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Nylon market encourages 'back to basics' approach from Ultrapolymers

Rapid increases in nylon raw material and production costs, coupled with strong demand and lack of producer investment, are resulting in material shortages and extended leadtimes.

As a means of counteracting pricing and availability issues in the market, Ultrapolymers are taking a "back to basics" approach to nylon applications. Close partnership with both the converter and the OEM helps to establish the root requirements of each application, and what determined the original material selection.

Nylon 12 availability is particularly tight and alternative products are being sought. In conjunction with nylon 6 producer Aquafil, Ultrapolymers have been developing flexible PA6 materials to replace PA12. Applications such as pneumatic hoses, co-extruded fuel lines, conduit and cable coatings, which do not necessarily require the chemical resistance offered by PA12, can easily be switched into these new PA6 grades.

Nylon 66 supplies have been tight for some time, and force majeure declarations have resulted in extended leadtimes and tighter allocation. The only significant investment during 2011 is by Ascend Performance Materials with its Vydyne brand. Often PA66 is chosen over PA6 for stiffness, electrical and cycle time advantages. Aquafil's newly-developed PA6 grades, Aquamid 6S and Aquamid 6 AF IE, offer fast cycling and increased electrical performance. By adding an extra 5% glass fibre, the same stiffness level can be achieved in a PA6 as in a PA66, as well as an improved surface finish.

By reducing moisture uptake in PA6, similar dimensional stability to PA66 can be achieved. Aquafil have developed a series of partially aromatic grades which offer reduced moisture absorption – up to 40% lower than conventional glass-filled PA6 grades, as well as being inherently suitable for painting and gas injection.

The first quarter of 2011 has seen an extremely tight PA6 market, with increasing oil and benzene prices, and force majeure declarations on Caprolactam from both DSM and UBE. Recycled grades offer a possible alternative, and yet this market is also becoming increasingly tight as converters choose to reprocess their own in-house waste. Whilst Aquafil generates 12kT of in-house fibre waste (used to produce the Econyl range of recycled / sustainable nylon compounds), other producers are struggling to source sufficient feedstock to meet demand, which has resulted in poor availability and high pricing.

LyondellBasell's range of glass-filled PP Hostacom compounds offers another possible opportunity to replace glass-filled PA6. This range of products is already widely used both in automotive front-end and under-hood applications. In addition to excellent stiffness and impact properties, Hostacom has the added advantage of being 10% lighter than PA6 with no moisture absorption.