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News Release from: **Smithers Rapra**

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High performance fillers pull in the crowds

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The second Rapra conference on High Performance Fillers attracted over 100 delegates and speakers from Europe, the USA and Asia.

Judging by the success of this year's meeting, the second Rapra conference on High Performance Fillers (21st and 22nd March in Cologne) seems to have

achieved the difficult task of finding a niche in today's crowded conference season. The meeting attracted over 100 delegates and speakers from Europe, the USA and Asia.

Both filler producers and users were well represented.

The papers covered the markets for high performance fillers, and the main trends in those markets.

Specific topics covered included energy tyres, emerging filler technologies, including nanofillers and natural fibre fillers and surface modifiers.

The European market for particulate fillers was estimated at 4.8Mt by Professor Rothon with a predominance of carbon blacks and natural calcium carbonates, but also talcs, precipitated silicas, clays and aluminium hydroxide.

Around 20,000t of surface modifiers are used to improve filler performance, predominantly organosilanes, as discussed by Dow Corning.

About 5000t of mica/annum are used in plastics, Quarzwerke showed data on mechanical and thermal properties of polypropylene copolymer and PA6 with mica fillers.

Dr Chris DeArmitt of BASF described experiments with fine calcium carbonate fillers in different thermoplastics at 10% by weight.

Modulus increased, yield strength was unchanged, elongation to break decreased and melt viscosity increased, but impact properties were unpredictable.

Imerys presented data on Opacilite which is a flash calcined clay with applications as an extender for titanium dioxide.

Oxonica has been studying titanium dioxide and methods of reducing free radicals.

World Minerals outlined its experiments on the use of diatomaceous earth as a functional filler.

Electrolux has looked at filler antioxidant interactions in PP.

The University of Bayreuth gave an overview of nanocomposites in films, foams and large-scale components.

Sasol has produced Disperal and Dispal high purity, highly dispersible, nano-sized aluminas as liquid and solid dispersions.

These have been used in polypropylene, polyamide and epoxy nanocomposites.

Professor Drzal described the use of nanographite platelets in epoxy and nylon composites - the modulus can be three times greater than with nanoclays.

Nanocyl has studied carbon nanotubes and are tackling the issues of proper dispersion and distribution to get the optimal material properties, including electrical conductivity as good as copper.

Professor Camino has used POSS in PP, PA6 and PBT and found that it formed a stable ceramic layer that protects the underlying material.

Hybrid Plastics are experimenting with variations in the POSS structure including trapping metal atoms in the cage.

Professor Kenig talked about enhancing the mechanical and thermal properties of adhesives with nanofillers.

Professor Hornsby talked about methods of improving performance in natural fibre

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reinforced thermoplastics.

Trovotech has worked on incorporating foamed glass fillers into polymeric materials, including a silver ion exchanged antimicrobial product.

Potters Europe gave a presentation on its glass microspheres.

Wollastonite fillers from RT Vanderbilt have been used to enhance stiffness, impact, mar and scratch resistance.

Eckart has special effect pigments to achieve aluminium, goldbronze and pearlescent effects.

New developments include oxidised, tinted aluminium pigments and pure iron flakes which also add conductivity and magnetic properties as well as optical effects.

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