

## Extrusion: Conference report WPCs crossing Atlantic

By Bob Colvin

Processing of wood/plastics compounds (WPCs) is on the rise worldwide but Europe has tended to lag behind. This trend appears to be reversing with interest high in applications that replace existing filler or reduce needed, often expensive resin by adding natural fibers.

Not all of the news is good, though, as Peter Sauerwein, director of the Association of German Wood Industries, notes wood flour prices in Europe have also jump recently by 30% last year. But price is not everything, and Machael Carus, area manager for renewable resources at the Nova Institute (Hürth, Germany), which recently conducted the second Wood Plastics Composites (WPC) Congress in Cologne, Germany with more than 350 participants, says WPC use and supply is on the rise in Europe and the continent was expected to produce 100,000 tonnes last year, 20,000 tonnes of which came from Germany. Just three years ago Germany produced only 5000 tonnes/yr WPC. By contrast, he says North American WPC production in 2005 was more than 700,000 tonnes and is expected to hit the 1.6 million tonnes/yr mark by 2010.

One reason for the slower development in Europe has been the lack of quality standards that are just now being put into place, says Carus. Europe is concentrating on virgin pine wood flour rather than lower cost, but poorer quality, recycled wood, which often is contaminated with chemicals such as creosote. Kersten Kurda from the South German Plastics Center (SKZ, Würzburg, Germany) says Europe is concentrating on the use of polypropylene (PP) as the WPC matrix rather than the high density polyethylene (HDPE) traditionally used in North America or PVC in Asia. Kurda says European WPC processors are looking to substitute wood flour in PP applications for their traditionally fillers of glass fiber, talc, and chalk. PP matrices make up 82% of the total European WPC market today, reports the SKZ.

The sector is seeing new developments popping up that could help speed WPC development. Agrolinz Melamine International (AMI, Linz, Austria), part of the Borealis Group, has introduced what it says is the first extrudable modified melamine resin, HIPEESIN MPER, for use on conventional extruders. The thermoset is able to include up to 70% wood fibers or wood flour. The company claims this mix overcomes some of the shortcomings of conventional thermoplastic-based WPCs such as low thermal stability by combining thermoplastic processing behavior with thermo-setting product performance.

The material can be processed on conical counter-rotating twin screws but with an inverse temperature profile. The extruded profiles cure and crosslink by passing through a heated die. The advantages, says Andreas Endesfelder from AMI, is an end product with high scratch resistance, good mechanical properties, and dimensional stability at high temperatures.

Holland Colours (Apeldoorn, Netherlands) has come out with specialty dust-free natural colorants for pigmenting thermoplastic WPC profiles. The additives reduce edge tear and the company says they permit faster color changes compared to traditional masterbatches.

On the equipment side, under water pelletizer producer Gala Kunststoff und Kautschukmaschinen (Xanten, Germany) has come up with a system that avoids the drawback of producing WPC granulate in underwater pelletizing units moisture absorption. Gala developed a WPC two-phase flow pelletizing processes, I-heat, that



O.A. Newton's Mike Descoteaux, applications engineer, with Don Schmidt and Dave Bertke from Milacron, are keen to help processors get started on WPC processing

reduces the water contact time of the WPC pellet and through a hot air injection system strips the moisture from the pellet surface to produce dust-free pellets that have no surface tack. The system permits a broad-range of base polymers to be used with natural filler content up to 75%. Narrow pellet distribution can also be achieved.

Increasingly making its presence felt in Europe is Cincinnati Milacron (Cincinnati, OH), which is rapidly increasing its international presence in the profile extrusion market. Milacron's Plug & Play extrusion line for compounds using wood or other natural fibers is designed to help those many persons interested in WPCs get started quickly, even if they have relatively little plastics processing knowledge. As the name implies, the lines are designed for quick installation and easy operation.

The firm's Plug & Play lines are a complete system; Milacron supplies these with, for example, material handling systems from O.A. Newton and downstream extrusion equipment from Conair (Pittsburgh, PA). With the Plug & Play it's a complete package, so that, for example, you can do maintenance on one line without stopping your production, as would be the case if a single, large materials handling system were used for multiple extrusion lines, explains Don Schmidt, international sales project engineer at Milacron, who joined the machinery manufacturer from profile processor Deceuninck.—[bcolvin@modplas.com](mailto:bcolvin@modplas.com)