SEQENS
ADVANCED SPECIALTIES

MODENS

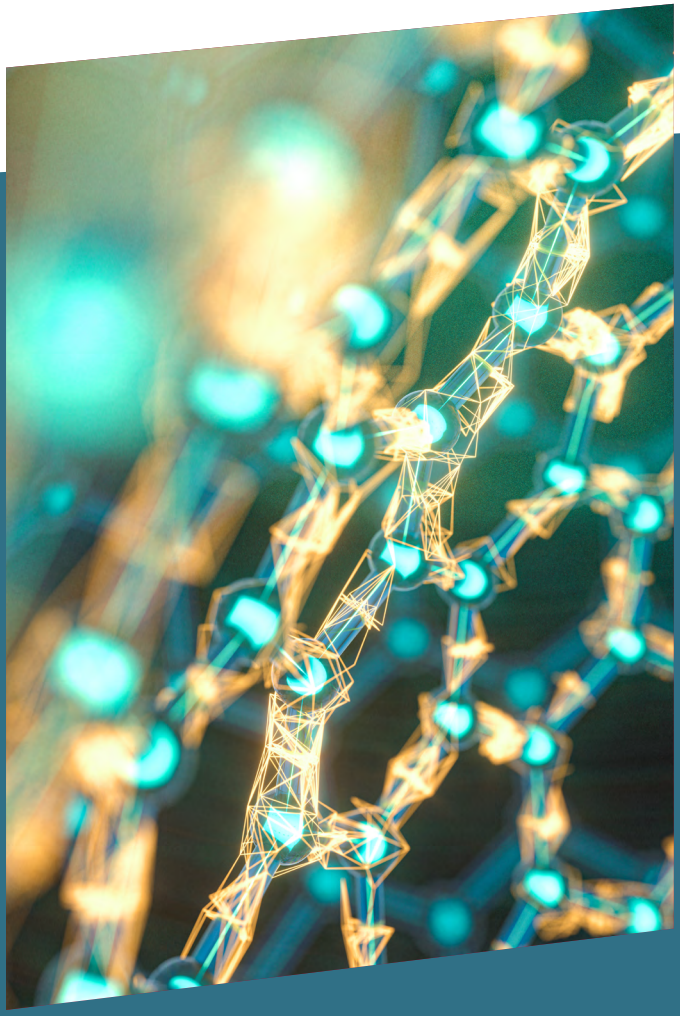
Polar modifiers for high performance styrenic block copolymers

SEQENS develops custom solutions and ingredients for the most demanding industries such as aeronautic, construction, cosmetics, electronics, automotive and healthcare.

In this purpose, SEQENS offers a range of polar modifiers, MODENS, enabling the production of styrenic block copolymers with enhanced properties used in various applications such as high performances tires production, asphalt paving modification, sealants, adhesives and medical devices.

Polar modifiers are especially used for SBS (Styrene-Butadiene-Styrene) and s-SBR (solution Styrene-Butadiene synthetic Rubber) polymerization.

These block copolymers consisting of a sequence of hard styrene blocks and soft butadiene blocks, are obtained through anionic polymerization technology which allows to produce tailor-made styrenic block copolymers by controlling polymer composition, microstructure, molecular weight distribution, degree and level of branching.



ABOUT SEQENS

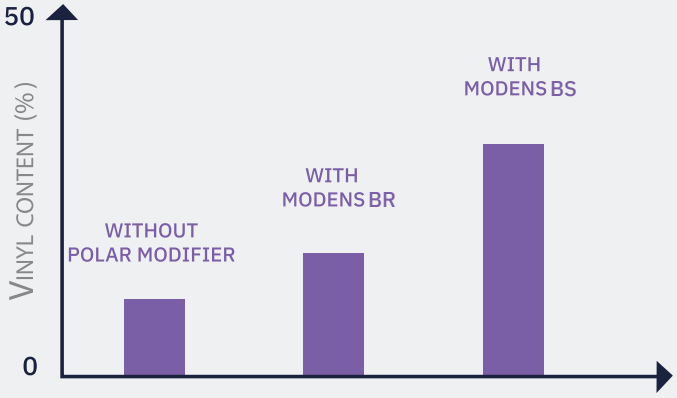
SEQENS is an integrated global leader in pharmaceutical synthesis and specialty ingredients, delivering outstanding performance, unrivalled market responsiveness and tailor-made solutions to its customers.

SEQENS operates 24 manufacturing plants in Europe, North America and Asia with 3,200 employees.

Its 300 scientists, engineers and experts in its 3 R&D centers, develop tailor-made solutions and ensure that products are successfully transferred into production.

MODENS polar modifiers allow:

- A random incorporation of styrene to get the requested elastomeric performance characteristic
- To control the molecular weight distribution
- Microstructure modification with a high vinyl content to increase Tg of polymer for an excellent balance of handling, wed skid, traction and rolling resistance properties



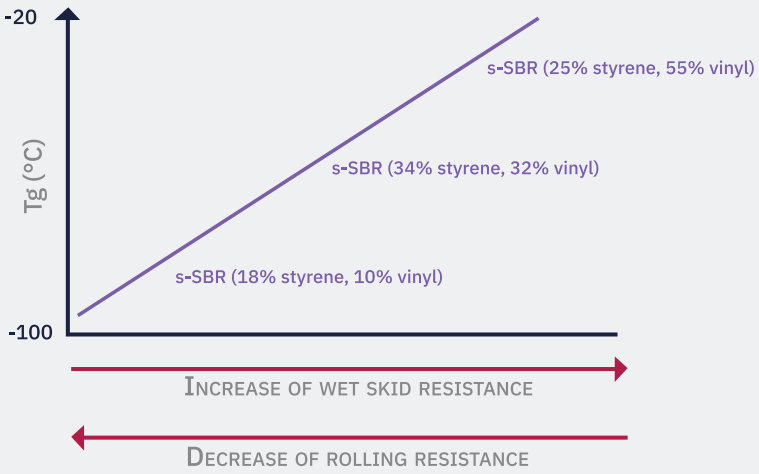
Influence of polar modifiers on vinyl content of block copolymers

MODENS BS (1,2-Diethoxypropane)

Is used as a randomizer during the production of SBS (Styrene-Butadiene-Styrene) to control the microstructure of the polymer, providing high vinyl content and enhanced distribution of styrene. SBS thermoplastic elastomer has the advantage to have the characteristics of both plastic and rubber. It is used for asphalt modification as well as compounding, sealants, adhesives and medical devices.

MODENS BR (Ethyltetrahydrofurfuryl ether)

Is a sterically hindered polar modifier used during the production of s-SBR (solution styrene Butadiene Rubber) to obtain a narrow molecular weight distribution.
The property of s-SBR differs from traditional rubber as its composition can be customized by variations and levels of functionalization according to the processing and application demands.
This applies to meet or exceed the tire labeling requirements about fuel efficiency, safety and noise.



Impact of Tg on Tyre Tread properties with MODENS BR

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