

**EASTMAN**



A **well-balanced** solution  
for **better performance**

Eastman **IMPERA**<sup>™</sup>  
performance resins

# The drive for **safer tires**

For tire manufacturers and formulators alike, balancing performance and safety is a constant challenge. That's because the market—whether in original equipment tires or replacements—wants both. Meanwhile, regulations, tire labeling requirements, and third-party ratings place heavy emphasis on safety.

To be sure, some performance attributes—such as wet grip—translate into safety benefits, enabling drivers to have an extra car length or more when faced with critical situations on a wet road.



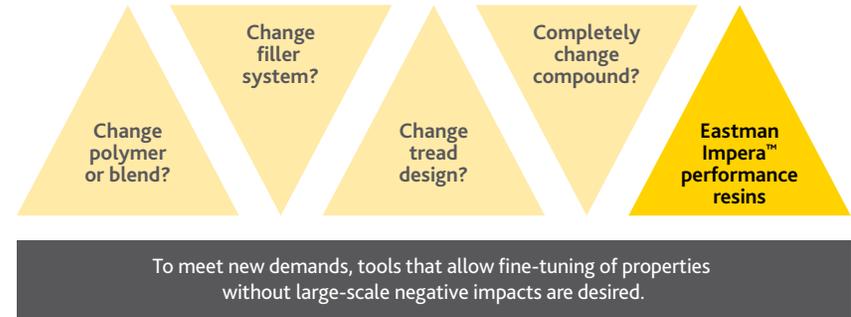
Well-balanced tire



Low rolling resistance tire

*For illustrative purposes only*

Tire makers have a variety of ways to improve wet grip. Typically, they leverage polymers, additives, and fillers to address and minimize performance trade-offs. Additives are vital for fine-tuning tread performance at relatively low loading levels. But as demand increases to differentiate, tire manufacturers are looking for new solutions that will improve safety performance attributes without significant trade-offs and the need to completely reformulate.



## A well-balanced solution for better performance

Eastman Impera™ performance resins empower tread compounders to create balanced performance by significantly improving wet grip without sacrificing rolling resistance and wear.

### PERFORMANCE

Impera enables differentiation that translates to improved overall performance. As a result, manufacturers have the option to call out differentiation downstream.

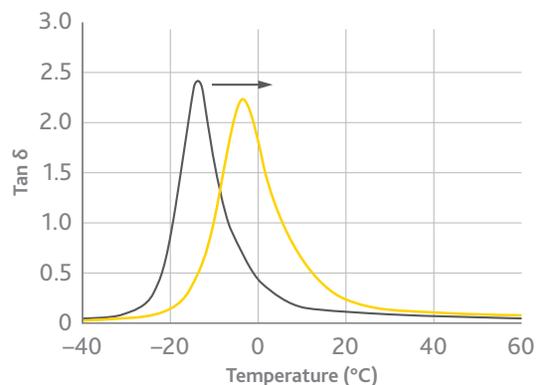
### VALUE

Tires with better ratings from third parties can command a better price and possibly achieve greater market share through higher probability of OE fitment. During formulation, Impera allows greater flexibility across the rubber compound.

### COMPLIANCE

Whether tire manufacturers want to meet their own high standards or achieve better third-party ratings, Impera can help. With the ability to enhance wet grip and allow for fine-tuning of performance attributes, Impera is a valuable tool for formulators who need to take tire performance to the next level.

Eastman Impera™ performance resins, when used as part of the plasticizer package, result in a significant shift of  $T_g$  to higher temperatures, allowing tire makers to make novel elastomer choices. For example, Impera enables the use of lower- $T_g$  polymers or different polymer ratios at wet grip levels that were previously unattainable. As a result, tire makers can achieve a better balance of wet grip and rolling resistance while keeping other properties unchanged.



## The Impera portfolio

Impera performance resins enable compound designers to achieve better performance with more polymer options.

With a broad, versatile portfolio, Eastman offers tire manufacturers many types of performance resins to help balance wet grip, rolling resistance, and wear in tires marketed as ultra-high performance, high performance, winter, summer, racing, and all-season for passenger cars, two-wheelers, trucks/buses, and off-road vehicles.

Thanks to the depth of the Impera product line, tire manufacturers have access to performance resins that are compatible across a wide range of polymers. Eastman is committed to innovation and will continue to add new products to our portfolio.

Impera	Resin type	Softening point (°C)	Glass transition temperature $T_g$ (°C)
E1501	Hydrogenated aliphatic hydrocarbon	100	44
P1503	Aromatic hydrocarbon	100	53
P1504	Aromatic hydrocarbon	85	41
D1506	Aromatically modified aliphatic hydrocarbon	90	39
D1606	Aromatically modified aliphatic hydrocarbon	90	40
R1507	Aliphatic hydrocarbon	100	47
R1607	Aliphatic hydrocarbon	100	46
R1508	Aliphatic hydrocarbon	95	43
R1608	Aliphatic hydrocarbon	95	43
E1601	Hydrogenated aliphatic hydrocarbon	142	88
E1602	Hydrogenated aromatic hydrocarbon	100	47
P1505	Aromatic hydrocarbon	140	85

When seeking market differentiation, formulators and manufacturers can rely on Eastman rubber compounding, chemistry, and tire technology expertise for help.

**To discuss which Impera performance resin is right for your formulation, ask your Eastman sales representative about collaborating with the Eastman tire additives team.**





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