



THERMOPLASTIC ELASTOMERS FOR OVERMOLDING

Overmolding is the process of injection molding a soft thermoplastic elastomer (TPE) onto a rigid thermoplastic substrate. The hard substrate is sometimes a polyolefin like standard PP or PE, but more often an engineering thermoplastic (ETP) like PC, ABS, or nylon. In product design, overmolding is used to improve ergonomics, product safety, and functionality which adds value and leads to premium pricing for these products.

The most critical challenge in overmolding is poor adhesion between the TPE and the substrate. The ability of the TPE to adhere to the thermoplastic is largely determined by the compatibility of the two materials, and this is why material selection is so important.

PTS / Teknor Apex is a recognized leader in overmolding because we manufacture both TPEs and ETPs and have the expertise in adhesion modifying these materials so that they work together for the most optimal bond strengths. The PTS / Teknor Apex portfolio of TPE products for overmolding includes: PTS-Thermoflex® TPEs and PTS-Thermoprene TPVs (Thermoplastic Vulcanizates). You can choose a standard formulation, or we can custom formulate a material for your end-use application.

PTS / Teknor Apex Offers World Class Application Development Support for Overmolding

- Part design support
- Input on tooling
- In-house adhesion testing to evaluate bond strength
- Mobile engineering team for on-site assistance

| TRADENAME | DESCRIPTION | DESIGNED FOR ADHESION TO: | | | |
|------------------------------|----------------------------------|-------------------------------|---------------------|---------------------|------------------|
| PTS-THERMOFLEX® | SBC-based TPEs | PE | PP | | |
| PTS-THERMOFLEX® A | Adhesion modified TPEs | ABS ASA PA PA BLENDS | PBT PC PC/ABS | PEBA PMMA POM | PPO PS SAN |
| PTS-THERMOPRENE - A10 | Adhesion modified TPVs (EPDM+PP) | ABS ASA | PBT PC | PC/ABS PMMA | POM |
| PTS-THERMOPRENE - PA | Adhesion modified TPVs (EPDM+PP) | PA | | | |

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PTS / Teknor Apex is the only compounder with expertise in adhesion modification of both TPEs and ETPs for optimal hard / soft material combinations.

OVERMOLDING CONSIDERATIONS FOR OPTIMAL BOND STRENGTH

- Surface temperature of the hard substrate
- Contact temperature between the TPE and substrate during mold filling
- TPE injection rate, holding pressure and time
- Mold temperatures for both hard and soft components (cooling rate)
- Gate design for TPE
- Surface texture of hard substrate
- Flow direction

PTS / TEKNOR APEX: A STRONGER PARTNER FOR YOUR TOUGHEST CHALLENGES

The PTS-Thermoflex and PTS-Thermoprene productlines were acquired by Teknor Apex in 2016. These materials are now produced and distributed by Teknor Apex's Thermoplastic Elastomer Division, which offers the broadest portfolio of TPE compounds available from a single source. The division compounds TPEs at eight locations in the United States, Europe, and Asia under the brands: Elexar® (electrical and electronics applications), Medalist® (medical devices), Monprene® (consumer and industrial products), and Sarlink® (transportation).

ABOUT TEKNOR APEX

Teknor Apex Company, a privately held firm founded in 1924, is one of the world's leading custom compounders of plastics. Teknor Apex produces flexible and rigid vinyl, thermoplastic elastomers, engineering thermoplastics, color masterbatches, specialty chemicals, and garden hoses. The company is headquartered in Pawtucket, RI, U.S.A. and operates thirteen manufacturing facilities worldwide in the United States, Belgium, Germany, China, and Singapore.

To learn more visit www.teknorapex.com.

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