



ELEMENTIS

RHEOLATE[®] POWDER NiSAT

For high performance architectural formulas
with easy and flexible incorporation.

RHEOLATE® POWDER NISAT

With a market clearly demanding higher-performing, safer and more sustainable paints, we took on the challenge to change the game of rheology.

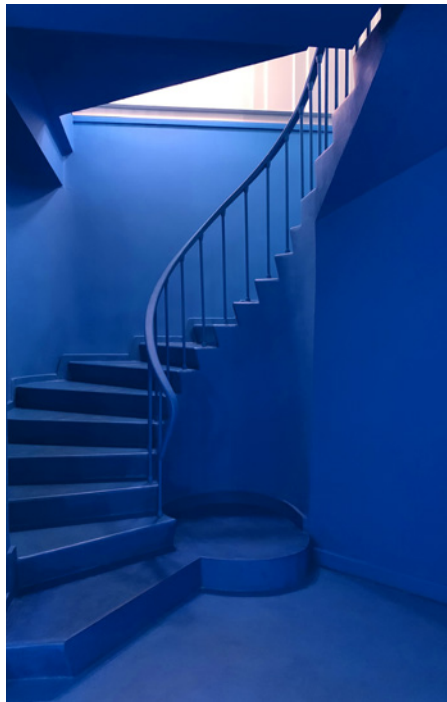
Our answer: a powdered version of the urethane rheology modifiers. Safer ingredients, less storage, and consequently a lower carbon footprint on transportation.

Our 100% solid powders can easily be incorporated into paint formulations, resulting in improved handling, increased efficiency and meeting the latest health- and safety demands. All whilst preserving the top-notch quality we are known for.



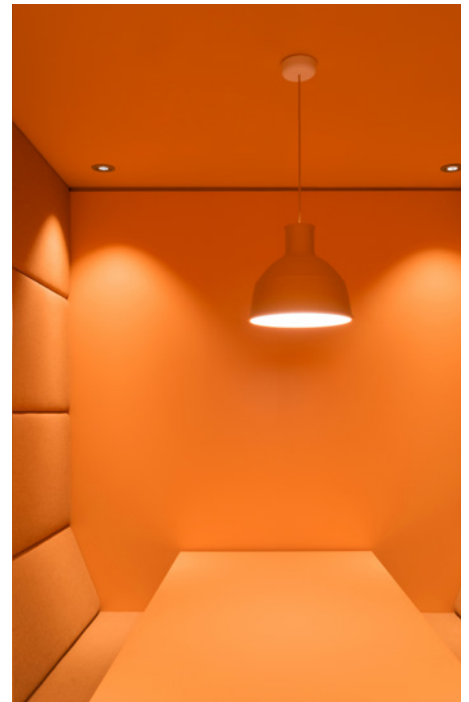
Adding sustainability

Our product realizes up to 80% CO2 reduction on transportation, reduced storage space needed and is solvent free.



Adding safer ingredients

Our product is biocide, VOC free and broad eco labelling compliancy.



Adding performance

Our product realizes a higher efficiency, improves rheology and creates excellent dry film properties.

Product benefits

ELEMENTIS developed and patented powder NiSATS in the early years of 2000. Since than powder NiSAT technology was established by many customers in their production.

The new development of RHEOLATE® PHX 7025 is now completing the family and enables to have full freedom in formulation.

	RHEOLATE® FX 1100	RHEOLATE® 208	RHEOLATE® PHX 7025
Chemistry	Polyether urea Polyurethane Associative Thickener	Polyether urea Polyurethane Associative Thickener	Polyether Polyurethane Associative Thickener
Shear Profile	Low	Mid - High	High
Property Profile	<p style="text-align: center;">RHEOLATE® FX 110 RHEOLATE® 208 RHEOLATE® PHX 7025</p>		
Use for	WB systems, like coatings and adhesives.	WB systems, like coatings and adhesives.	Designed for the use in WB systems, like coatings, adhesives & sealants, inks, textile coatings.
Details	Contributes to low shear which impacts sag resistance, higher film build and improved edge covering. Perfect partner for RHEOLATE® PHX 7025.	Very effective in small-particle-size latex emulsions and in high-volume-solid systems. Can be use as stand alone thickener in formulations.	Contributes very effectively to high shear which impacts flow & levelling, roller spattering and brushout. Perfect partner for RHEOLATE® FX 1100.

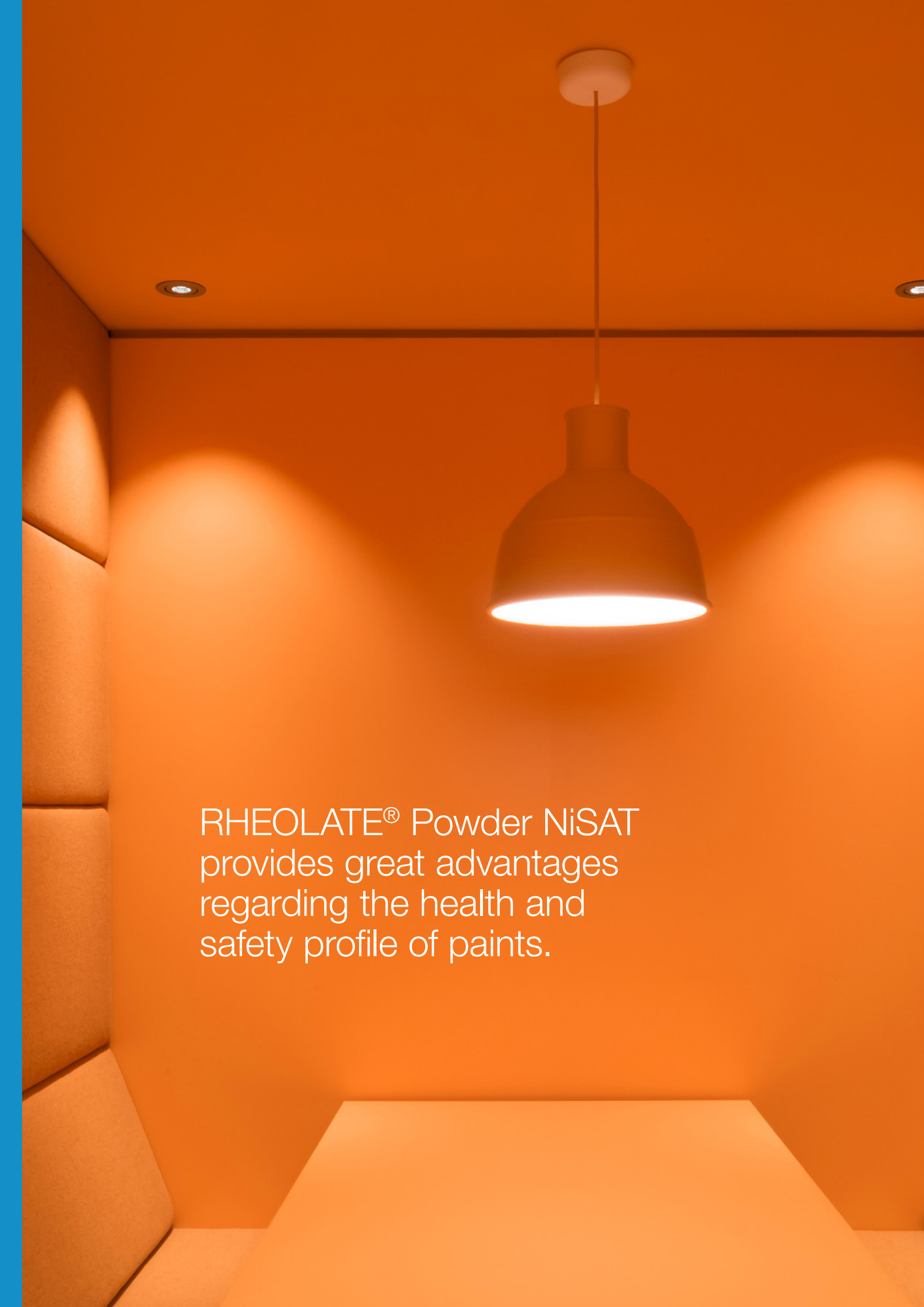


Adding future - Sustainability

The use of powder in coatings formulations allow to generate several benefits in the logistic and production process:

1. By ordering a powder the transportation volume is significantly reduced - ca. 5 times less volume has to be moved from the supplier to the manufacturer. Less trucks are needed for the required volume, which reduces carbon footprint on transportation up to 80% according to our measurements*.
2. The reduced volume require less storing area than with the liquid thickener version, up to 5 times.
3. Material moves within the manufacturer are reduced so that supply to the manufacturer vessel will be faster and logistical time savings can be expected.
4. Powder thickener are less sensitive to low storing temperatures
5. The Rheolate® Powder NiSAT are 100% solid powder material and free of any solvent.

* The European Chemical Industry Council (Cefic) and European Chemical Transport Association (ECTA). (2011, March). Guidelines for Measuring and Managing CO2 Emission from Freight Transport Operations.



RHEOLATE® Powder NiSAT
provides great advantages
regarding the health and
safety profile of paints.

Adding future - Safer ingredients

RHEOLATE® Powder NiSAT provides great advantages regarding the health and safety profile of paints. Because of the 100% solid form, biocides are not anymore needed to preserve the material. Also it requires no emulsifiers nor surfactants, so the VOC content can be lowered significantly in the paint formulation.

The RHEOLATE® Powder NiSAT are free of any hazardous labels. ECO-label and other certificates documents are showing more beneficial datasets for the final calculation. Powder thickener allow to formulate asthma & allergy friendly paints and enables to achieve the following respective certificates.

		RHEOLATE® FX-1100	RHEOLATE® 208	RHEOLATE® PHX 7025
Enabling labelling compliance	EU Ecolabel			
	Nordic Swan			
	Blauer Engel			
	Asthma Allergy Nordic			
	French NF Environmental			
Additional Information	Biocide Free			
	VOC content*	0%	0%	0%
	SVOC content*	0%	0%	0%

		RHEOLATE® FX-1100	RHEOLATE® 208	RHEOLATE® PHX 7025
Enabling labelling compliance	Green Guard Gold			
	Leed 4.1			
	Declare			
	A.A.F.A (Asthma Allergy Foundation America)			
	Biocide Free			
Additional Information	VOC content*	0%	0%	0%
	SVOC content*	0%	0%	0%

* based on Boiling points of ingredients (theoretical assumption)

Note: This document is purely meant to provide an overview for guidance purposes. It is the responsibility of the manufacturer of the final product to fulfill the compliance criteria of the respective labels in final formulation.

Adding future - Performance



Flexible use of powder thickener

The incorporation of powder in paint manufacturing requires equipment with adequate shear forces. The ELEMENTIS powder family is very flexible in its incorporation and can also be incorporated with low shear forces.

The following processes can be followed:

Millbase

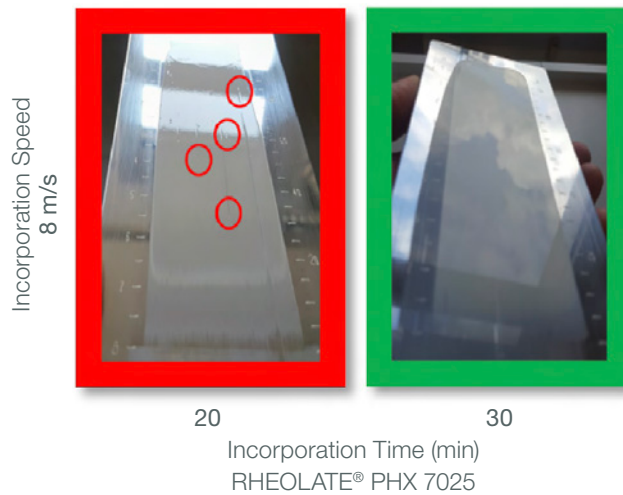
The millbase process provides enough shear forces to incorporate the thickener easily and effectively.

Studies in low PVC paint at a tip speed of 14 m/s for 30 min showed draw downs free of particles.

Post Addition

Post addition processes are running with lower speed than millbase processes.

Internal studies in low PVC paint have revealed that 8 m/s in combination with ca. 30 min. allow to incorporate the powder thickener without remaining particles.

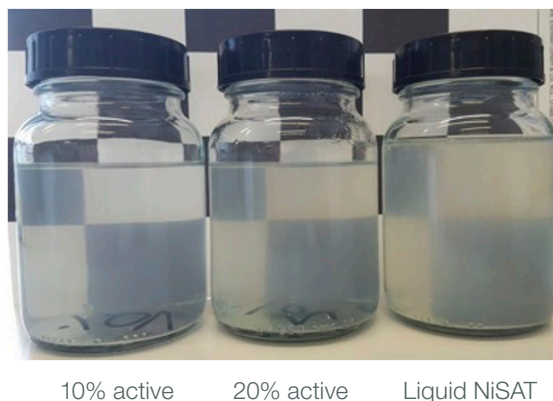


Intermediate

The powder thickener family allow to create intermediates with different solid content.

RHEOLATE® PHX 7025 can easily be introduced up the level that is offered by the liquid version (20%). Higher contents are possible and depends on handling.

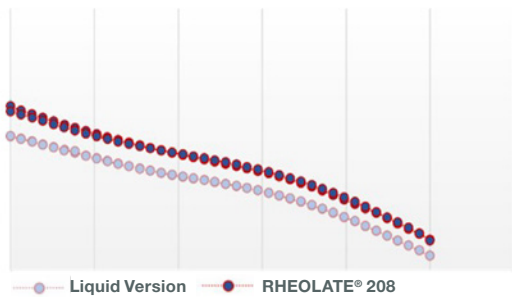
Its recommended to add biocide when the intermediate is used over a longer period of time.



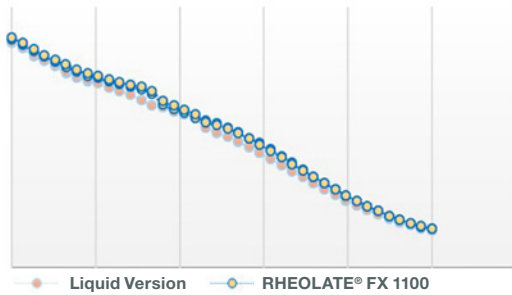
Efficiency

Solid powder thickener provide 100 % effectivity to rheology. The consequence is a higher effective behaviour compared to the liquid versions. The effectivity advantage can vary depending on chemistry.

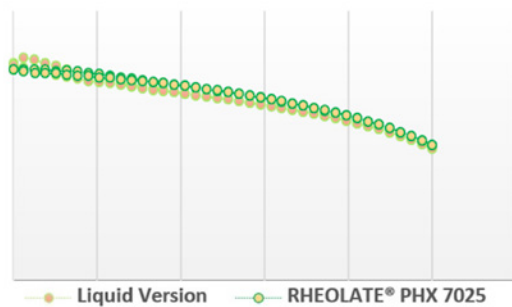
Following comparison and overview on effectivity was done in an Aliphatic PU-Alkyd dispersion and shows a higher effectivity up to 18 %.



Product	KU
	Units
RHEOLATE® 208	125
Liquid Version	106
Benefit	18%



Product	KU
	Units
RHEOLATE® FX 1100	131
Liquid Version	116
Benefit	12%

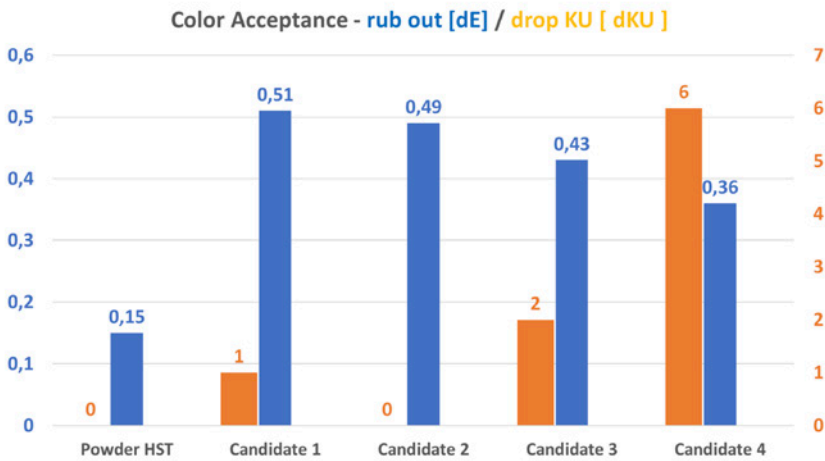


Product	KU
	Units
RHEOLATE® PHX 7025	79
Liquid Version	73
Benefit	8%

Wet & Dry Film Properties

The use of powder thickeners enables the improvement of wet & film properties. This is possible because powder thickener don't require substances such as emulsifiers and surfactants, which can have a negative influence on the wet and dry properties of the film.

The following study shows a comparison of High Shear Thickener where color acceptance and color rub out behavior was studied when adding a colorant to a paint based on an Aliphatic PU-Alkyd dispersion. RHEOLATE® PHX 7025 remains stable in viscosity and provide very stable color values.



A very significant difference can be obtained when block resistance is tested.





Our new Thickener RHEOLATE® PHX 7025 can be perfectly combined with RHEOLATE® FX 1100 which allows to influence the rheological profile in any shear rate.

The influence of RHEOLATE® PHX 7025 was studied in a styrene acrylic wall paint formulation. The increasing loading of the High Shear Thickener in the thickener package helped to improve hiding power and Brush marks.



RHEOLATE® FX 1100	0.3%	RHEOLATE® FX 1100	0.3%	RHEOLATE® FX 1100	0.3%
		RHEOLATE® PHX 7025	0.1%	RHEOLATE® PHX 7025	0.3%

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NOTE:

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Unique chemistry,
sustainable solutions