World's first top mount with polyurethane bearing and polyamide housing

Case Study

BASF is now expanding its expertise in top mounts to enable car manufacturers an optimum combination of weight savings, pleasant acoustics and vibration damping. The unique NVH (noise, vibration, harshness) solution is made possible by combining two of BASF's plastic specialties: the micro-cellular polyurethane elastomer Cellasto® and the highly glass-fiber reinforced polyamide Ultramid® A3WG10 CR. The top mount with the Cellasto® element and the Ultramid® housing is around 25 percent lighter than conventional aluminum die-cast versions with rubber. It was developed and optimized for serial production using BASF's simulation tool Ultrasim®.

The top mount links the shock absorber to the chassis and thus has a decisive influence on driving comfort and dynamics. The interplay between the materials of the individual components is therefore of crucial importance: Cellasto® shows very good static and dynamic behavior, has a long life usage and takes up only a small amount of installation space. Components made of Cellasto® have been used in cars for more than 50 years. The PA66 grade Ultramid® A3WG10 CR is reinforced with 50 percent glass fibers and is therefore exceptionally rigid and solid, even at high temperatures. The engineering plastic is particularly suitable for dynamic loads and thus generally a good alternative to metal.

Combined to form the top mount, the actual bearing, the jounce bumper and the dust tube for the shock absorber can be functionally integrated and achieve good damping and acoustics. With a manufacturing technique especially developed by BASF, housing and bearing are joined to each other permanently.