



PLA FOAM NEWSLETTER

SPRING 2010

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PLA FOAM EXTRUSION TRIALS -



Patent News

Plastic Engineering Associates Licensing, Inc. continues to expand its patent protection world-wide in Asia.

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Jim Fogarty, Chairman of Plastic Engineering Associates, Inc., has designed the world's first commercial foam die specifically for PLA extrusion of food packaging sheet.

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Plastic Engineering Associates Licensing, Inc. continues to advance the state of the art of PLA/Ingeo foam extrusion. Trials were conducted during the week of 15 March 2010 on a commercial sized 4.5" x 6.0" tandem foam extrusion system which is out-fitted with our Turbo-Screws technology foam screws. We are pleased to announce a sustained and further 33% throughput gain during the latest Ingeo extruded foam trials, as well as a stunning foam sheet surface, all the more remarkable given the fact the line was running with recycled content at an add rate consistent with commercial production of rectangular articles. See pictures, below:

World-wide Bioplastics Demand to Boom - recent studies seems to confirm what those in the know already realize. Bioplastics are booming!

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Ingeo foam made with Turbo-Screws technology (above & below)



Plastic Engineering Associates, Inc. Laboratory Extruder - Plastic Engineering Associates, Inc. is very pleased to announce it has purchased a laboratory tandem foam extrusion line.

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Chicago Rage Against the Foam - In what seems like almost a daily assault on polystyrene foam by consumers and students at all levels, a group of Chicago citizens has formed an anti-polystyrene foam group.

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Patent News - Plastic Engineering Associates Licensing, Inc.

Plastic Engineering Associates Licensing, Inc. is pleased to announce that the patent examiner at the Japanese Office has issued an official notice of allowance of patent status for Turbo-Screw technology foam feed screws. Bill Fogarty, V.P. of Plastic Engineering, stated, "We are very pleased that our technology is now officially patented in Japan. Japan has a culture which favors sustainable packaging solutions and

they are environmentally aware as consumers. Japan completes our Asia patent portfolio since we have already obtained patent protection in China, Hong Kong, South Korea, Taiwan, Australia, and Malaysia.

World-wide Bioplastics Demand to Boom -

In a study conducted by Pike Research on bioplastics, sustainable packaging is predicted to double in revenue in the next five years. The eco-friendly packaging market will increase from \$88 billion to \$170 billion between 2009 and 2014. Pike Research forecasts that plastic based packaging will be the fastest-growing sector of the sustainable packaging market during the next five years..

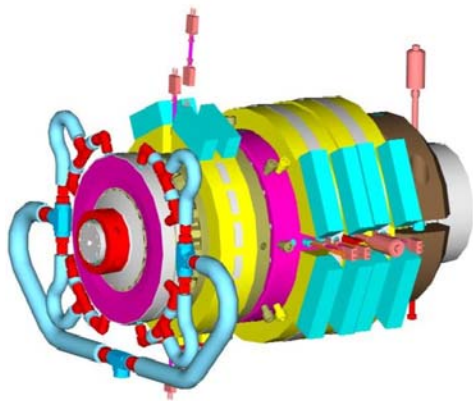
WORLD BIOPLASTICS DEMAND (ktons)	2003	2008	2013
NORTH AMERICA	28	58	193
WESTERN EUROPE	41	77	295
ASIA-PACIFIC	25	58	302
OTHER REGIONS	4	7	110
TOTAL	98	200	900

Table from an article entitled "Future of Bioplastics" from Macplas International magazine (December 2009), a jointly commissioned study on bioplastics has been published by European Bioplastics and the European Polysaccharide Network of Excellence (Global demand for bioplastics rising from 200,000 tons in 2008 to 900,000 tons in 2013).

The article states that world-wide growth for bioplastics will be driven by:

- Consumer demand for more environmentally sustainable products
- Development of bio-based feedstocks for commodity plastic resins
- Increasing restrictions on the use of non-degradable plastic products
- Most importantly, the expected continuation of high crude oil & natural gas prices

World's First PLA Foam Sheet Extrusion Die Developed



Jim Fogarty has been designing foam dies for decades. However, Plastic Engineering Associates, Inc.'s new foam die for PLA is a first for Jim. "Because of the unique properties of polylactic acid, I really wasn't very happy processing PLA on a standard or conventional foam die. I have been thinking about the design of this die for almost five years, almost immediately after NatureWorks, LLC came to see us about our feed screw technology. Dies and screws are obviously critical to PLA foam success. The key to this die is the flow channel, of course, but also the ability to maintain steady pressure and good melt temperature stability. I am very pleased with the results of the die so far; it will be offered only in conjunction with Turbo-Screws technology foam feed screws for PLA and not to the general foam industry," Fogarty stated.

Laboratory Tandem Extruder Purchased -



Plastic Engineering Associates, Inc. has purchased a tandem foam laboratory extruder. The lab line significantly expands the company's ability to support the bio-polymer foam and polystyrene foam industry by offering R&D laboratory time. "We are very excited to have this lab line capability," said David J. Fogarty, V.P. & General Manager of Plastic Engineering Associates, Inc. "We are conducting a refurbishment of the line to make it truly state of the art for bio-polymer R&D. The lab line will serve a number of useful purposes not only for our internal R&D with foamed biopolymers, but also for companies involved with polystyrene foam & biopolymer foams. We have had many inquiries for biopolymer foam sheet for usage outside of the food packaging industry, so having this lab line will allow them a venue to conduct R&D without having to go the more expensive & problematic route of securing a site for

biopolymer trials, securing a production break for a time slot if it's a commercial venue, securing an extrusion system for biopolymer R&D that's capable for trials of bio-polymer foam, and wasting large amounts of resin, additives and so forth. All in all, the lab line will provide us to continue to advance the state of the art of extruded polystyrene and biopolymer foam technology," Fogarty stated.

RAGE AGAINST THE FOAM -



The City of Chicago has jumped on the "Styrofoam is Bad" wagon and in a big way. A group of concerned Chicago citizens are attempting to mobilize support for a proposed polystyrene foam ban within the city for restaurants and food service. Visit www.nofamchicago.org for more information.

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