



Cycletime Tips - Automotive

Volume 28: Polymer Additive: Siloxane Masterbatch

Our industry has recently adopted a new versatile additive for use in thermoplastics. Polydimethylsiloxane has been developed to right the wrongs that silicone has done in years past and deserves some renewed emphasis. The Dow Corning Siloxane™¹ masterbatch is being marketed in pellet and powder form to enhance your resins and processes in many different ways.

In years past, silicone has been considered deadly to any facility that produces parts to be decorated or adhesive bonded. This was due mainly to the tendency of the product to migrate to the part surface and beyond. The presence of this low viscosity silicone impairs these types of secondary operations. Processing issues also were evident in the form of screw slippage.

The Siloxane ultra-high molecular weight additive, when used as directed can bring enhancements in the following ways:

- Can be used with little impact on paint adhesion
- Improves scratch, wear, friction, and mar resistance
- Acts as a processing aid helping flow and part release
- Powder can act as enhancement to flame retardant additives
- No migration
- Stable within the part - evenly dispersed
- Versions available for most resins
- Reduced torque and melt fracture with extrusion
- Low odor
- Low toxicity if burned
- Sterilizable
- FDA compliant
- Versions available in "micropellet" form for small parts

One of the many successful applications involved replacing Teflon™² material. The molder realized significant cost savings through improved processing and raw material cost vs. the incumbent. This was accomplished by switching to an acetal with the Siloxane additive dry blended to satisfy the high wear requirements.

The success stories are many and involve either getting by with a difficult tool or improving upon material and part properties. The slight impact on mechanical properties will depend upon the ratio added, but this has also acted as a benefit. Please don't hesitate to contact me or your Ashland Account Manager if you would like to explore this product.

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