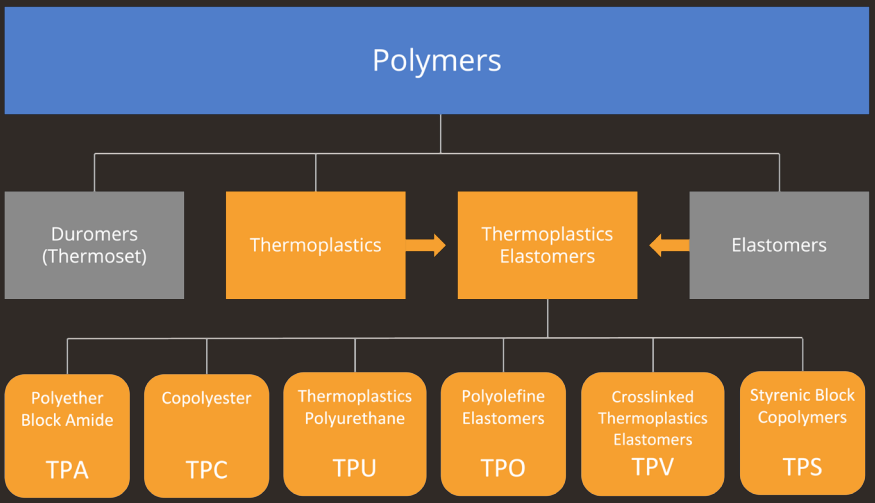
TPE

Thermoplastic elastomers

TPEs combine the dynamic processing properties of thermoplastic polymers with the softness and flexibility of elastomers.
They present outstanding processability, chemical and UV resistance, recyclable & bondability coupled good adhesion. Thermoplastic elastomers are commonly utilized materials in various industries.
There is a wide variety of TPE. They fall into two large families:
- block copolymers *(reactor-made TPEs)* ;
- mechanical blends *(TPE compounds)*.



In addition to their chemical structure variety, TPEs are also distinguished by their hardness. Indeed, the Shore hardnesses of the TPEs can vary from Shore00 *(gel)* to Shore D *(rigid)*.

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Definitions

TPE compounds: obtained by the physical mixing of at least two complementary polymeric compounds such as TPS *(thermoplastic styrene block copolymer)* and SBC *(styrene block copolymer - "BC")*.

There are several types of SBC:
SBS: Styrene-butadiene-styrene BC
SIS: Styrene-isoprene-styrene BC
SEBS: Styrene-ethylene-butylene-styrene BC
SEEPS: Styrene-ethylene-ethylene-butylene-styrene BC
SEPS: Styrene-ethylene-propylene-styrene BC
SEPS-V: Styrene-ethylene-propylene-styrene BC, cross-linkable

TPV: Thermoplastic elastomer of thermoplastic and vulcanized elastomers (e.g. EPDM/ PP)
TPO: Thermoplastic elsatomer polyolefin *(a reactor-made TPE and a TPE compound)*

Reactor-made TPE: properties are provided by a single polymer type. It is created in the polymerization process obtained by copolymerization of at least two monomers, which are block polymerized.
TPU: Thermoplastic polyurethane elastomer
TPC: Thermoplastic copolyester elastomer
TPA: Thermoplastic polyether block amides elastomer
TPO: Thermoplastic elsatomer polyolefin *(a reactor-made TPE and a TPE compound)*