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**Multishot Technology**  
for Exceptional Performance



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## Injection Molding with Polymer-Metal Composites

### *At a glance –*

- *Injection molding is a cleaner, more efficient manufacturing process compared to metal fabrication*
- *Metal to plastic conversions*
- *Lead replacement for shielding or density*
- *Increase or decrease weight of product*
- *Common fillers include copper, stainless steel, tungsten, and barium sulfate*
- *Base resins include Nylon, ABS, PBT, PS, PSU and TPE*
- *Wide range of durometers and additives for achieving different characteristics*

Sometimes the use of a plastic material is the most sustainable choice. This is increasingly the case with polymer-metal composites, also known as high density, heavy-weight or metal-filled resins. These materials are being used to achieve specific performance objectives like shielding and density, but the peripheral benefits are just as important. Manufacturing with metal-filled resins in an injection molding process results in more consistent components produced in a cleaner worker environment when compared to alternative materials and manufacturing methods.

### **Design Possibilities**

The use of an injection molding process instead of metal fabrication allows product designers more flexibility to achieve their performance objectives.

- Lead replacement for shielding or density
- Add weight to increase perceived value of a product
- Create custom density to achieve performance goals
- Metal to plastic conversions to:
  - Reduce weight
  - Streamline manufacturing
  - Eliminate labor and increase consistency

### **Material Selection**

Polymer-metal composites can be engineered to suit your specific needs and meet performance goals that might include FDA or RoHS compliance, chemical resistance, environmental exposure and the need to undergo secondary processes.

Common fillers include copper, stainless steel, and tungsten, as well as barium sulfate. Densities range from 2.0 to 11.0. Durometers range from very rigid to very flexible. Base resins include Nylon, ABS, PBT, PS, PSU and TPE. Possible additives include glass bead, talc, minerals, impact modifiers, colorants and stabilizers.

*Thank you to Steve Schlegel, Senior Industry Marketing Manager, Specialty Engineered Materials for PolyOne Corporation for his assistance in preparation of this fact sheet.*

**Rolco Inc. helps companies discover new applications for specialty materials and recognize opportunities to utilize Multishot Technology.**

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