

DOW CORNING® MB50-007 Masterbatch

FEATURES

- Imparts processing improvements and modified surface characteristics

BENEFITS

- Improved throughput
- Reduced energy consumption
- Enhanced scratch resistance
- Improved slip properties
- Reduced waste
- Enhanced stability vs. traditional processing aids and lubricants

COMPOSITION

- Free flowing solid pellets

Ultra-high molecular weight siloxane polymer dispersed in acrylonitrile butadiene styrene

APPLICATIONS

- An additive to ABS or similiar thermoplastics to improve processing and flow out of the resin.

TYPICAL PROPERTIES

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales representative prior to writing specifications on this product.

| Property | Unit | Value |
|---|-----------|-------------------|
| Appearance | | Off-white pellets |
| Siloxane content | % | 50 |
| Carrier resin | | ABS |
| Melt flow index of carrier resin at 220°C (428°F), 10kg | gm/10mins | 14 |
| Suggested use level | % | 0.2 to 10 |

DESCRIPTION

DOW CORNING MB50-007 Masterbatch is a pelletized formulation containing 50% of an ultra-high molecular weight (UHMW) siloxane polymer dispersed in acrylonitrile butadiene styrene. It is designed to be used as an additive in polypropylene compatible systems to impart benefits such as processing improvements and modification of surface characteristics.

Liquid siloxane plastic additives have been used for several years to improve the lubricity and flow of thermoplastics. They are effective in this role although some difficulties have been experienced in the incorporation of liquids into thermoplastic melts without the use of specialized equipment. It has also been difficult to produce masterbatches with greater than 20% liquid siloxane because of processing difficulty and bleed problems.

The DOW CORNING® MB Series Masterbatches address these problems

by supplying a high concentration of an ultra-high molecular weight (UHMW) siloxane as a dispersion in a dry pellet form in a variety of thermoplastics.

BENEFITS

When DOW CORNING MB50-007 Masterbatch is added to ABS or similar thermoplastics, at a level of 0.2% w/w to 2.0% w/w, improved processing and flow of the resin is expected, leading to better mold filling and mold release, less extruder torque, faster throughput and less warpage of the molded part. At higher addition levels, 2% w/w to 10% w/w DOW CORNING MB50-007 Masterbatch, improved surface properties are expected, including lubricity, slip, lower coefficient of friction as well as mar and abrasion resistance.

Figure 1 shows the significant reduction of coefficient of friction values of ABS when high molecular weight siloxane is added.

Table 1 shows that a high molecular weight siloxane additive in ABS has a small effect on melt flow characteristics but a negligible effect on tensile and impact strengths.

The DOW CORNING MB50 Masterbatch series of solid additives are expected to give improved benefits compared to conventional lower molecular weight siloxane additives, e.g. less screw slippage, improvement in release, a lower coefficient of friction and a broader range of performance capability.

HOW TO USE

The DOW CORNING MB50 Masterbatch series should be used in the same way as the thermoplastic on which they are based. Sufficient of DOW CORNING MB50-007 Masterbatch should be blended with virgin polymer pellets to give the desired silicone level in the final product. DOW CORNING MB50 Masterbatch pellets can be added during compounding in a single screw extruder or added at the feed hopper during injection molding or extrusion.

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE FROM YOUR LOCAL DOW CORNING SALES REPRESENTATIVE.

USABLE LIFE AND STORAGE

When stored at or below 35°C (95°F) in the original unopened containers, this product has a usable life of 48 months from the date of production.

PACKAGING

This product is available in a variety of container sizes. Contact your local Dow Corning sales representative for information about container sizes available in your area.

FOOD CONTACT

This product may comply with European requirements concerning its use in contact with foodstuffs. The specific regulation(s) this product is compliant with are stated in the 'Food Regulatory Profile'. This document is available from your local Dow Corning representative.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area.

For further information, please consult your local Dow Corning representative.

WARRANTY INFORMATION - PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that Dow Corning's products are safe, effective, and fully satisfactory for the intended end use. Dow Corning's sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Dow Corning specifically disclaims any other express or implied warranty of fitness for a particular purpose or merchantability. Unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use, Dow Corning disclaims liability for any incidental or consequential damages.

Suggestions of use shall not be taken as inducements to infringe any patent.

Table 1 - Physical properties of ABS modified with a high molecular weight polydimethylsiloxane additive.

| <i>Property</i> | <i>0% siloxane content</i> | <i>1.5% siloxane content</i> | <i>3.0% siloxane content</i> | <i>5.0% siloxane content</i> |
|---|----------------------------|------------------------------|------------------------------|------------------------------|
| Tensile strength (MPa) | 52 | 50 | 49 | 48 |
| Elongation (%) | 9.3 | 8.7 | 8.4 | 5.3 |
| Impact strength, notched, kJm ⁻² | 5.4 | 8.9 | 8.7 | 7.7 |
| Melt index, g/10min 220°C, 10.16 kg | 16.4 | 25.9 | 29.9 | 33.4 |

Figure 1: Friction of coefficient vs velocity (ABS).



