

THE ECONOMIC TIMES

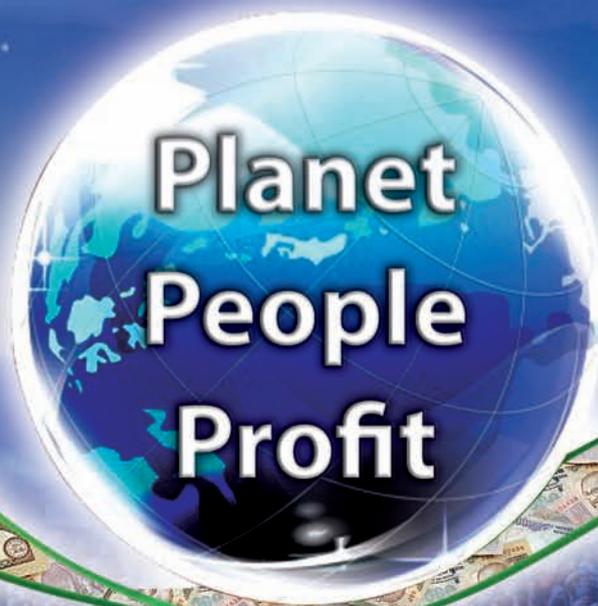
POLYMERS

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Sustainability & Plastics



Reduce Flexible Packaging Waste and Cost: Taking the Next Step

Sustainable Films and Substrates: Degradable or Recyclable?

Plastic Layer Pads: A Study in Sustainability



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POLYMERS
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COVER STORY

Sustainability & Plastic Packaging

In terms of sustainability, packaging materials - be it plastic, glass, paper board composites or metals cannot be classified as good or bad. Each has its advantages and short comings, depending on the objectives of the packer (i.e. the product producer) and trade - offs are an inherent part of pursuing sustainability.

Vijay Merchant, President, Indian Plastics Institute, Mumbai

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FOCUS

Reduce Flexible Packaging Waste and Cost: Taking the Next Step

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The wide hot tack and sealing temperature range of ionomer resins can improve seal reliability with fewer leakers while its high puncture resistance makes it suitable for the demanding applications, like fresh meat against bones.

Bernard Rioux, Marketing and Development Manager

DuPont Packaging & Industrial Polymers

Europe, Middle East and Africa

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Felipe Sixto, Director of Sales & Marketing, Sixto Packaging, USA

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As a component of unitised loads, plastic layer pads are replacing their paper counterparts, thanks to some benefits that also score sustainability points.

Sterling Anthony, Consultant, USA

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By combining the use of high quality oil and an effective oil and equipment analysis programme, plastic companies can look to achieve a competitive advantage in their operation, maximising productivity and reducing the energy consumption of hydraulic machinery.

Shankar Karnik, Asia Pacific Mobil SHC Brand Advisor

ExxonMobil Lubricants and Specialties

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PE pipe is commonly used for geothermal energy system loops, given its flexibility, resistance to chemical attack and corrosion, low cost and long service life. PE is also chosen because of its ease of joining using fusion welds, allowing for long runs underground without fittings.

Jabeen Quadir, Sustainability Programmes Advisor,

Sustainability Edge Solutions, Canada

Abraham I. Murra, Senior Associate, Sustainability Edge Solutions, USA

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It is essential for the Indian Government to understand the important role played by exhibition centres for triggering the growth of the country's economy. It has the potential to lift GDP growth from its present level of 7% to 12%, if implemented in the right way.

Arvind M. Mehta, Chairman, Welsat Plast Extrusions Pvt. Ltd., Mumbai

Past President AIPMA

Imm. Past President, Plastindia Foundation

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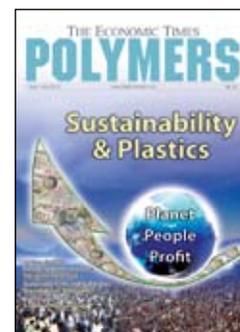
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Sustainable Films and Substrates Degradable or Recyclable?



Sustainability and bioplastics, once considered a fad by many in the packaging industry, has quickly emerged as a main driver for Research and Development (R&D) investment and innovation.

According to recent studies by Ceresana Research and The Freedonia Group, the global bioplastics market will expand 17.8 per cent annually and reach nearly \$2.9 billion million by 2015.

Bioplastics' Outlook

Bioplastics can be defined as a plastic that is either biodegradable or composed of biological materials or both. The most common bioplastics today, are starch-based followed by polylactic acid (PLA). Several companies

There is much demand for bio-based flexible packaging films, and it seems both industry research and company advances are responding to that demand.

already produce PLA films that are synthesised from processed corn. These films come from renewable resources and may biodegrade under certain conditions. Furthermore, making PLA requires 30 to 50 per cent less fossil fuel than polymers synthesised from hydrocarbons, thus reducing carbon dioxide emissions. Other bio-based plastics (PHA / PHB, cellulose, PBS)



Felipe Sixto
Director of Sales & Marketing
Sixto Packaging, USA

Some Examples

One such bioplastic, produced by Uflex Ltd., is GreenPET. The polyethylene terephthalate (PET) is made from oxidised paraxylene PTA and a 30 per cent ethanol based MEG resin. The film maintains the same properties as conventional PET.

Cortec Corporation recently launched its new EcoOcean bioplastic. The film, which according to Cortec, is anaerobic

and marine biodegradable, is one of several new advances in the sphere of sustainable plastics.

Another resin additive that can help reduce carbon footprints, Oshenite, produced by U.S. Aragonite, is a naturally occurring form of purified calcium carbonate that can be used for film and sheet extruding and thermoforming.

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as well as fossil-based biodegradable plastics account for just less than 17 per cent of global demand.

Bioplastics are supposed to contribute to protect the environment, reduce waste issues, minimise dependence on non-renewable raw materials and improve the image of plastic products. Freedonia's study notes that price considerations will be the primary determinant of the bioplastic market success, and that rising petroleum costs will allow certain bioplastics to achieve price parity with conventional plastics by 2020. As a result, the demand for bioplastics will increase to 1.1 million tonnes by 2015.

Biodegradable plastics are currently dominating the market with roughly a 92 per cent share. Despite the strong advances for biodegradables, non-biodegradable bio-based resins will be the primary driver of bioplastics demand through 2015 and beyond, Freedonia's report notes.

recyclable packaging, laminated films remain a challenge. Recently, the American Chemistry Council created a new Flexible Film Recycling Group, whose focus will be to try to improve the recycling rate of plastic films, particularly laminates.

Furthermore, Kraft Foods and Nestlé have partnered with Enval, a British provider of recycling and environmental technology solutions. According to Enval, its patented technology will offer a genuine recycling route for flexible laminate packaging that to date have not been recyclable. According to Enval, the process opens the way for packaging systems such as pouches for drinks and pet food, aseptic drink cartons and laminates to be completely recycled. The technology is capable of handling material either as scrap from the production and filling processes or as post-consumer waste.

Recyclable Plastics



According to Freedonia's study, recycled packaging makes up almost 90 per cent of sustainable green packaging in the United States. In fact, by 2014, the market will climb to \$37.25 billion.

Many companies, including Uflex, are producing PET film made from at least 30 per cent post-consumer waste recycled PET resin. The film, which has similar properties to conventional PET, has a serious drawback, however: A considerably higher price!

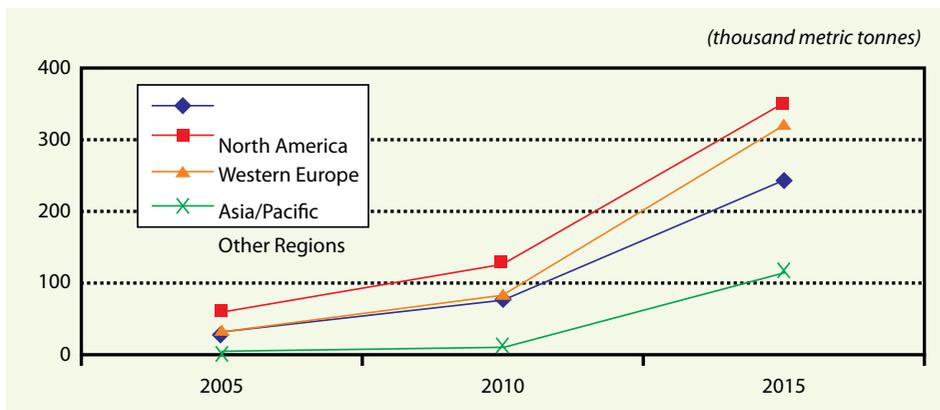
Although there are some examples of mono-web polyethylene

Fraudulent Sustainability Claims

Demand for sustainable packaging is definitely out there. But, when faced with budgetary constraints and competitive pressures, some packaging companies blatantly mislead consumers with false claims. In fact, amid rumors of fake and undocumented sustainability claims by bioplastics processors, the Biodegradable Products Institute (BPI) announced its appointment of NSF International to administer Certified Compostable.

According to David S. Brooks, BPI Certification program administrator, 'There is so much pseudo-science out there, such as additives that are supposed to magically transform any plastic into a biodegradable material and ASTM standards used incorrectly that unless you have an independent organisation verifying those tests, you can have unscrupulous people putting out products that are not what they claim.'

With so many new materials entering the packaging market, it is easy for a flexible packaging converter to be confused. Not to mention that consumers do not clearly



World Bioplastics Demand

Source: The Freedonia Group, Inc.

understand the packaging end-of-life. Biodegradable, like recyclable, merely describe the composition of packages. Plastics, including most bioplastics do not degrade in landfills. If flexible packaging is sent to a landfill, and not disposed of properly in proper composting facility or recycle, it is still not sustainable, no matter what it is made of.

Many in the industry debate as to the merits of biodegradability versus recyclability. Proponents of each school of thought produce studies that support their claims. What is certain from a converter's standpoint is that coupled with the robust growth in global demand for flexible packaging, consumer preferences for sustainable materials, improved product performance, price parity with petroleum based plastics, and the continued drive, bioplastics will continue to drive innovations in the realm of film, substrates and flexible packaging in general well into the future.

CPG Drive for Innovation

Many consumer packaged goods (CPG) companies have been at the forefront of bioplastics development.



In December 2011, Coca-Cola invested millions of dollars in three bio-based companies in an effort to accelerate the development of a PlantBottle made entirely from plants. One of those companies Gevo, Inc. developed a 100 percent renewable isobutanol, which is a building block for paraxylene. Using Gevo's biobased paraxylene, Toray Industries, Inc. succeeded in producing laboratory-scale samples of the world's first fully renewable bio-based PET film and fiber. According to Toray, this bio-based PET has exhibited properties almost equivalent to petro-based PET in laboratory conditions.



In December 2011, Johnson & Johnson, Brazil launched its Sundown line of sunscreen products in new packaging containing 60 per cent bioplastic produced from sugarcane ethanol and 40 per cent recycled material by Braskem a producer of bioplastics in Brazil with a 200,000-metric-tonne-per-year capacity. In addition, Diageo and Sprint have followed other companies and released new sustainable packaging guidelines.

Summary

There is much demand for bio-based flexible packaging films, and it seems both industry research and company advances are responding to that demand.