



**Multishot Technology**  
for Exceptional Performance

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## Material Selection for Multishot Plastic Injection Molding

Material selection is critical to successful bonding with Multishot Injection Molding. Because chemical bonding occurs only with compatible materials and because the choice of material is crucial to the performance of the part, many factors must be considered to ensure that the two resin choices will both bond and perform with suitable results.

**Selecting compatible materials is more complex than just picking resins off of a chart. Working closely with our resin suppliers, Rolco engineers help customers identify compatible materials and multishot solutions that meet customer requirements.**

*Contact us to discuss your potential application for Multishot Injection Molding.*  
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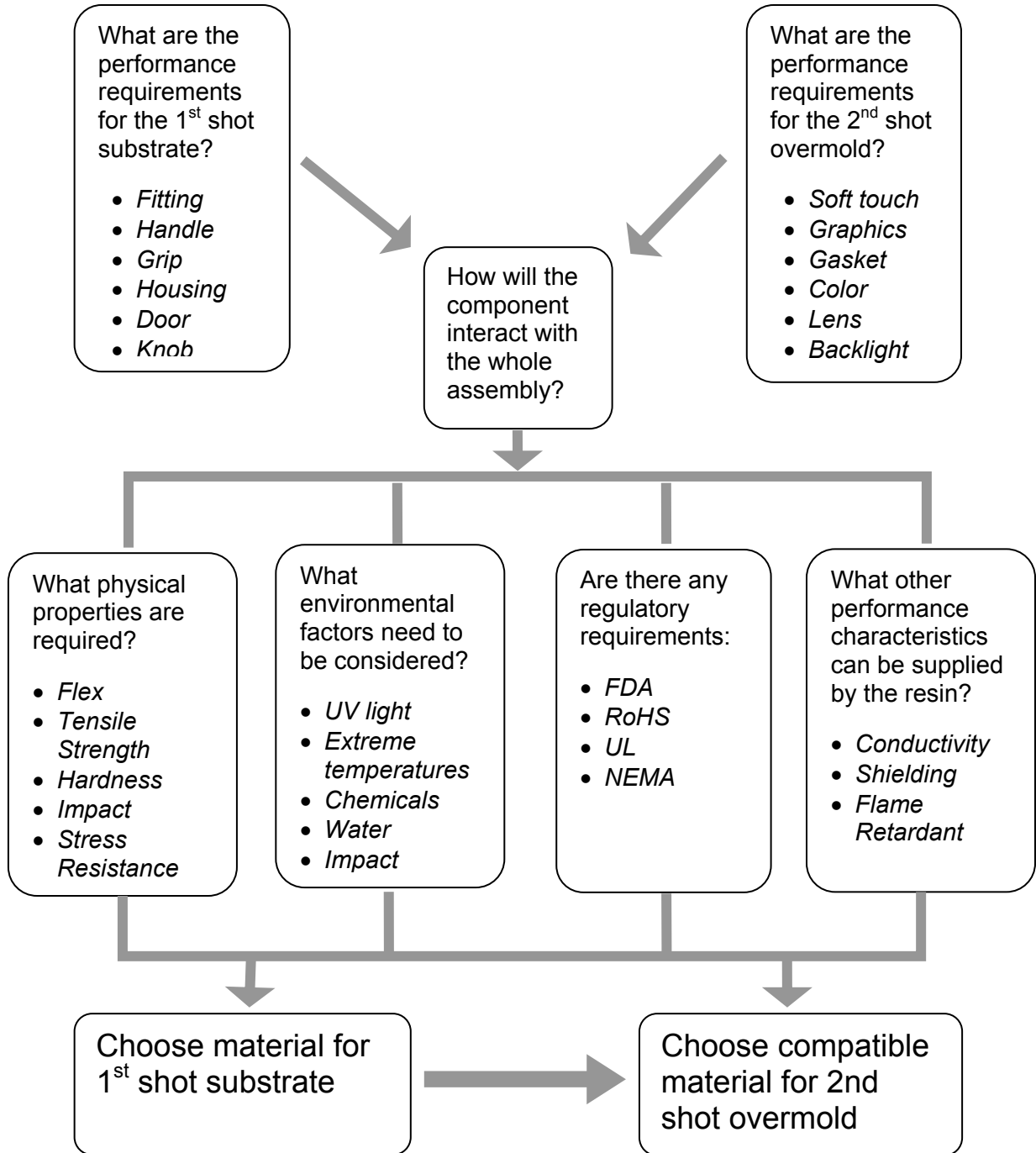
- Determine the performance requirements for the substrate (1<sup>st</sup> shot):** The substrate provides the form for the part. It can be a fitting, electronic housing, handle, lens, knob, etc.
- Determine the performance requirements for the overmold (2<sup>nd</sup> shot):** The purpose for the 2<sup>nd</sup> shot is to provide one or more performance features for the part. This could be a grip surface, permanent graphics, color differentiation, gasket, etc.
- Examine how the component will interact with the completed assembly:** This is important in order to understand the interactive durability between the two assembled materials.
- Determine the physical properties needed to achieve the desired performance requirements:** flex, tensile strength, hardness, impact and stress resistance
- Examine the environment in which the component and product will be used:** Will the component and/or the completed assembly be exposed to UV light, extreme temperatures, chemicals or water? Will the product see light or rugged use?
- Determine if material choice needs to meet external regulatory requirements:** Industry and government regulations such as FDA, RoHS and UL.
- Determine if there are other performance characteristics that could to be supplied by the material:** Flame retardant, shielding including EMI shielding,
- Select choices for the substrate (1<sup>st</sup> shot) then select choices for the overmold (2<sup>nd</sup> shot) based on compatibility with the substrate.**
- Test the two materials for suitability if their compatibility is unknown.**
- Revise geometry of design as needed based on characteristics of the material selection:** For example, add mechanical bond if chemical bond is not sufficient. Adjust wall thickness, draft, gate position based on flow characteristics of the material and optimum mold design.

Material Compatibility for Multishot Bonding	
1 <sup>st</sup> Shot Substrate	2 <sup>nd</sup> Shot Overmold (Elastomers)
PP, PE	Elastocon, ES, APA Duragrip, Polyolefin-based TPEs
ABS, PC / ABS, PC, PVC	Elastocon, Santoprene, APA Styrenic-based TPEs
Nylon & Glass-filled Nylon	Santoprene & APA, Nylon-based TPEs
Acetal	APA

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

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