

# TPO™ Materials Comparison

	TPO	ABS	Vinyl-Wrapped ABS	TPU (Polyester & Polyethylene Based)	PVC Over Urethane Foam	FRP
Impact	Very High	High	High	High	Very High	Very High
Shrink	Low	Very Low	Limited	Limited	Limited	Very Low
Coefficient of Linear Expansion	Very Low	Low	Limited	Limited	Limited	Very Low
Ability to Custom Color	Yes (including metallics & pearlescents)	Yes	Yes	Yes	Yes	Yes
Chemical Resistance	Very High	Moderate	Moderate	Moderate	High	Very High
Durability*	Very Good	Good	Good	Good	Good	Excellent
UV Stability*	Yes	No	Yes	Yes	Yes	Yes
Weatherability*	Yes	No	No	Yes	Yes	Yes
Thermoformable	Yes (yields best aesthetics)	Yes	Yes	Limited	Limited	No
Tooling Cost	Low/Medium	Low/Medium	Medium	Low/Medium	Low/Medium	High (complex)
Receptive to Additives (Anti-Stat, Static Dissipative, Flame Retardant)	Yes	Yes	Yes	Yes	Yes	Yes
Recyclability	High	High	No	No	No	No
Hygroscopic (Moisture Absorbing)	Low	High	High	High	High	None
Environmental Concerns	No	No	Yes (PVC's heavy metal and chlorine content & plasticizer concerns)	No, but not recyclable	Yes (PVC's heavy metal and chlorine content & plasticizer concerns)	Yes (fumes if open molded)

\* Exposure to Ultra-Violet rays and harsh weather conditions increases the chances of delamination of all compared products.

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**DISCOVER THE  
ADVANTAGES OF TPO**

# Not all TPO's are created equal.

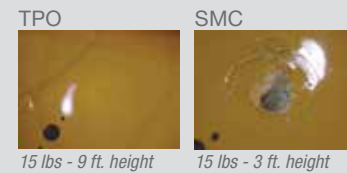
Discover the advantages of PMC's TPO products.

Our TPO (Thermoplastic Polyolefin) products are offered in a wide variety of formulations, as well as custom grades and compositions to meet your exacting specifications. TPO materials are proven replacements for Acrylic/ABS, Painted ABS, ABS, HIPS, HMWPE, FRP, and Metal materials. Here's why...

## Unique Performance

- **Wide Color Range** – Solids to Metallics
- **Gloss Options** from Low < 10 to High > 90
- **Sound Deadening** – reducing interior noise (*buzz, squeak, rattle*)
- **Dielectric Constant Properties**, < 2.7 up to 29(GHz)
- **RoHS Compliant** - No heavy metals
- **FMVSS302 and UL 94 HB** compliant

## Performance impact of TPO:



## Environmental Stability & Product Durability

- **UV Protection and Weatherability** in a wide range of colors offering superior performance for interior and exterior applications.
- **Low Coefficient of Linear Thermal Expansion (CLTE)** reduces part stress and potential buckling between attachments.
- **Heat Deflection Temperature** higher than competitive materials and improved heat aging without cracking.
- **High and Cold Temperature** impact performance, ductile to -30° C
- **Outstanding Chemical Resistance** to automotive, industrial, and household compounds
- **Low Notch-Sensitivity** – NO crack propagation from blind screw holes

## TPO offers superior cold temperature impact:



## Thermoform Processing

- High geometry replication – Surfaces and designs
- Wide processing options – Standard vacuum forming to twin sheet
- Shrinkage similar to ABS and HIPS
- Low Hygroscopics - No drying required
- Recyclable, 100% of excess trim can be reused
- Compatible with PP and TPV
- Low reprocessing degradation

## Thermoforming:



## Additives & Custom Grades

- UV Light Stable Pigment options to prevent color shifting
- Scratch whitening resistant and anti-fog for interior components available
- Stress whitening resistant cap layers available
- Higher FR Grades available

**TPO applications are well validated** in Automotive, Communications, Agriculture, Construction, Bus, Heavy Truck, Power Sports, Recreational Vehicle, and Industrial Markets.

**Let PMC's TPO products enable your next commercial success!**

## Combined effects of crack resistance & CLTE:

Cargo Trailer Top Cover  
ASA - Capped ABS      TPO



Tractor Roofs

ASA - Capped ABS      TPO



## Heat Deflection:

TPO      TPO  
At 320°F still holding      At 340°F starting to deflect



ABS      ABS  
At 220°F still holding      At 240°F collapsing

