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Overmold Material Compatibility Chart

This overmold material compatibility chart considers the factors such as chemical compatibility, thermal properties, and mechanical bonding capabilities.

Substrate Material	Overmold Material	Compatibility	Notes
ABS (Acrylonitrile Butadiene Styrene)	TPE (Thermoplastic Elastomers)	Good	Widely used for consumer electronics for ergonomic features.
PC (Polycarbonate)	Silicone	Excellent	Ideal for medical devices due to its biocompatibility and sterilization capabilities.
PP (Polypropylene)	TPV (Thermoplastic Vulcanizates)	Good	Suitable for automotive applications, offering chemical resistance and flexibility.
Nylon (Polyamide)	TPU (Thermoplastic Polyurethane)	Excellent	Provides high wear resistance and flexibility for sports equipment.
PBT (Polybutylene Terephthalate)	TPE	Fair	Requires surface treatment for better adhesion, used in electrical connectors.

PE (Polyethylene)	TPE	Poor	Generally incompatible without special treatment due to low surface energy.
Metal (Aluminum, Steel)	Silicone	Good	Common in automotive and aerospace for vibration damping and insulation.
Glass	Silicone	Excellent	Used in consumer goods for waterproofing and decorative applications.

This chart is a simplified overview and serves as a starting point for material selection in over-molding projects. It's important to note that the compatibility can vary based on specific material grades and processing conditions.

Additional factors such as part design, overmold thickness, and intended application also play a significant role in determining the success of the overmolding process. Therefore, conducting thorough testing and consultation with material suppliers is recommended to ensure optimal results for each unique project.

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