



## Performance additives for plastics break 30,000 psi 'glass ceiling'

3M has introduced what it claims is the world's first hollow glass microsphere capable of withstanding injection moulding and extrusion pressures of 30,000 psi, making high-volume production of lighter and cheaper interior components possible. 3M Performance Additives iM30K are being offered as an alternative to conventional additives/fillers such as glass fibre, calcium carbonate and talc. They represent the next generation in 3M glass microsphere technology, combining light weight with the high strength needed to survive rigorous compounding and injection moulding pressures. The new additives are 40 percent stronger than 3M's previous leading high strength glass microspheres and, at 18 microns, are approximately half their size.

This added resilience means iM30K additives can be easily incorporated into the moulding and forming processes that are common in the automotive industry. A Tier One supplier has already demonstrated the benefits that it could offer.

**Hyundai Mobis IP Core Part Development Project** conducted a 19-month long series of tests comparing PC/ABS with a new polypropylene material filled with 3M iM30K additives for use in moulding automotive instrument panel core parts. According to Mr. S. Ka, Research Engineer for the Cockpit Module Design project, the use of 3M iM30K additives has demonstrated a number of important advantages.

"We were exploring new material formulations that would help reduce overall part weight and costs in the production of instrument panel core parts," explains Ka. **"Using the polypropylene material that contained 3M Performance Additives iM30K, we achieved a 16.8 percent weight reduction and the finished part cost was 50 percent lower than PC/ABS IP cores.** In addition, we experienced improved material flowability than PC/ABS and better dimensional stability compared to current talc filled polypropylene."

Previous generations of 3M glass microspheres have been used for more than 20 years in a number of plastics manufacturing applications, such as sheet-moulded composites and plastisols, because of their unique ability to reduce density and improve mechanical properties such as modulus and dimensional stability (shrinkage and CLTE). Their spherical shape allows higher filler loading and reduced resin demand, while greatly reducing friction and helping improve the rheology of polymer mixtures.

In recent years, 3M has introduced high-strength versions of their glass microspheres, offering crush strengths up to 18,000 psi. These products are being successfully used in a number of engineered thermoplastics applications where reduced part weight, dimensional stability, and increased throughput are critical.

With the growth in the use of thermoplastics in vehicles, driven by higher fuel costs, the demand for lighter weight plastics parts continue to increase. At the same time, moulders and compounders alike are seeking ways to reduce energy usage and cycle times, while improving product quality. “3M continues to tap its technology base to respond to these ever-changing needs,” says Lou Lundberg, business manager, 3M Specialty Materials Division. “3M iM30K additives are the newest addition to the company’s portfolio of glass microsphere offerings to meet these demands.”

For further information please contact:

3M UK Automotive Division 01344 857875

Roy Chapple Glass Bubbles Specialist; 07973 294609

Or if you prefer look on our websites: [www.3m.com/uk/automotive](http://www.3m.com/uk/automotive)

[www.3m.com/im30k](http://www.3m.com/im30k)