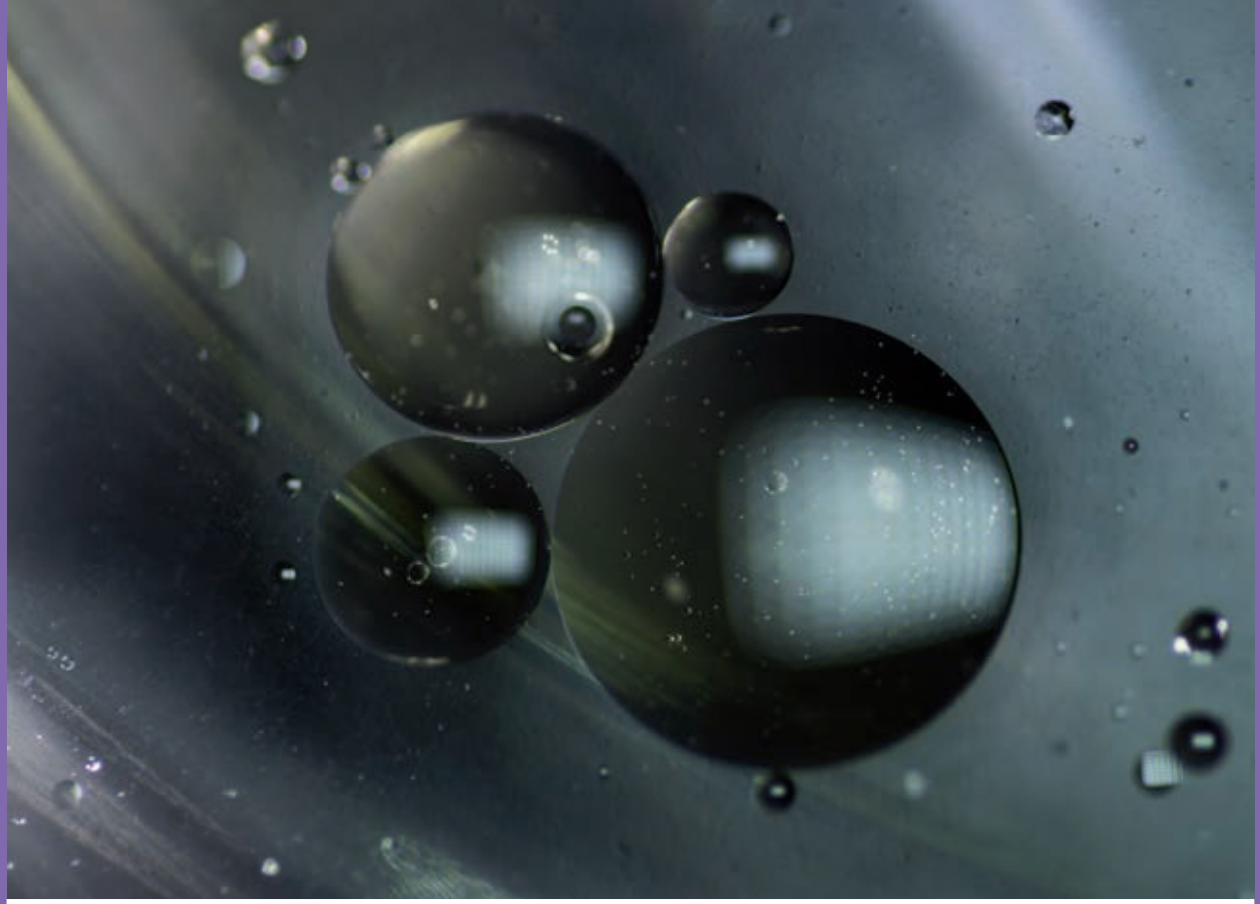


Matrilox® P bioplasticizers for rubber

Matrica

Matrìca

Matrìca is the joint venture between **Versalis (Eni)**, a company specialized in the manufacturing and marketing of petrochemical products, and **Novamont**, leader in the bioplastics market. The exceptional expertise of these two major Italian concerns have enabled the implementation of an industrial reconversion project which has resulted in the first biorefinery integrated into the local area, in Porto Torres in Sardinia, for the development of the innovative range of Matrilox® bioproducts made from vegetable raw materials from an integrated agricultural supply-chain.

Matrilox® P: a new family of plasticizers from renewable sources

Matrìca offers a range of **plasticizers** for specialty elastomers and PVC, as well as an innovative type of **bio-extender oil** for general purpose elastomers. Main application fields for Matrìca's range of plasticizers are the flexible PVC sector, along with the other one related to the compounding of specialty elastomers like NBR and CR.

Matrilox® bioplasticizers offer a high-performance, non-toxic, eco-sustainable alternative to traditional plasticizers (phtalates). These plasticizers, which have high molecular weight and low release levels, are able to achieve excellent plasticization and exceptional thermal stability.

Other Matrilox® plasticizers have been specifically designed for the tyre industry with the aim of partially or totally replacing oil of fossil origin. They can be used either for the production of oil-extended SBR and BR, or, when properly formulated, as free oils in the production of tyre compounds. The peculiar nature of Matrilox® bio-sourced oil represents an additional tool to the tyre industry for developing sustainable formulation with a unique property balance. The proposed novel plasticizers also provide opportunities to further formulations of green tyres.

MATRILOX® PD201P	Suggested for PVC and TPU, low migration
MATRILOX® PD202P	Suggested for PVC, high heat stability, low volatility
MATRILOX® PD203P	Suggested for NBR / CR elastomers compounding
MATRILOX® PD204P	Suggested for NBR / CR elastomers and PVC compounding
MATRILOX® PF801D	Process oil for elastomers compounding
MATRILOX® PF801R	Low viscosity general purpose grade
MATRILOX® PF801B	Medium viscosity general purpose grade

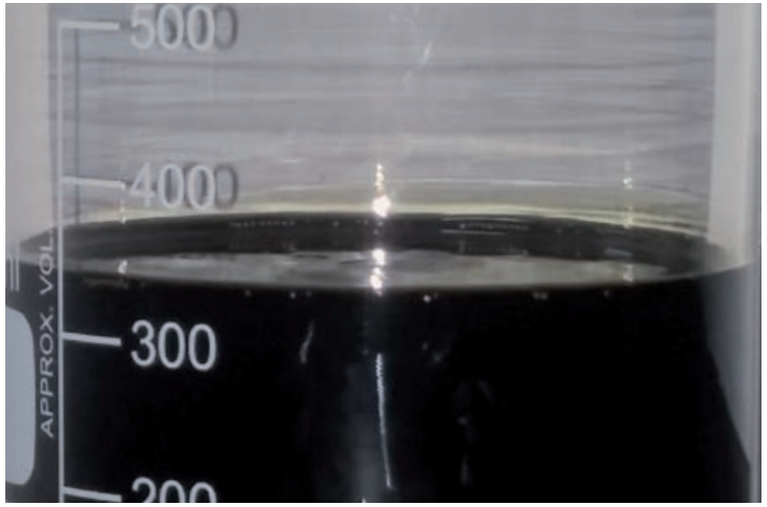
Matrilox plasticizers

Matrilox® PF801D can be used as free oil in compounding SBR and BR, but also as extender oil.

MATRILOX® PF801D
AS BIO-EXTENDER OIL FOR SBR

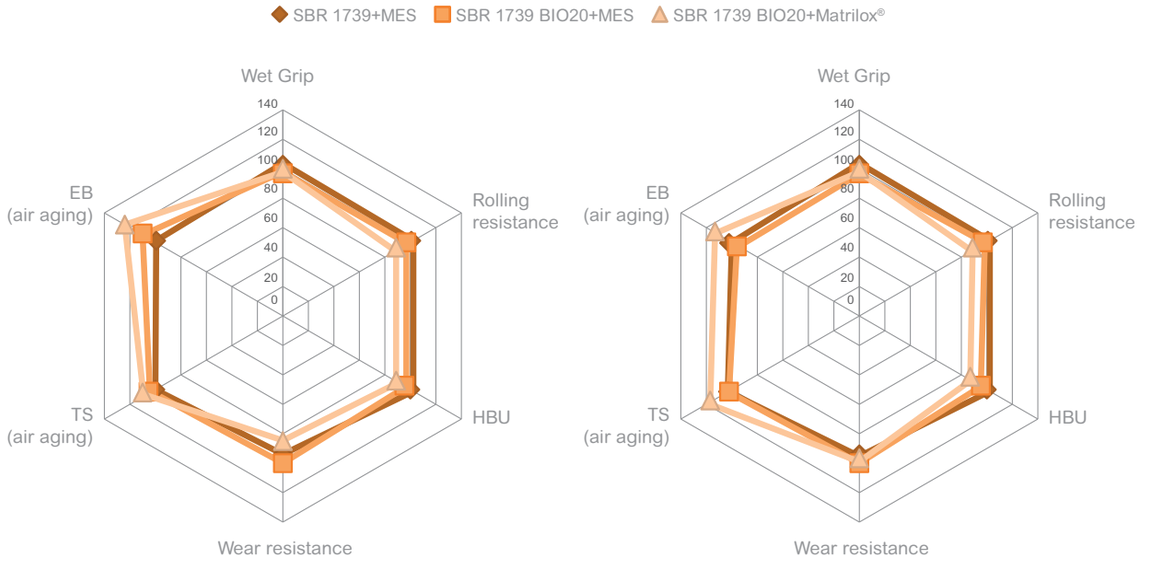
It can partially replace extender oils of fossil origin.

SBR 1739 BIO20	Oil extended TDAE/Matrilox® (80:20)
SBR 1739 BIO50	Oil extended TDAE/Matrilox® (50:50)
SBR 1789 BIO50	Oil extended RAE/Matrilox® (50:50)



MATRILOX® PF801 D
IN TYRE TREAD COMPOUND WITH CARBON BLACK

Carbon Black based tread compound SBR 1739 + free oil	SBR compound (left)
	NR/SBR/BR compound (right)



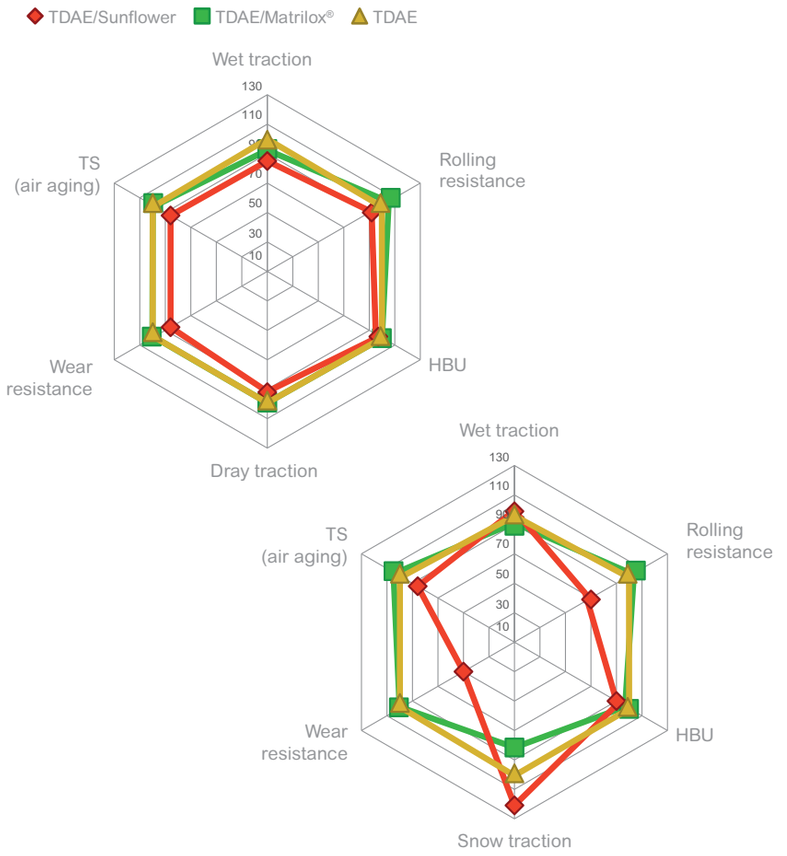
BIO-extended SBR provides different property balance depending on Matrilox® concentration

MATRILOX® PF801D
IN TYRE TREAD COMPOUND WITH SILICA

Silica based tread compound 30% of TDAE oil replaced by Matrilox®

SSBR/BR compound (left)

SSBR/NR compound (right)



Matrilox® PF801D provides properties comparable with TDAE

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