

For Automotive TPO Compounder

For more than 20 years, ENGAGE™ polyolefin elastomers have been the impact modifiers of choice in TPO (thermoplastic olefin) applications by delivering performance for increasingly complex and demanding interior and exterior applications.

In TPO compounds ENGAGE™ polyolefin elastomers improve performance and processing:

Polypropylene modifiers providing excellent impact resistance, stiffness and flow property balance

Easy and reproducible processing with industry standard equipment in TPO manufacturing

Variety of grades that can be used to optimize dispersion and molding flow, best toughness is achieved with high molecular weight at low crystallinity

High melt strength grades for thermoforming and foaming applications

Introducing the ENGAGE™ 11000 series – the next generation

As the industry rapidly evolves, Dow's continuous focus on innovation in polyolefin elastomers enables addressing trends such as lightweighting and improved aesthetics, but also manufacturing efficiency of both hard and soft TPO compounds for the manufacturing of interior and exterior body-molded parts. Dow is proud to now introduce the new ENGAGE™ 11000 series, the next generation of this innovative product range.

An optimized polyolefin elastomer design of the ENGAGE™ 11000 series with lower glass transition range and increased compatibility to the polypropylene matrix results in higher rubber efficiency. When used in a TPO compound at the same addition level as incumbent grades, it provides improved toughness, see Figure 1.

As a consequence of the higher rubber efficiency of the ENGAGE™ 11000 series OEM requirements to impact resistance of a part can be met with less polyolefin elastomer addition, at lower rubber loading, as illustrated in Figure 2 (on the reverse).

Low glass transition temperature → High rubber efficiency

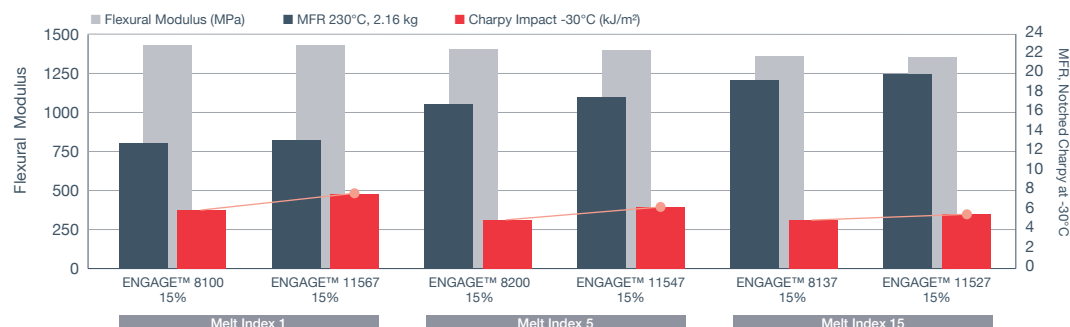


Figure 1: Improved toughness for ENGAGE™ 11000 series in hard TPO with 20% talc filler, same addition level as for ENGAGE™ 8000 series.



Seek Together™



The benefits in efficiency and performance of the ENGAGE™ 11000 series can be of value not only in filled hard TPO formulations but also in soft TPO compounds where very high levels of up to 40% of polyolefin elastomer are added. The improved compatibility compared to best incumbent products from the ENGAGE™ 8000 series can be observed at the rubber/polypropylene matrix interface for both hard and soft TPO compounds, see Figure 3.

Without compromising on stiffness, the higher rubber efficiency finally allows to produce TPO compounds with the required low temperature impact resistance and overall toughness at a higher flow for the first time, by using a higher flow polyolefin elastomer from the ENGAGE™ 11000 series in the formulation, as demonstrated in Figure 4.

That new range of higher flow TPO compounds will help to address the current trends for lightweighting and improved manufacturing efficiency.

Low glass transition temperature → High rubber efficiency

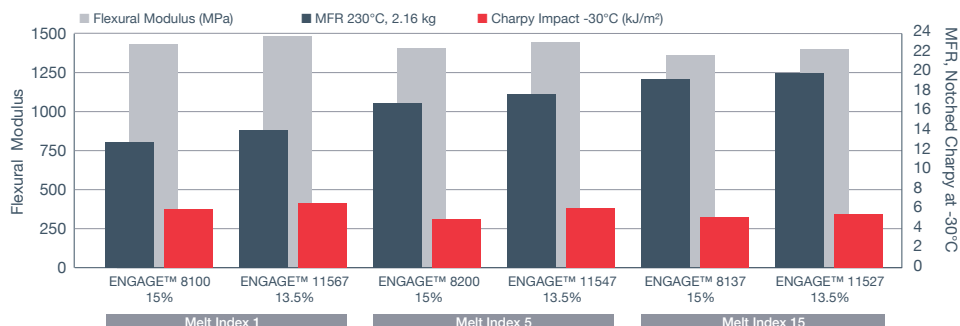


Figure 2: Improved stiffness/toughness/flow balance for ENGAGE™ 11000 series in hard TPO with 20% talc filler, reduced addition level compared to ENGAGE™ 8000 series.

Low glass transition temperature → High rubber efficiency

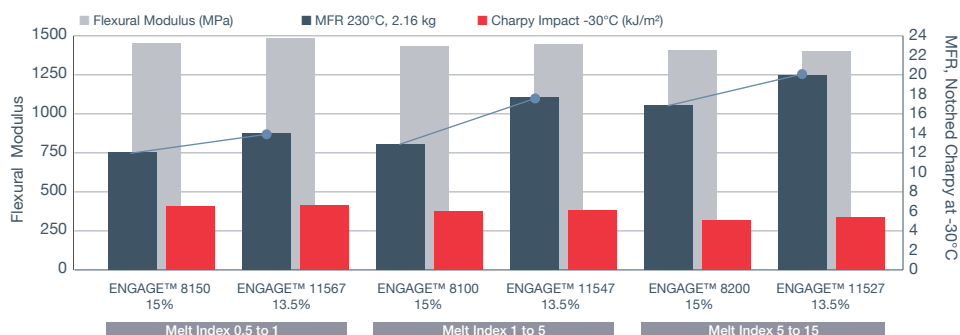
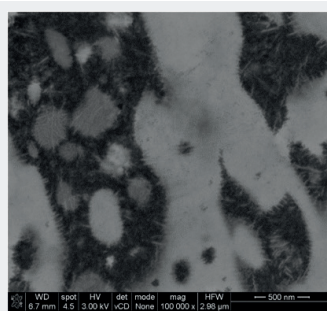
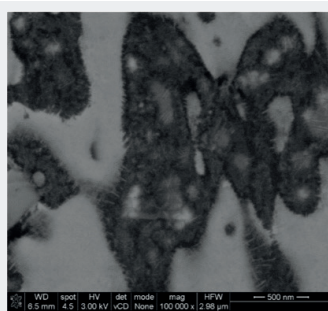


Figure 4: Improved TPO compound flow for ENGAGE™ 11000 series in hard TPO with 20% talc filler, reduced addition level compared to ENGAGE™ 8000 series, with higher flow polyolefin elastomer.

Hard TPO

15% ENGAGE™ 8200 reduced to 13.5% ENGAGE™ 11527



Soft TPO

39% ENGAGE™ 8842 reduced to 36% ENGAGE™ 11567

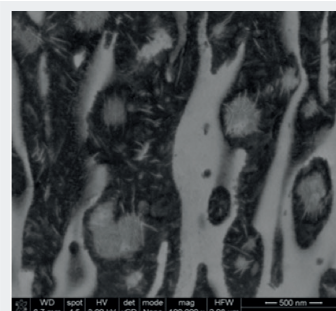
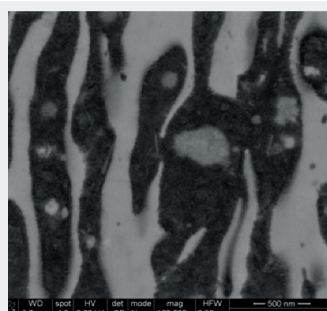


Figure 3: Improved compatibility for ENGAGE™ 11000 series in hard and soft TPO compounds, reduced addition level compared to ENGAGE™ 8000 series.

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ENGAGE™11000 SERIES