

PEarlene* silicone masterbatches



PEarlene silicone containing masterbatches provide improved processability (extrusion rate, mold fill and power consumption) and performance (mar and scratch resistance and impact resistance) when used to compound or extrude certain plastics, copolymers or elastomeric formulations.

Key Features and Typical Benefits

- Excellent curl memory, even in high humidity, for long lasting PEarlene silicone containing masterbatches:
- Improved lubricity of fabricated part
- Improved mar resistance
- Improved scratch resistance
- Improved impact resistance
- Increased fabrication line throughput
- Reduced extrusion drive load
- Reduced extruder head pressure
- Increased time between cleanup of extruder, die and mold
- Reduced energy usage in processing

Typical Physical Properties

Form	Uniform, free flowing pellets
Description	Off white, free from foreign materials
Nominal density (gm/cc) at 20 °C	.94-.96
MFI (300 °C @ 2.16kg)	23.0 g/10 min (PEarlene SiPC MB-01)
MFI (190 °C @ 2.16kg)	18.0 g/10 min (PEarlene SiEC MB-01)
MFI (230 °C @ 2.16kg)	13.8 g/10 min (PEarlene SiPP MB-01)
Typical Usage Levels, % by weight	0.2 to 1.6
Active Ingredients, %	50 typically on PP/PE (40 on EMA carrier, 30 on PC carrier)
Odor	Essentially odorless
Solubility in water	Insoluble
Flashpoint, °C	>200 (liquid component)
Melting Point, °C	270 (PC carrier) 100 (PE carrier)

See MSDS (SDS) and final Technical Bulletin for additional details. Some physical properties may be estimated.

PEarlene* Silicone Masterbatches

Introduction

PEarlene silicone masterbatches are a family of functional masterbatches containing high levels of ultra high molecular weight polysiloxane which are melt compounded into a polymer carrier.

Typical usage levels are from 0.2% to 1.6% by weight.

Product Line

The product line consists of several silicone masterbatches:

PEarlene SiPP MB-01 (PP: polypropylene carrier)

PEarlene SiPP MB-02 (PP: polypropylene carrier)

PEarlene SiPP MB-05 (PP: polypropylene carrier)

PEarlene SiPE MB-01 (PE: polyethylene carrier)

PEarlene SiPE MB-02 (PE: polyethylene carrier)

PEarlene SiPC MB-01 (PC: polycarbonate carrier)

PEarlene SiEC MB-01 (EMA: ethyl methacrylate carrier)

These masterbatches modify the rheological characteristics of the resin or compound, which may allow for increased throughput in fabrication operations as well as reduction in drive torque and machine head pressure. These masterbatches are typically used at 0.2 to 1.25% by weight.

To improve the surface appearance of the fabricated part, higher levels of the masterbatches are generally recommended. This should result in a lower COF on finished parts. It should also noticeably improve fine molded details and mold release. In addition, typical benefits of increased throughput in fabrication operations, as well as reduction in drive torque and head pressure, may allow for a savings in manufacturing variable costs.

Select the carrier compatible with your formulation or check with Momentive Performance Materials for detailed information.

Potential Applications

PEarlene silicone masterbatches may be excellent candidates for consideration in compounding operations and extrusion based fabrication processes including: wire, cable and pipe extrusion; injection and compression molding; blown and cast film; foaming operations (closed and open cell as well as structural); thermoforming; roto molding etc.

These masterbatches are believed to be effective in polyolefins (PP, PE and their copolymers, PVC, PS, SAN, Nylon, PC and ABS).

Generally, the PEarlene silicone masterbatches can be added to the resin or compound during the final melt extrusion or fabrication step. The additive must be homogeneously mixed with the resin or compound in the melt process to yield the full cost effective benefit of the additive. Compounds containing PEarlene silicone masterbatches may be available from your resin or compound supplier.

Compound manufacturers can add the masterbatches during continuous or batch melt compounding operations.

Improper mixing or the use of the wrong type or wrong level of additive will not result in the expected performance enhancements.

Product Usage

The PEarlene family of silicone based masterbatches are free flowing, dry, pelleted materials which may be excellent candidates for consideration in formulating into a variety of resin based compounds. The product contains no halogens. The ultra high molecular weight polysiloxanes have been shown to be effective in various applications. The product is used by blending and/or adding to resin or fully or partially formulated compounds and then melt processed. It is critical that the processing provides a homogenous distribution of the masterbatch in the final resin or compound. The melt processing typically can be accomplished employing the same fabrication conditions normally used for the base compound. Unmodified conventional handling and processing equipment has been used for this step.

The product is essentially odorless and colorless (though some grades are off white). The product will not normally affect the odor or color of the material it is added to especially after final fabrication.

At low addition levels of PEarlene silicone masterbatches (PEarlene SiPE MB-01, PEarlene SiPP MB-01 and PEarlene SiPC MB-01), between 0.2% to 1.25% by weight, the resin and/or compound will typically be rheologically modified which may result in an improvement in flow. This may allow for better mold flow and fill, replication of fine mold details with more precision and easier part release without the need for a separate mold release agent. Parts made with these masterbatches are generally less subject to warpage. The process should benefit from an increase in throughput and a reduction in machine torque and pressure, and may thereby lower manufacturing variable costs.

With addition of PEarlene silicone masterbatches (PEarlene SiPE MB-01, PEarlene SiPP MB-01 and PEarlene SiPC MB-01) typically the COF of the final part will be improved, the surface finish will be enhanced, and the abrasion resistance and the mar resistance of the fabricated part will be enhanced.

Generally, the tensile and elongation properties of the final products will only be slightly effected by the PEarlene silicone masterbatches even at the highest recommended level of addition and the impact resistance will be improved especially at low temperatures.

PEarlene* Silicone Masterbatches

Processing Recommendations

The family of PEarlene silicone based masterbatches are added to the formulation and typically processed on conventional equipment under the same processing conditions recommended for the base resins and/or compounds. No special conditions or process modifications are generally required. However, the PEarlene silicone masterbatches must be melt processed under conditions which will assure a high level of homogeneity in the final product. These ultra high molecular weight based polysiloxane based masterbatches may prevent screw slippage.

It should be noted that it might be necessary to increase the extrusion speed and reduce machine temperature settings to get the full benefit of the additional throughput which may be available when using these masterbatches. The process may also benefit from less frequent shut downs for screw, screen, die and tooling cleanup. In addition the cleaning of machine parts will generally require less time and effort.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at www.momentive.com or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

Customer Service Centers

Email

4information@momentive.com

Telephone

Americas

+1 800 295 2392
+1 614 986 2495

Europe, Middle East, Africa and India

+00 800 4321 1000
+40 212 534754

Asia Pacific

China

+800 820 0202

Japan

+81 276 20 6182

All Other Countries

+60 3 9206 1543

To find a specific language, visit the Contact Us page at Momentive.com. You may select a country to view additional languages and the corresponding telephone numbers.

For email inquiries, we will make every attempt to respond in the incoming written language. If that is not possible, we will respond in English.

DISCLAIMER:

THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC. AND ITS SUBSIDIARIES AND AFFILIATES (COLLECTIVELY "SUPPLIER"), ARE SOLD SUBJECT TO SUPPLIER'S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (i) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (ii) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING ITS PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SUPPLIER'S STANDARD CONDITIONS OF SALE, SUPPLIER AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of Supplier's materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Supplier's products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Supplier's standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Supplier. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Supplier covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.

*PEarlene is a trademark of Momentive Performance Materials Inc.

Momentive and the Momentive logo are trademarks of Momentive Performance Materials Inc.



260 Hudson River Road
Waterford, NY 12188 USA
momentive.com