

UNLOCKING COMPETITIVE ADVANTAGE

How additive company MÜNZING leveraged Shell's gas to liquids (GTL) technology to develop innovative defoamers

MÜNZING 
CREATING ADDITIVE VALUE



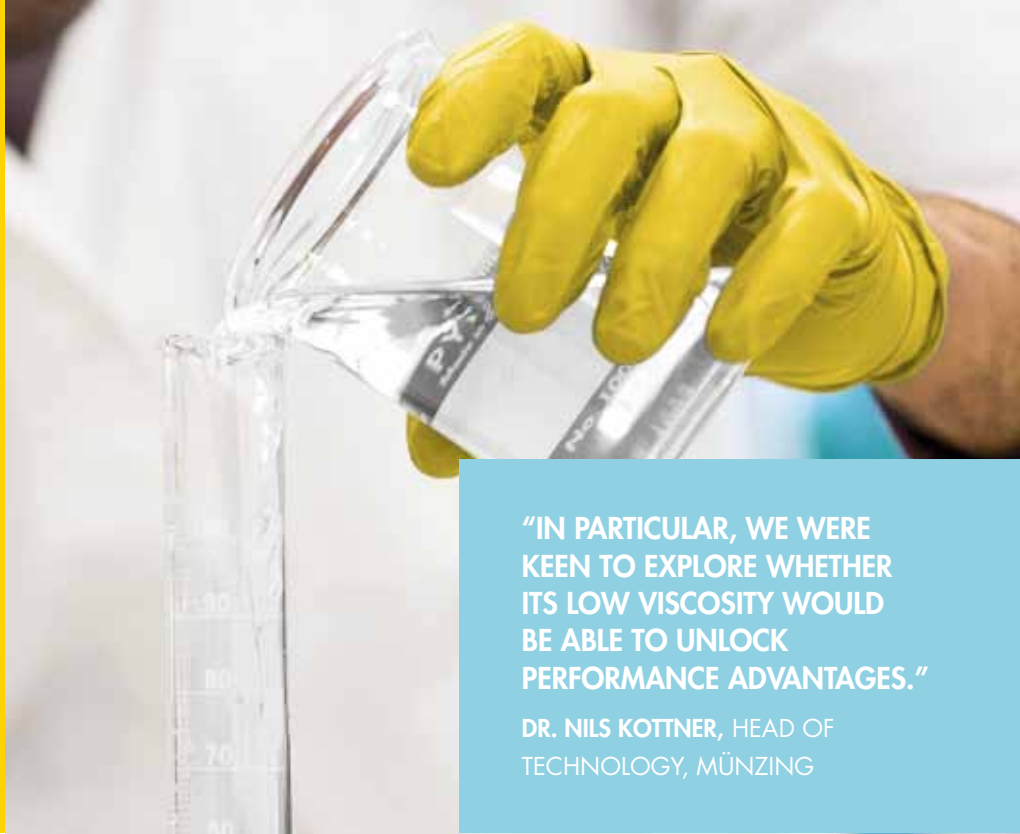
CHANGING THE GAME

BY APPLYING TECHNICAL WHITE OILS BASED ON GTL TECHNOLOGY, MÜNZING HAS CREATED A NEW RANGE OF HIGH-PERFORMANCE DEFOAMERS THAT OFFER VALUABLE PERFORMANCE BENEFITS.

Defoamer producer MÜNZING Chemie GmbH has established a strong reputation as an innovative company. Through its long-term business relationship with Shell, it decided to test the potential of Shell Risella X, a range of top-tier process oils based on GTL technology, in its products.

Shell Risella X oils offer excellent performance in selected applications because, unlike conventional process oils derived from crude oil, they are made from pure synthesis gas, so, they are mineral-oil free. This leads to final products with a distinct molecular structure, which can provide many valuable features and benefits (see boxed text, *Shell Risella X: Next-generation process oils*).

"As soon as it became available, we were interested in this GTL product," says Dr. Nils Kottner, Head of Technology, MÜNZING. "In particular, we were keen to explore whether its low viscosity would be able to unlock performance advantages."



"IN PARTICULAR, WE WERE KEEN TO EXPLORE WHETHER ITS LOW VISCOSITY WOULD BE ABLE TO UNLOCK PERFORMANCE ADVANTAGES."

DR. NILS KOTTNER, HEAD OF TECHNOLOGY, MÜNZING

FORMULATING DEFOAMERS WITH NEXT-GENERATION PROCESS OILS

Manufacturers of water-based coatings, adhesives and printing inks include surfactants such as emulsifying, wetting and dispersing agents in their formulations to stabilise any hydrophobic substances, such as binder particles, pigments and fillers, that their formulations contain.

However, because of the air present, these surfactants tend to create foam in aqueous systems. This can lead to problems either during the production of the coatings, adhesives and printing inks, or when they are being applied. Defoamers are used, therefore, to help to prevent the foam from forming or to knock it down.

Defoamers typically consist of

- the carrier liquid (75–95% of the formulation)
- hydrophobic substances, such as silica, waxes, metal soaps or silicones (1–10% of the formulation)
- emulsifiers, thickeners and biocides (1–15% of the formulation).

Usually, the carrier liquid is a mineral oil, a vegetable oil, polyoxyalkylene, or polysiloxane. The carrier has two functions. First, it must spread on the surface of the aqueous system to neutralise the surfactant molecules. Second, the carrier has to transport the hydrophobic ingredients of the defoamer into the foam lamella in order to destabilise them. The faster the defoamer spreads, the more effectively it controls foaming.

"We have now developed a series of three new defoamers – called AGITAN® 228, AGITAN 242 and AGITAN 275 – that are based on Shell Risella X," says Dr. Kottner. "Because of the oil's low viscosity, these defoamers have excellent spreading properties. That means that our customers can achieve the same performance levels using significantly less defoamer."

"There is another advantage," he adds. "The Shell Risella X oils that we are using in these new defoamers have a lower vapour pressure than standard mineral oils of the same viscosity."

USING SHELL RISELLA X, MÜNZING HAS DEVELOPED DEFOAMERS THAT HAVE VALUABLE PERFORMANCE ADVANTAGES OVER PRODUCTS THAT ARE BASED ON MINERAL-BASED OILS.

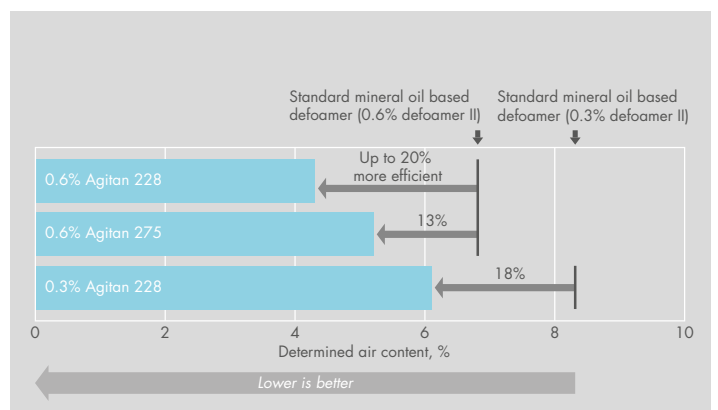
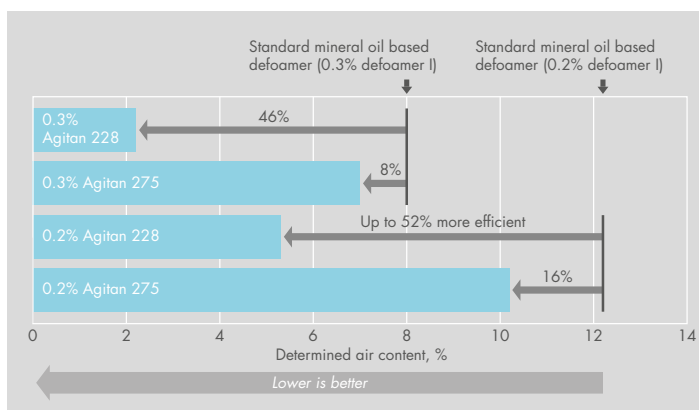


CUTTING-EDGE TECHNOLOGY

When compared¹ with a standard mineral oil based defoamer at different dosage levels, the Shell Risella X-based defoamers were

■ **up to 52% more efficient** in an interior wall paint

■ **up to 20% more efficient** in a façade paint.



¹MÜNZING laboratory tests

“THESE TESTS MEASURE THE AIR CONTENT AFTER THE DEFOAMER HAS BEEN ADDED TO THE PAINT AND INTENSIVELY AGITATED. THE RESULTS SHOW THAT AGITAN 228 IS UP TO 52% MORE EFFICIENT THAN A STANDARD DEFOAMER IN CERTAIN APPLICATIONS.² AS A RESULT, COATING MANUFACTURERS CAN REDUCE THE LEVEL OF DEFOAMER IN THEIR FORMULATION, THEREBY CUTTING COSTS.”

DR. NILS KOTTNER, HEAD OF TECHNOLOGY, MÜNZING

²Compared with a standard mineral oil based defoamer

“WE HAVE NOW DEVELOPED A SERIES OF THREE NEW DEFOAMERS – CALLED AGITAN 228, AGITAN 242 AND AGITAN 275 – THAT ARE BASED ON SHELL RISELLA X. BECAUSE OF THE OILS’ LOW VISCOSITY, THESE DEFOAMERS HAVE EXCELLENT SPREADING PROPERTIES AND, AS A RESULT, SIGNIFICANTLY LESS DEFOAMER IS REQUIRED TO ACHIEVE THE SAME PERFORMANCE.”

DR. NILS KOTTNER, HEAD OF TECHNOLOGY, MÜNZING

MÜNZING: CREATING ADDITIVE VALUE

Established in 1830, MÜNZING is a privately owned, fast growing additive company and has a long-standing reputation for quality and innovation.

Based in Heilbronn, Germany, it operates worldwide from state-of-the-art technical service centres in Europe, the Americas and Asia.

It has a clear technical mission: to “create additive value” for its customers by helping to improve their formulations. It provides a broad portfolio of speciality additives, including defoamers, dispersants, rheology modifiers, emulsifiers, wetting and levelling agents, micronised and coated waxes, and wax dispersions and emulsions.

SHELL RISELLA X: NEXT-GENERATION PROCESS OILS

Shell Risella X oils are manufactured at Shell’s new Pearl GTL plant in Qatar, which is the culmination of some 40 years of research and development. It is also the world’s largest source of GTL products.

Extra purity

Shell Risella X oils contain a high proportion of paraffinic hydrocarbons and are very pure, which provides qualities that are key in many applications. For instance, they

- are colourless
- are almost odourless
- contain virtually no sulphur, nitrogen or aromatics
- have an extremely narrow hydrocarbon distribution range.

Excellent performance in selected applications

Shell Risella X oils are synthetic process oils offering an outstanding combination of characteristics that can facilitate enhanced performance in the applications in which they are used. These properties include

- low volatility
- low pour point
- high flash point
- high viscosity index
- outstanding UV and thermal colour stability.

Few other process oils can offer the same combination of properties.



WORKING WITH SHELL

If you are interested in unlocking valuable performance advantages, talk to us about the benefits that Shell Risella X could have for your business.



www.shell.com/processoils