

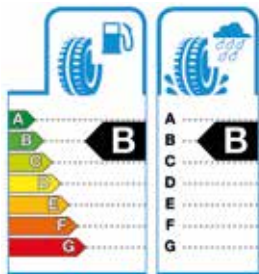


### Additives for the synthetic rubber industry enable the production of ultra-high performance polymers with enhanced functional properties, facilitating improvement in high performance and green tyre tread compounds.

**Casamod™** – polar modifiers improve random distribution of styrene and increase butadiene 1,2 vinyl content in solution styrene butadiene rubber (s-SBR).

**Casamod™ 450 – Tetrahydrofurfuryl Ethyl Ether (THFEE)** – used in the polymer industry during polymerisation of a range of monomers to produce a variety of copolymer species. It also has a chain transfer agent to control molecular weight and narrower polydispersity.

**Casamod™ 550 – 2,2-Di (tetrahydrofuryl) propane (DTHFP)** – is a polar modifier, also called randomiser, used for the production of s-SBR to control the microstructure of the polymer, providing high vinyl content and distribution of styrene.



In order to meet the new stringent criteria for tyres, the tyre producers increasingly need to use functionalised s-SBR to gain approvals on new OEM models and therefore migrate their focus towards s-SBR suppliers with superior microstructure and functionalisation technology. Improved magic triangle properties:

Rolling resistance
Wet braking
Mileage



**For additional information and pricing please contact:**

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## Polar modifier for:

### High, random styrene content in s-SBR

\*Increase Tg of polymer. Improves wet braking. For high performance tyres.

### High vinyl content BR

\*Increase Tg of polymer. Improves wet braking and cold temperature performance, improves silica compatibility. For winter tyres.

### High vinyl content s-SBR

\*Increase Tg of polymer. Improves wet braking and cold temperature performance, improves silica compatibility. For winter tyres.

## Functionalised s-SBR:

### Chain end/ in chain functionalisation of s-SBR, BR

\*Improve polymer compatibility with silica filler, giving improved rolling resistance. For all tyres.

## Key Polar Modifiers Today

	TMEDA	Casamod™ 450 – THFEE	Casamod™ 550 – DTHFP
Vinyl content	-	+	++
% Adjacent styrene	-	+	+
Reaction rate/plant throughput	-	+	+
Vinylic % at temperature	-	+	+
Water solubility	++	+	+
Thomas Swan product		✓	✓

## Selection of modifier dependent on:

Final product properties (Presence of residual modifier, block styrene)

Plant design (Exotherm control capability, batch vs continuous, dedicated or multi-purpose)

Process operated (adiabatic, isothermal)

Thomas Swan Performance Chemicals is committed to sustainability and manufactures a broad range of additives, resins, and active pharmaceutical ingredients. These products enhance the processes used to manufacture tyres, synthetic rubber, leather, powder coatings, flexographic inks and household and personal care products, as well as improving performance in many of the applications where they are used.



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