

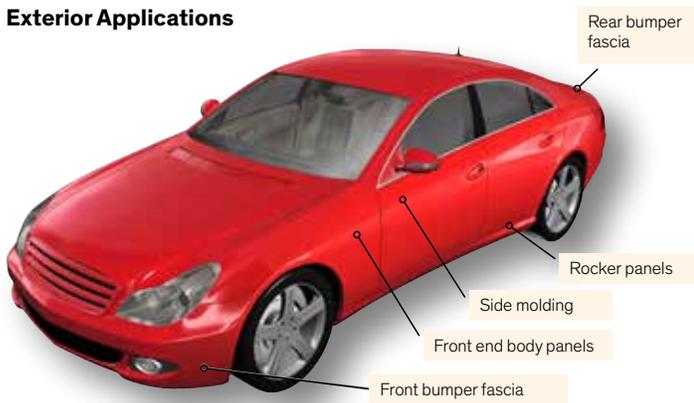


## Dow Elastomers

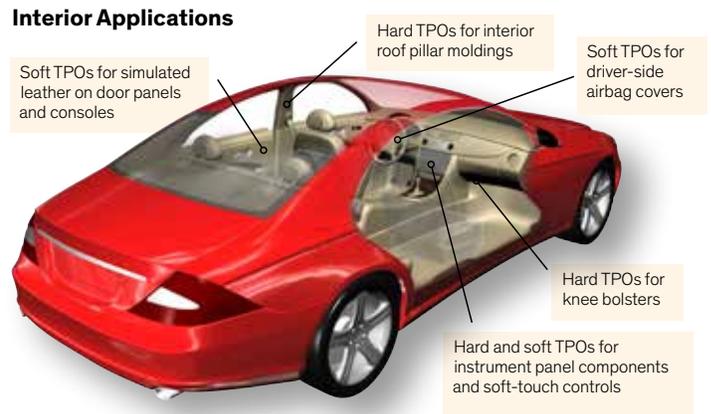
# Protection, Durability and Good Looks with ENGAGE™

ENGAGE POEs deliver performance for today's increasingly complex and demanding interior and exterior TPO part designs

### Exterior Applications



### Interior Applications



ENGAGE™ polyolefin elastomers have long been the impact modifiers of choice in TPO applications. Today, Dow advances in performance and processability enable production of best-in-class TPOs for interior and exterior molded parts that meet demands for:

- improved aesthetics
- better impact toughness balance
- higher flow systems
- thin walling and density reduction

For example, ENGAGE 8842 POE is an ultra-low density ethylene octene copolymer offering exceptional properties with the added potential of handling in pellet form. ENGAGE 8842 has excellent flow characteristics and provides superb impact properties when blended with polypropylene. And it performs well where low temperature properties are desired.

Likewise, ENGAGE 8137 POE offers outstanding flow properties and impact performance while meeting today's increasing demand for greater part complexity with thinner wall sections.

Similarly, ENGAGE XLT POEs enable production of lighter, thinner TPO parts with increased stiffness, better impact strength and improved aesthetics for demanding interior instrument panel and airbag applications. In addition, it exhibits superior paint adhesion, passing

OEM-required hot water jet tests, often a challenge for TPOs based on conventional impact modifiers.

Plus, Dow simplifies sourcing by providing a comprehensive portfolio of POEs for all your production needs.

### ENGAGE™ polyolefin elastomers



**High Melt Strength** = More Thermoforming Possibilities



**Elastomers in Injection Molding** = Durability & Impact Performance



**TPO Ease of Processing** = Expanded Applications



**Polyolefin Elastomers** = Enhanced Paintability & Better Aesthetics



**Sustainability Benefits** = Reduced Scrap, Recyclability, Lighter Weight Parts

## Formulation advances create design enhancements

Dow advances in elastomer technologies have broadened the possibilities for use of POEs in hard and soft TPO applications. For example, in thermoforming applications, Dow has developed several grades of ENGAGE™ POEs that exhibit high melt strength.

This translates to parts that remain pliant during processing, yet retain shape stability, minimizing sag during preheating. These advances result in parts with high levels of surface quality, consistency, color stability and the ability to more quickly remove parts from molds – thus increasing productivity.

## Summary of Elastomer Design Effects on TPO Performance

Elastomer Effects on TPO Performance	Low Temperature Impact	Flexural Modulus	Heat Distortion Temperature	TPO Injection Molding Flow	TPO Shrinkage	Melt Strength	Gloss
Decreasing Comonomer Chain Length	↓	↔	↔	↔	↔	↔	↔
Decreasing Elastomer Crystallinity (lower density)	↑	↔	↔	↔	↓	↔	↓
Decreasing Melt Index (increasing Molecular Weight)	↑	↔	↔	↓	↑	↑	↑
Decreasing Elastomer Content	↓	↑	↑	↑	↑	↔	↑
Decreasing Molecular Weight Distribution	↑	↔	↔	↓	↔	↓	↑
Decreasing Branching	↑	↔	↔	↓	↔	↓	↑

### Six reasons to make ENGAGE™ your material of choice

- Compound modifiers that provide excellent impact resistance, stiffness, and flow balance properties
- Improved aesthetics in end products
- Easy mixing, forming, and processing with industry standard equipment in TPO manufacturing
- Reproducible performance for better fit and finish
- Variety of grades that can be used to optimize dispersion and molding flow
- High melt strength grades for thermoforming applications

### Simplified sourcing

Dow simplifies sourcing by providing POEs for all your production needs. With our global supply chain, you can rely on us to deliver materials where you need them, when you need them – with a variety of packaging options suitable for your operation.

Dow's broad portfolio of polyolefin solutions offers a wide variety of possibilities for the development of automotive TPOs that deliver components combining excellent performance with ease of processing, improved productivity, better aesthetics and sustainability.

Let us show you how ENGAGE can be applied to your process. Learn more at [www.dowelastomers.com](http://www.dowelastomers.com)

#### North America

U.S. & Canada + 1 800 441 4369  
+ 1 989 832 1426  
Mexico + 1 800 441 4369

#### Latin America

Argentina + 54 11 4319 0100  
Brazil + 55 11 5188 9000  
Colombia + 57 1 219 6000  
Mexico + 52 55 5201 4700

#### Europe/Middle East

+ 800 441 4DOW  
+ 31 115 672626  
Italy + 800 783 825

#### South Africa

+ 800 99 5078

#### Asia Pacific

+ 800 7776 7776  
+ 800 7965 5392

[dow.com](http://dow.com)

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