

SHELL RISELLA X OILS IN THE POLYMER INDUSTRY



**THERMOPLASTIC ELASTOMERS (TPE-SEPS, TPE-SEBS AND TPE-V)
AND ETHYLENE-PROPYLENE DIENE MONOMER (EPDM) FORMULATIONS**

Shell Process Oils

UNLOCKING COMPETITIVE ADVANTAGE

UNDERSTANDING YOUR NEEDS

Having worked closely with the world's leading polymer manufacturers and compound producers for many years, Shell understands your business and the challenges that you face.

Your products must match your customers' needs in a wide range of industries, including the automotive, consumer goods, industrial and medical sectors. Their requirements are becoming more and more sophisticated while legislation becomes more stringent.

Process oils play a critical role in the formulation of polymer compounds and rubber blends. They typically represent 20–50% of a polymer compound, such as TPE, and up to 100 parts per hundred in rubber blends, such as EPDM. The process oil functions as an extender oil, and it is extremely important that it has good performance and compatibility with the polymer as this influences the rubber's softness, elasticity and colour stability.

Shell Risella X oils can help you to unlock competitive advantage because they offer

- **excellent performance**
- **extra purity.**



Performance at a glance

EXCELLENT PERFORMANCE	Compound compatibility	Process efficiency	Outstanding UV stability
EXTRA PURITY	Technical white oil classification (FDA § 178.3620 (b))	Very low polycyclic aromatic hydrocarbon (PAH) levels	



COMPOUND COMPATIBILITY

Shell Risella X oils are based on gas to liquids (GTL) synthesis technology. Consequently, they have a uniform molecular structure: mainly highly saturated linear paraffins with a few methyl side chains (see Figure 1) compared with standard conventional oils (see Figure 2), which contain higher levels of polar components. This feature contributes to good compatibility, particularly with TPE-SEPS, TPE-SEBS and TPE-V types, and EPDM, as the molecular structure is similar.

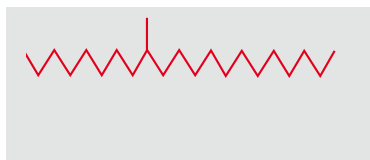


Figure 1: Shell Risella X representation

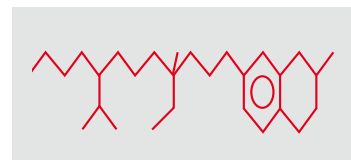
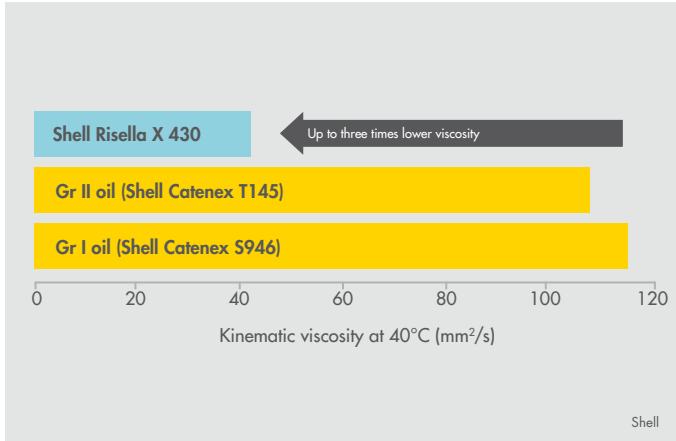


Figure 2: Conventional Group I product representation

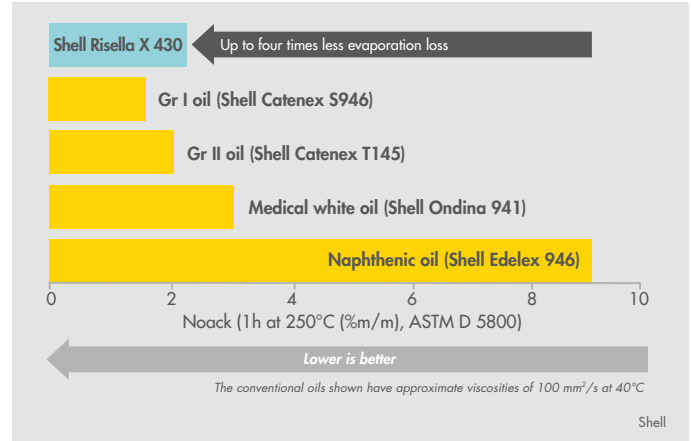
PROCESS EFFICIENCY

Shell Risella X oils have significant advantages for compound and rubber blend processing. Compared with conventional process oils, Shell Risella X oils demonstrate

- **up to three times lower viscosity.** Given Shell Risella X oils' lower viscosity and more linear molecular structure than conventional oils, typically used in such applications, they can contribute to better flow of the melt, which is a key element in the production process.

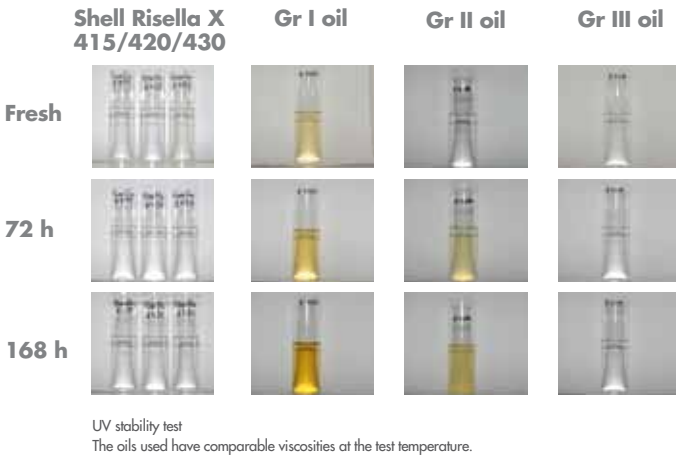


- **up to four times less evaporation loss.** This improves the production environment and reduces the compound emissions (fogging).



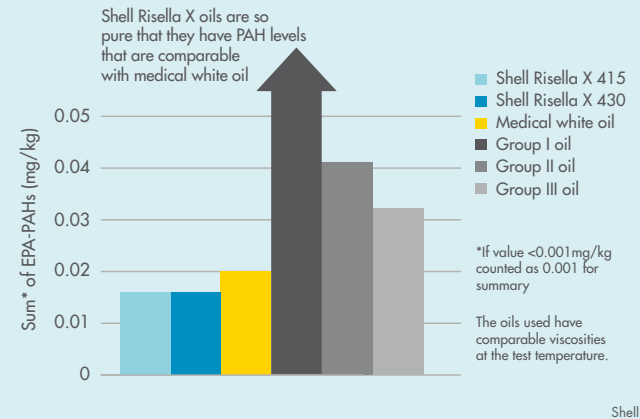
OUTSTANDING UV STABILITY

Owing to their UV stability properties, Shell Risella X oils resist discolouration, which can be beneficial to your customers.



PAH LEVELS COMPARABLE WITH MEDICAL WHITE OILS

Shell Risella X oils have very low PAH levels that are comparable with medical white oils. Their purity is in line with the requirements for formulations that meet more stringent legislation, which makes them appropriate for applications requiring higher levels of purity.



TECHNICAL WHITE OIL CLASSIFICATION (FDA § 178.3620 (b))

Shell Risella X oils' extra purity is demonstrated by the fact that they meet and exceed the FDA standard requirements (FDA § 178.3620 (b)).

FIND OUT MORE: TALK TO SHELL PROCESS OILS

If you are interested in unlocking valuable competitive advantage, talk to Shell about the benefits that Shell Risella X oils could have for your business.



www.shell.com/processoils