicher, Jr., and John Sulano with sign produced from landfill-biodegradable material containing BIOtech’s additive.

ASTM D 5526 for anaerobic biodegradation in landfills), while retaining or improving normal service life and processing typically expected of organotitanates. BIOchem enables anaerobic landfill microbes to penetrate most hydrophobic polymers such as PVC, styrenics, or polyolefins and initiate degradative mechanisms in a relatively short time. Biodegradation with BIOchem-containing articles does not occur under aerobic conditions and therefore does not compromise outdoor service, but it does occur at the end of their useful lives under anaerobic landfill conditions. www.biotech-products.net.

Eco Research Institute Ltd., of Tokyo, Japan, for “Emerging Technologies in Materials, Processing & Applications.” New technologies for pulverizing paper into powders as minute as 50µm (50 x 10⁻⁶ m) and compounding the paper with plastics yield pelletized eco-friendly plastics



Eco Research Institute: Products manufactured from composite of pulverized paper and plastics.

for mass-production molding. The pellets can contain up to 70% paper, and thus, by recycling paper, can greatly reduce CO₂ emissions. The product is also free of toxic gas emissions at the time of incineration.

Currently, the technology is commercially available in polypropylene for injection-molding products. Other formulation work with different base polymers is ongoing. www.er-kankyo.co.jp/eri.

VAST Enterprises LLC, of Minneapolis, Minnesota, USA, for “Design for Sustainability.”

Composite pavers produced from a proprietary blend of up to 95% recycled car tires and plastic containers



VAST Enterprises' pavers are shown with post-consumer solid waste from which they are derived.

meet the demanding requirements for aesthetics, durability, sustainability, and installation efficiency. VAST pavers can contribute to projects achieving LEED® certification. VAST's composite material imparts rich colors, superior slip resistance, and high strength at one-third the weight of concrete pavers. Their weight advantage makes them ideal for rooftop patios and decks. VAST pavers are easy to work with. When the pavers are inserted into VAST's grid system, they are automatically spaced and aligned. VAST Enterprises' composite pavers also were the runner-up in the GPEC 2010 Clean Technology Competition (see page 39) www.vastpavers.com.

Amway, of Ada, Michigan, USA, for “Design for Sustainability.” The eSpring System is an innovative water purifier that incorporates a sustainable design based on lifecycle assess-



Amway's eSpring water purifier.

ment without sacrificing the features and benefits that consumers desire. The use of GaBi™ software allowed the design team to measure the effects of design and material variables so that the impact on the environment could be minimized while the system still retained its capabilities. This led to a design that had less of an envi-

ronmental impact than the previous design, while still providing superior water filtration, eliminating 99.9% of disease-causing bacteria and viruses and filtering out more than 140 contaminants that could affect human health. www.espring.com.

Associated Packaging Technologies, of Chadds Ford, Pennsylvania, USA, for “Plastics Recycling Technologies and Applications.” A range of thermoformed crystalline PET (CPET) trays is designed with smaller environmental impacts than traditional CPET products. By engaging a strategic supply partner and implementing



Associated Packaging Technologies' RePET trays.

innovative process improvements, Associated Packaging Technologies provides a wide variety of CPET trays for direct food contact. Using up to 40% post-consumer recycled PET, APT's RePET™ trays are suitable for microwave or conventional oven cooking, while maintaining price parity with traditional CPET trays. Replacing virgin PET resin with recycled PET allows energy optimization and significantly reduces CO₂ emissions into the environment. www.aptechnologies.com.

Mannington Mills Inc., of Salem, New Jersey, USA, for

GPEC awards



“Carpet/Floor/Wall Coverings Recycling.” Mannington has expanded LOOP™, its program for recycling post-consumer carpet, to now include recycling vinyl composition tile (VCT). “VCT n2 VCT” introduces three premium commercial tile



Mannington Mills' recycling of vinyl composition tile.

product lines with 25% post-consumer content, an amount unmatched in the marketplace. The resilient-flooring industry has historically been challenged with developing a technically viable “take-back” program, but Mannington’s innovation, significant investment, and progressive product have already prevented millions of pounds of used VCT from being sent to landfills. The product also includes recycled drywall diverted from landfills. The product is third-party certified for 25% recycled content and at the Gold level as environmentally preferable, to the NSF-332-2007 standard. www.mannington.com.

Mack Molding Company, of Arlington, Vermont, USA, and **BigBelly Solar**, of Needham, Massachusetts, USA, for “Enabling Technologies in Processes and Procedures.” The BigBelly® Solar Compactor is a solar-powered compacting trash receptacle for large scale, low-cost municipal waste col-



Mack Molding and BigBelly Solar: solar-powered trash-collection containers.

lection; Mack injection-molds the solar bubble, fabricates the back panel and door, procures over 150 unique parts, and totally assembles the compactor and optional recycler for direct shipment to BigBelly Solar’s customers all over the world. The Solar Compactor is used in waste-collection programs now being conducted in 45 U.S. states and 20 countries. Rather than connecting to the power grid, BigBelly gets 100% of its energy from the sun and uses less than five watt-hours per day. Though it is similar in size to an ordinary trash receptacle, its capacity is five times greater (160 gallons) because of compaction. Increased capacity reduces collection trips and can cut fuel use and greenhouse gas emissions by 80%. By displacing four out of five trash pickups, BigBelly dramatically reduces transportation and labor costs as well. www.mack.com.

Nicos Polymers Group, of Nazareth, Pennsylvania, USA, received the Chairman’s Award for a proprietary process for the removal of continuous-fiber reinforcement from flexible composites, making possible the cleanest recovery of the valuable poly-



Nicos Polymers Group’s proprietary process for removing continuous-fiber reinforcement from flexible composites.

mer substrate. Originally developed for reclaiming PVC from garden hose, the process also yields excellent results with industrial hoses, single-ply roofing membrane (both TPO-based and PVC-based), and architectural wall coverings. www.nicospolymers.com.

Delta Plastics of the South, of Little Rock, Arkansas, USA, received the Daniel Eberhardt Environmental Stewardship Award. Having achieved its extraordinary goal of reclaiming and recycling virtually 100% of its



LLDPE irrigation tubing produced by Delta Plastics of the South.

used manufactured LLDPE irrigation tubing, Delta Plastics is now recycling a large portion of competitors' tubing and an additional 1,436,000 lbs (650 metric tons) per month of miscellaneous LDPE products into certified post-consumer resin. Among the LDPE products being reclaimed by Delta Plastics of the South are gas-

field pond liners, greenhouse film, drip tape, mulch film, and grain bags. The company is the industry leader in the manufacturing of agricultural irrigation tubing. Its corporate slogan, "Preserving our Farmland," reflects a commitment to "take out what we put in" the environment. www.deltapl.com.

2010 Clean Technology Competition

The top award in the third annual Clean Technology Business Forum and Competition went to **Avantium**, the developer of a technology for creating polymers and fuels from biomass. The runner-up, **VAST Enterprises LLC**, which has created a new type of masonry based on post-consumer plastics, was also the winner of the GPEC 2010 "Design for Sustainability" Award.

The Clean Technology event took place as part of the GPEC Conference. More than 20 companies had entered the competition, from which six finalists were chosen to make presentations at GPEC. Sponsor of the competition was Battelle, the international non-profit R&D organization. The competition was judged by representatives of Battelle, Cascadia Capital, Emerald Technology Ventures, *Modern Plastics Worldwide* magazine, SPM Technologies, and the winner of the 2009 competition, FRX Polymers. Eric Koester, an attorney with the law firm Cooley Godward Kronish LLP, served as coordinator of the Clean Technology Forum.

First-place winner Avantium is developing an efficient, low-cost process to convert carbohydrates from biomass into furanic chemical building blocks using new catalytic technology. Covered by 15 patents, the technology could be used to create a biobased route to polyesters, polyamides, and polyurethane, as well as "green" fuels. The technology makes possible a polycondensation polymerization process that could be run in retrofitted resin reactors. Avantium is based in Amsterdam, The Netherlands.

www.avantium.com



Tom van Aken (left), CEO of Avantium, receives award from Jeffrey Cafmeyer of Battelle, which sponsored the Clean Technology Competition.

Awards Criteria

To be considered for the GPEC 2010 Achievement Awards, an entry had to meet the following criteria:

1. Must involve plastics.
2. Must contribute to environmental improvement.
3. Must have been commercially adopted or accepted in 2009.
4. Must promote leadership in environmental areas.
5. Contribution should be verifiable.
6. Should facilitate innovation, standards, regulations, etc.
7. Must demonstrate leadership in a specific area—technology, marketing, legislation, education, community, etc.
8. Must demonstrate creativity and originality.
9. Must have significant impact, showing value for its intended purpose.

The Daniel Eberhardt Environmental Stewardship award is presented to the nominee that is totally committed to the spirit of environmental sustainability in all its actions and meets and surpasses all the criteria listed above.

