

New 3M Performance Additives for Plastics Break 30,000 psi "Glass Ceiling"; Tier One Supplier Reports Significant Weight, Cost Reductions Through Use of New Technology

3M announced today the introduction of the world's first hollow glass microsphere capable of withstanding injection molding and extrusion pressures of 30,000 psi. 3M performance additives iM30K are being offered as an alternative to conventional additives/fillers such as glass fiber, calcium carbonate and talc.

3M iM30K additives represent the next generation in 3M glass microsphere technology, combining light weight with the high strength needed to survive rigorous compounding and injection molding pressures. The new additives are 40 percent stronger than 3M's previous leading high-strength glass microspheres and, at 17 microns, are approximately half their size.

Recently, the Hyundai Mobis IP Core Part Development Project completed a 19-month long series of tests comparing PC/ABS with a new polypropylene material filled with 3M iM30K additives for use in molding 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 molded 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, molders 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 more information, call 3M Customer Service at 1-800-367-8905.

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