

# SHELL RISELLA X OILS IN OIL-BASED DEFOAMER FORMULATIONS



Shell Process Oils

UNLOCKING COMPETITIVE ADVANTAGE

## UNDERSTANDING YOUR NEEDS

Having worked closely with the world's leading defoamer manufacturers for many years, Shell understands the challenges that you face. We know that you need defoamer formulations for your customers that offer excellent performance in minimising foam formation, rapidly releasing entrained air, and having low volatility to minimise the potential emission of volatile organic compounds (VOCs).

In oil based defoamer formulations, the oil can comprise up to 90% of the formulation. It functions as a carrier fluid, in order both to spread over the surface of the aqueous system to neutralise the surfactant molecules and to transport the hydrophobic ingredients of the defoamer to the double layers of surfactant molecule that stabilise the foam bubbles in order to destroy them.

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

- excellent performance
- extra purity.

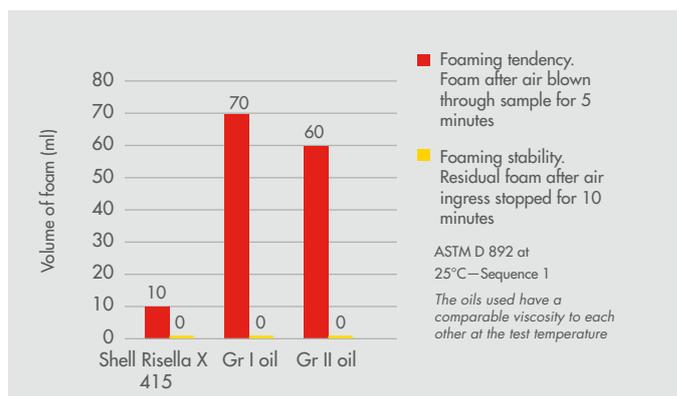
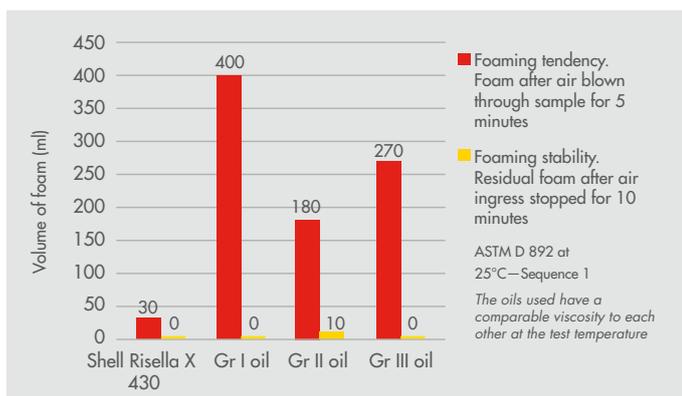
Performance at a glance			
<b>Excellent performance</b>	Reduced foam formation	Minimal emission of VOCs	Outstanding UV stability
<b>Extra purity</b>	Technical white oil classification (FDA § 178.3620 (b))	Very low polycyclic aromatic hydrocarbons (PAH) levels	



## REDUCED FOAM FORMATION

Shell Risella X oils produce

- **up to six times less foam** than alternative conventional oil technologies, this is known as the foaming tendency (red bars). Moreover, rapid air-release properties are demonstrated by the foaming stability (yellow bars).



## MINIMAL VOC EMISSIONS

Legislators worldwide are looking for safety and environmental improvements. Defoamers need minimised emissions of VOCs. In an oil-based defoamer, the oil is the major part of the formulation, so selecting the right low volatility oil can help you to minimise your product's VOC emissions.

Recent laboratory tests<sup>1</sup> on a batch of Shell Risella X demonstrate that Shell Risella X oils can meet the requirements of the US Environmental Protection Agency (EPA) 24.

Moreover, based on initial testing on commercial material, Shell Risella X oils can meet the low VOC requirements of Directive 1999/13/EC<sup>2</sup> (VOC Solvents Emissions Directive), Article 2 and of Directive 2004/42/EC<sup>3</sup> (VOC Paints Directive) Article 2.

<sup>1</sup>Volatile Matter Content at 110°C, Gravimetric, EPA Method 24, wt.%

<sup>2</sup>Calculated vapour pressure at a certain specified temperature

<sup>3</sup>Initial boiling point based on simulated high temperature distillation. ASTM D 2887.

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

As Shell Risella X oils are made from purified natural gas and contain a high proportion of saturated paraffinic hydrocarbons, they are very pure and have a low aromatic content.

Their extra purity is demonstrated by the UV absorption measured at four wavelengths, this is much lower than the FDA standard requirements (FDA § 178.3620 (b)). Crucially, Shell Risella X oils can be used in numerous defoamer applications.

	SHELL RISELLA X 415	SHELL RISELLA X 420	SHELL RISELLA X 430	FDA § 178.3620 (b)
Colour (Saybolt)	30	30	28	Min +20
280-289nm	0.05	0.03	0.03	Max 4.0
290-299nm	0.04	0.02	0.02	Max 3.3
300-329nm	0.03	0.02	0.02	Max 2.3
330-380nm	0.01	0.01	0.01	Max 0.8

## 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](http://www.shell.com/processoils)

## OUTSTANDING UV STABILITY

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



UV stability test

The oils used have a comparable viscosity to each other at the test temperature.

## PAH LEVELS COMPARABLE WITH MEDICAL WHITE OILS

Shell Risella X oils have very low PAH levels, such that they 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 that require higher levels of purity.

