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# Wheel it out

Among the stars at IAA 2011 was the Smart forvision concept with polyamide wheels – page 15



Polymer prices slip as demand slackens

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Fakuma 2011 preview and Schulman profile

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Blow moulder APPE extends PET markets

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Decoration meets electronics in car controls

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David Vink visited Schulman's facilities in Belgium and Germany to take an in-depth look at the new materials the plastic compounds and masterbatch producer is exhibiting at Fakuma

## From masterbatch to manhole covers

Schulman's breadth of operational expertise is a good base for development of the material innovations it is showing at Fakuma 2011. The company's compounding of engineering thermoplastics is done in Kerpen, Germany; masterbatch is produced at facilities in Givet, France, Crumlin, UK, and Bornem near Antwerp, Belgium (plus some satellite plants); and the acquisition of Ico Polymers in 2010 gave Schulman rotational moulding powders facilities.

Heinz-Willi Houben, general manager masterbatch Europe, told *European Plastics News* the white, functional additive, black and colour masterbatch business is Schulman's largest.

Houben says Schulman's expected sales of 190,000 tonnes of masterbatch in 2011 accounts for a significant share of the 820,000 tonnes/year masterbatch market estimated by the AMI market research consultancy.

In the packaging sector, Schulman has developed a Polybatch DUL masterbatch for thermoformed cups. The masterbatch is incorporated in the outer layer of a coextruded sheet to produce translucent PS and polyolefin cups which have a glossy interior and a paper-like, soft-touch matt outer surface. The company says DUL masterbatch requires less investment by the converter than embossed films, is



Manhole cover moulded by Aareplast in Schulamid 612 GF50, a 50% glass reinforced PA6.12 material

cheaper than lacquered films and more effective than inorganic filler-based formulations.

DUL is also suitable for extrusion blow and stretch injection moulded bottles. There are eight DUL grades available, including specific versions for blown film and biaxially-oriented PP (BOPP) sheet and film.

To support the use of DUL in BOPP applications, Schulman has installed a Brückner laboratory scale bi-orientation extrusion line in Bornem. Tests showed 82% haze and only 5.5% gloss at 45° when DUL 3636 DP20 masterbatch was incorporated in the 2µm layer of a coextruded 2µm/64µm BOPP film.

François Steensens, managing director in Bornem, spoke to *EPN* about Schulman's infrared absorbing masterbatch for greenhouse film. This has an advantage over kaolin clay in this application area, he said, as it involves a completely iron-free additive system.

Tony Daponte, R&D director at Bornem, said Schulman is working on several masterbatch projects: in photovoltaic system encapsulation and backing sheets; alternative anti-blocking agents for BOPP and cast PP films using cubic filler with round edges instead of spherical fillers; and a UV-

screening masterbatch to hinder "greening" of potatoes.

A new development extrusion line was installed earlier this year at the Kerpen facility. This line, incorporating Maintools downstream equipment, is being used to develop new materials for corrugated conduit applications.

Thilo Stier, innovation manager in Kerpen, said that one of the highlights on Schulman's Fakuma 2011 stand is a metal substitution application – an injection moulded manhole cover. This was jointly developed with Swiss thermoplastics and thermosetting plastics moulder Aareplast and its fittings customer Hawle using Schulman's new Schulamid 612 GF50 compound.

Stier said the new 50% glass fibre reinforced polyamide 6.12 compound has a "super surface", is resistant to zinc chloride and passes salt spray tests which, he said, 50% glass fibre PA12 fails.

Aareplast says metal manhole covers suffer from so-called "cold welding" when exposed to a zinc chloride solution over a long period. Covers affected in this way may then need to be lifted with forces up to 3,000 kg when access is required. Similarly, steel manhole covers can become attached to their metal receptacles as they rust together.

Other features of the plastic manhole cover include properties typically associated with PA6.12: high dimensional stability, wear and chemical resistance, and cold impact strength. A high heat distortion temperature of 160-170°C enables the plastic manhole cover to have fittings attached, and to withstand the heat from road resurfacing work with new asphalt.

Switching to plastic manhole covers is expected to get round the problem of thieves stealing steel covers to sell for their scrap value.



Thermoformed cup with a glossy interior and a matt, soft touch exterior surface due to a Schulman DUL masterbatch



A unique feature at Schulman in Bornem, Belgium: a lab-scale Brückner film orientation line