ELEMENTIS

Adding future
with Performance Specialties additive solutions

EMEIA

Content

About ELEMENTIS

Elementis is a leading global supplier of specialty chemicals, delivering essential attributes to a wide range of industries. We provide rheology modifiers and complementary specialty additives to manufacturers of industrial coatings, decorative paints, inks, construction solutions, adhesives and sealants, ceramics, water treatment and oil and gas drilling fluids.

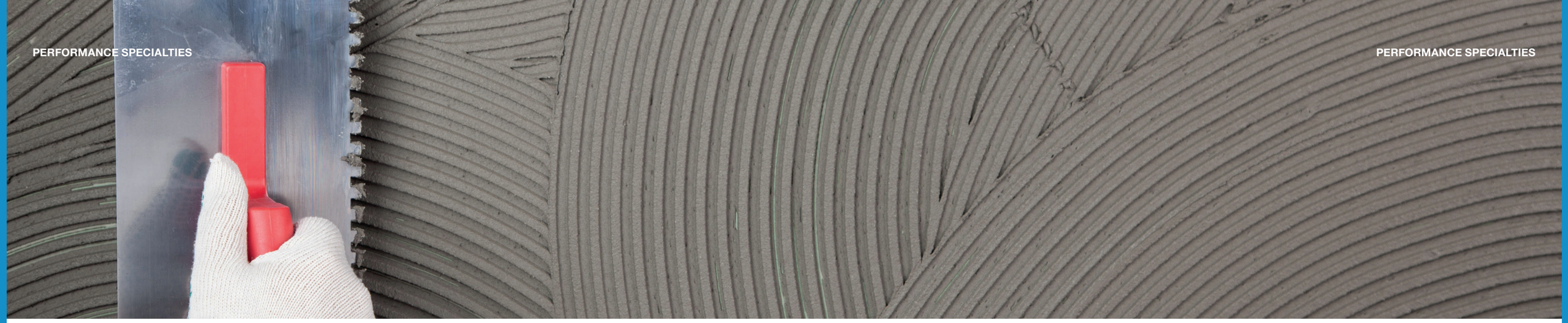
Innovation and sustainability are at the core of our operations. We focus on creating solutions that enhance performance and sustainability for our customers.

Our technology addresses performance needs through rheological additives, wetting and dispersing agents, defoamers, adhesion promoters, and other performance-enhancing additives. Our globally recognized brands, such as BENTONE®, RHEOLATE®, THIXATROL®, THIXCIN®, BENAQUA®, CHARGUARD™, M-P-A®, DAPRO®, NUOSPERSE®, HYPOMER and BENATHIX® reflect our commitment to quality and innovation.

We work closely with our customers to develop tomorrow's solutions for bio-based, waterborne, solventborne, and solvent-free systems, enhancing the appearance, feel, workability and stability of their products.

We continue to leverage our expertise in high-performing ingredients to boost our customers' product performance and introduce new technologies to the markets we serve.

Aqueous systems	Non-aqueous systems
Rheological additives	
BENTONE® & BENAQUA® (natural clays)	BENTONE® & BENATHIX (organoclays)
RHEOLATE® (NiSAT, ASE & HASE)	THIXCIN® & THIXATROL®
Dispersing and Wetting	
NUOSPERSE®	NUOSPERSE®
Defoamers	
DAPRO®	
Matting resin	
	HYPOMER

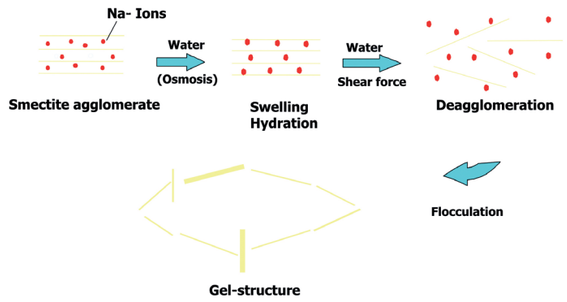


PERFORMANCE SPECIALTIES

Rheology Modifiers

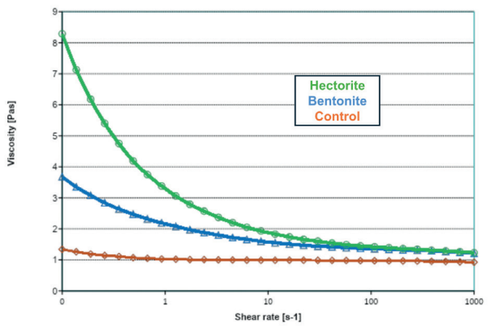
BENTONE® Clays for aqueous systems

Hectorite, a naturally occurring clay mineral, is particularly notable for its unique properties and efficiency as a rheology modifier. It is a lithium magnesium silicate that swells due to the hydration of sodium ions located on the clay platelets, which push the platelets apart and allow the clay to form a gel-like structure.



Hectorite's distinctive platelet shape and high surface area make it exceptionally effective in building viscosity and providing sag control and suspension properties in WB systems.

Due to the much smaller particle size of the hectorite (compared to bentonite) the pseudoplasticity created in a system is much stronger and BENTONE® hectorites are more efficient:



BENTONE® clays benefits:

- Long-term rheological stability of the formulation)
- Film/ bead (thickness) control
- Suspension of particles resulting in homogeneous matrix and smooth surfaces
- Workability - improved spray process/ extrusion
- In construction products: improved sag/slump stability, less pumping pressure necessary, easier cleaning of application tools and reduced stickiness when (partially) replacing cellulosics
- Hectorite is a material of natural origin and we use environmentally friendly extraction procedures and strict zero waste and circular policy in cleaning and milling procedures.

Without clay

With clay

Product Name	Chemistry	Description and key benefits	Shear Rate		
			Low	Medium	High
BENTONE® EW	Purified and highly beneficiated hectorite clay	• Imparting strongly thixotropic flow characteristics and suspension control resulting in storage stability (anti-sedimentation). • Film-thickness control (anti-sagging). • Ideal also for spray application. • Higher efficiency compared to other smectite clays.	• • •		
BENTONE® DE	Hyperdispersible hectorite clay	• Imparting strongly thixotropic flow characteristics and suspension control resulting in storage stability (anti-sedimentation). • Film-thickness control (anti-sagging). • Ideal also for spray application and orientation of effect pigments. • Higher efficiency compared to other smectite clays. • Option for pregels with loading up to 14% hectorite clay and still pourable intermediate.	• • •		

• • • highly recomended • • recommended • suitable

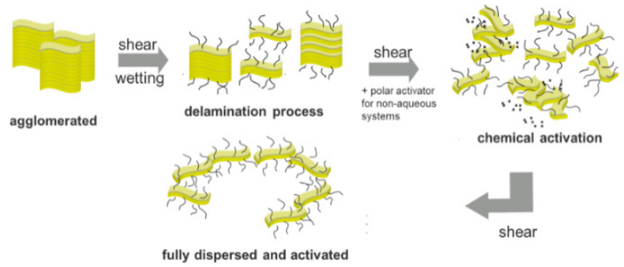
Product Name	Chemistry	Description and key benefits	Shear Rate		
			Low	Medium	High
BENTONE® DY	Organically modified smectite clay	• Improvement of storage stability (anti -syneresis; anti-settlement); especially for pigment and filler preparations. • Stable in systems in a wide range of pH 1-12. • Providing stable viscositiies in silicate systems.	•	•	
BENTONE® LT	Organically modified hectorite clay	• Imparting strongly thixotropic flow characteristics and suspension control resulting in storage stability (anti-sedimentation). • Film-thickness control (anti-sagging) and improved application properties for deco paints (“application feel”) due to impact on mid-shear-viscosity.	• • •	• •	
BENTONE® HC	Refined hectorite clay	• Special grade for water treatment (e.g. paint coagulation).	• • •		
BENTONE® CT	Hectorite clay	• Imparting strongly thixotropic flow characteristics and suspension control in construction systems resulting in storage stability (anti-sedimentation). • Film-thickness control (anti-sagging) and and improved workability by trowel. • Minimum 50% hectorite content. • Purified and white natural material	• • •		
BENTONE® OC	Hectorite clay	• Imparting thixotropic flow characteristics and suspension control in construction systems resulting in storage stability (anti-sedimentation). • Film-thickness control (anti-sagging) and improved workability by trowel. • Ca. 50% hectorite content. • Untreated natural material	• • •		
BENTONE® CRS	Modified hectorite clay	• Easy dispersible powder - with a base of hectorite clay and low magnetics content - designed for tiles, glazes, ceramic inks and advanced ceramic production. • Imparting pseudoplastic flow characteristics and thixotropy as far as suspension control resulting in excellent anti-settling performance and storage stability. • Improves workability/application of high solid content systems. • Minimizing floating/flooding of pigments. • High fusion temperatures possible without adverse effect on white firing characteristics.	• •	•	
BENAQUA® 4000	Modified hectorite clay	• Influence on low- and mid-shear-viscosity and fast viscosity/ structure recovery in combination with suspension control resulting in storage stability (anti-sedimentation). • Film-thickness control (slump resistance) for textured and high-built systems, adhesive, sealants and construction systems. • Partial replacement of cellulosis for less “stickiness” leading to improved application feel and stable slump resistance.	• • •	•	

• • • highly recomended • • recommended • suitable

PERFORMANCE SPECIALTIES

BENTONE® Organoclays for non-aqueous systems

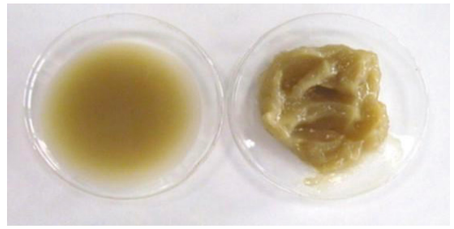
Hectorite modified with quaternary ammonium compounds becomes an organoclay suitable for solvent-borne systems. This modification process transforms the hydrophilic nature of the clay into a more organophilic (oil-loving) form, making it highly effective in non-aqueous systems, making it a versatile additive for different formulations.



Activation process

BENTONE® organoclays benefits:

- Enhanced stability (e.g. anti-sedimentation)
- Film/ bead (thickness) control
- Suspension of particles resulting in homogeneous matrix and smooth surfaces
- Enhanced workability (spray/ extrusion)
- Orientation of effect pigments
- In powder coating applications: uniform edge coverage, texture effects possible and improved bulk flow and corrosion resistance
- For activation at low-shear forces, we offer high-dispersable grades, such as our BENTONE SD®



Pregel without/ with polar activator

Product Name	Chemistry	Description and key benefits	Polarity		
			Low	Medium	High
BENTONE® 34	Organically modified smectite clay	• For use in low to mid polarity solvent containing systems. • Imparting pseudoplastic flow characteristics resulting in storage stability (anti-sedimentation) and film-thickness control (anti-sagging). • Ideal also for spray application. • Use of polar activator recommended.	•	•	
BENTONE SD® -1	“Superdispersable” organically modified smectite clay	• For use in low to mid polarity solvent containing systems. • Lower shear forces needed for proper delamination/ activation of the clay. • Imparting pseudoplastic flow characteristics resulting in storage stability (anti-sedimentation) and film-thickness control (anti-sagging). • Ideal also for spray application. • Use of polar activator might enhance the performance especially in aromatic free systems.	•	•	
BENTONE® 54	Organically modified smectite clay	• For use in low to intermediate polarity organic systems. • Imparting pseudoplastic flow characteristics resulting in storage stability (anti-sedimentation) and film-thickness control (anti-sagging). • Ideal also for spray application. • Use of polar activator recommended.	•	•	
BENTONE® 1000	Organically modified smectite clay	• For use in low to intermediate polarity (and solventfree) systems. • Imparting pseudoplastic flow characteristics resulting in storage stability (anti-sedimentation) and film-thickness control (anti-sagging). • Ideal also for spray application. • Use of polar activator recommended.	•	•	
BENTONE® 38	Organically modified smectite clay	• For use in low to higher polarity formulations. • Imparting strongly pseudoplastic flow characteristics and suspension control resulting in storage stability (anti-sedimentation). • Film-thickness control (anti-sagging). • Ideal also for spray application. • Significantly higher efficiency compared to other smectite clays. • Use of polar activator recommended.	•	•	•
BENTONE SD® -3	“Superdispersable” organically modified hectorite clay	• For use in low to higher polarity formulations. • Lower shear forces needed for proper delamination/ activation of the clay. • Imparting strongly pseudoplastic flow characteristics and suspension control resulting in storage stability (anti-sedimentation). • Film-thickness control (anti-sagging). Ideal also for spray application. • Significantly higher efficiency compared to other smectite clays. • Use of polar activator might enhance performance.	•	•	•
BENTONE® 27	Organically modified smectite clay	• For use in mid to high polarity formulations. • Imparting strongly pseudoplastic flow characteristics and suspension control resulting in storage stability (anti-sedimentation). • Film-thickness control (anti-sagging). • Significantly higher efficiency compared to other smectite clays. • Use of polar activator recommended.		•	•

• recommended

Product Name	Chemistry	Description and key benefits	Polarity		
			Low	Medium	High
BENTONE SD® -2	“Superdispersable” organically modified smectite clay	• For use in moderate to high polarity applications. • Lower shear forces needed for proper delamination/ activation of the clay. • Imparting pseudoplastic flow characteristics resulting in storage stability (anti-sedimentation) and film-thickness control (anti-sagging). • Ideal also for spray application. • Use of polar activator might enhance performance.		•	•
BENATHIX®	Organically modified smectite clay	• Easy dispersible clay for unsaturated polyester, plastisols and putties. • Imparting pseudoplastic flow characteristics resulting in storage stability (anti-sedimentation) and film-thickness control (anti-sagging). • Ideal also for spray application. • Use of polar activator recommended.		•	•

• recommended

PERFORMANCE SPECIALTIES

RHEOLATE® NiSAT - nonionic synthetic associative thickeners for aqueous systems

One of the most significant advantages of ELEMENTIS wide range of RHEOLATE® NiSAT thickeners is their versatility, offering the ability to design taylormade rheology profiles, catering to different shear conditions — low, mid, and high shear.

Being non-ionic, they can be used across a broad pH spectrum, making them suitable for a wide range of formulations. These rheological additives do not require special activation and can be added at various stages of the production process.

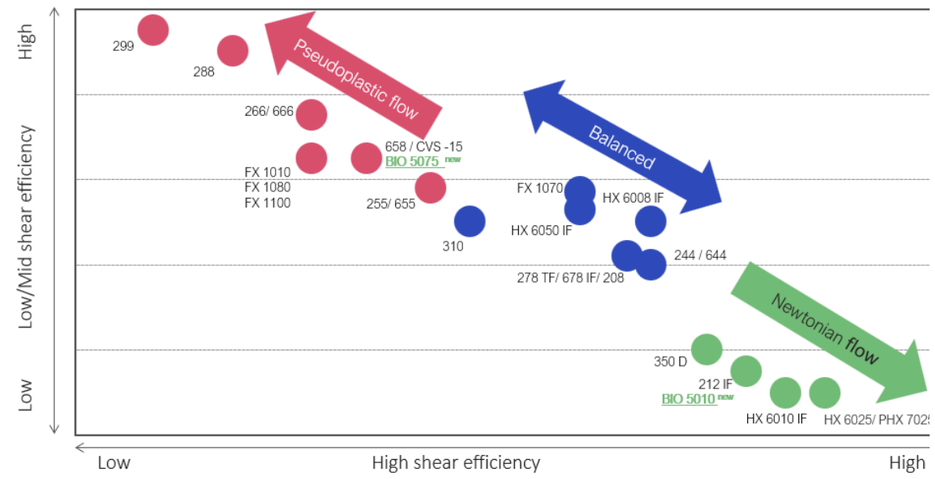
The NiSAT technology can be used alone or in combination with other RHEOLATE® or BENTONE® products.

RHEOLATE® NiSAT benefits:

Broad range of RHEOLATE® NiSAT for different application techniques to achieve optimum application properties:

- Enhanced spatter resistance, hiding power and sag resistance
- Perfect levelling and adequate transfer to substrate
- Improved atomization/ creation of very fine droplets
- Uniform film thickness
- Suitable for systems with pH 2-12
- No negative impact on water resistance and corrosion resistance
- RHEOLATE® Powder NiSAT with 100% active content for improved sustainability
- RHEOLATE® BIO NiSAT with > 90% Bio-based carbon content certified

RHEOLATE® BIO NiSAT benefits	RHEOLATE® POWDER NiSAT benefits
>90% bio-based carbon content	Powder form (100% active)
Low odor	Higher efficiency compared to liquid counterpart
High film builds with outstanding flow & leveling	Preservative-free
Compatible with all resin systems	Surfactant-free
Easy incorporation and use	No specific activation necessary
Good storage stability	Suitable for modular production process
	No risk of freezing
	Lower transport volumes – fuel savings



RHEOLATE® Portfolio Overview

Product Name	Chemistry	Description and key benefits	Suitable for VOC compliant systems	Volatile components	Typical use level,%	Active %	Shear Rate		
							Low	Medium	High
RHEOLATE® HX 6010 IF	Polyether polyurethane	• Highly efficient high-shear-viscosity builder. • Use for roller/ brush application resulting in exceptional application properties like spatter resistance, hiding power and material transfer. • In roller applied paints often used in combination with RHEOLATE® NiSAT grades like RHEOLATE® 666 or RHEOLATE® CVS-15 for ideal balance of properties. • IF-version: isothiazolinone free.	•	Water	0.3-3.0	21%			• • •
RHEOLATE® PHX 7025	Polyether urea polyurethane, powder version	• Highly efficient high-shear-viscosity builder. • Use for roller/ brush application resulting in exceptional application properties like spatter resistance, hiding power and material transfer. • Powder version for sustainable formulations.	•	None	0.1-0.6	100%			• • •

• • • highly recomended • • recommended • suitable

Product Name	Chemistry	Description and key benefits	Suitable for VOC compliant systems	Volatile components	Typical use level,%	Active %	Shear Rate		
							Low	Medium	High
RHEOLATE® HX 6025	Polyether urea polyurethane	• Highly efficient high-shear-viscosity builder. • Use for roller/ brush application resulting in exceptional application properties like spatter resistance, hiding power and material transfer. • Excellent stain resistance in deco paint systems. • Supports stain resistance and anti-snail trail functionalities in deco paint systems.	•	Water	0.3-3.0	21%			•••
RHEOLATE® 212 IF	Polyether urea polyurethane	• High-shear-viscosity builder with little influence on mid-shear-viscosity. • In roller applied paints often used in combination with NiSAT grades like RHEOLATE® 666, RHEOLATE® CVS-15 for ideal balance of properties. • IF-version: isothiazolinone free	•	Water	0.4-3.0	20%		•	••
RHEOLATE® BIO 5010	Polyether urea polyurethane, bio-based	• High-shear-viscosity builder with little influence on mid-shear-viscosity. • In roller applied paints often used in combination with NiSAT grades like RHEOLATE® BIO 5075. • 92% bio-based carbon content and isothiazolinone free.	•	Water	0.5-5.0	20%		•	••
RHEOLATE® 350 D	Polyether polyol	• High-shear-viscosity builder with impact on mid-shear-viscosity. • Specifically for parquet coatings/ roller and brush application/ self-levelling. • No negative impact on transparency. • Due to specific chemistry the performance of the product is less impacted by other formulation components like surfactants.	•	Water	0.5-5.0	50%	•	••	•••
RHEOLATE® HX 6008 IF	Polyether polyurethane	• Highly efficient high-shear-viscosity builder with significant mid-shear-viscosity contribution. • Often as single thickener in use; especially for smaller particle size binder emulsions (acrylic, styrene-acrylic, AQ-alkyd, PU, etc). • IF-version: isothiazolinone free	•	Water	0.1-1.5	25%		••	•••

••• highly recomended •• recommended • suitable

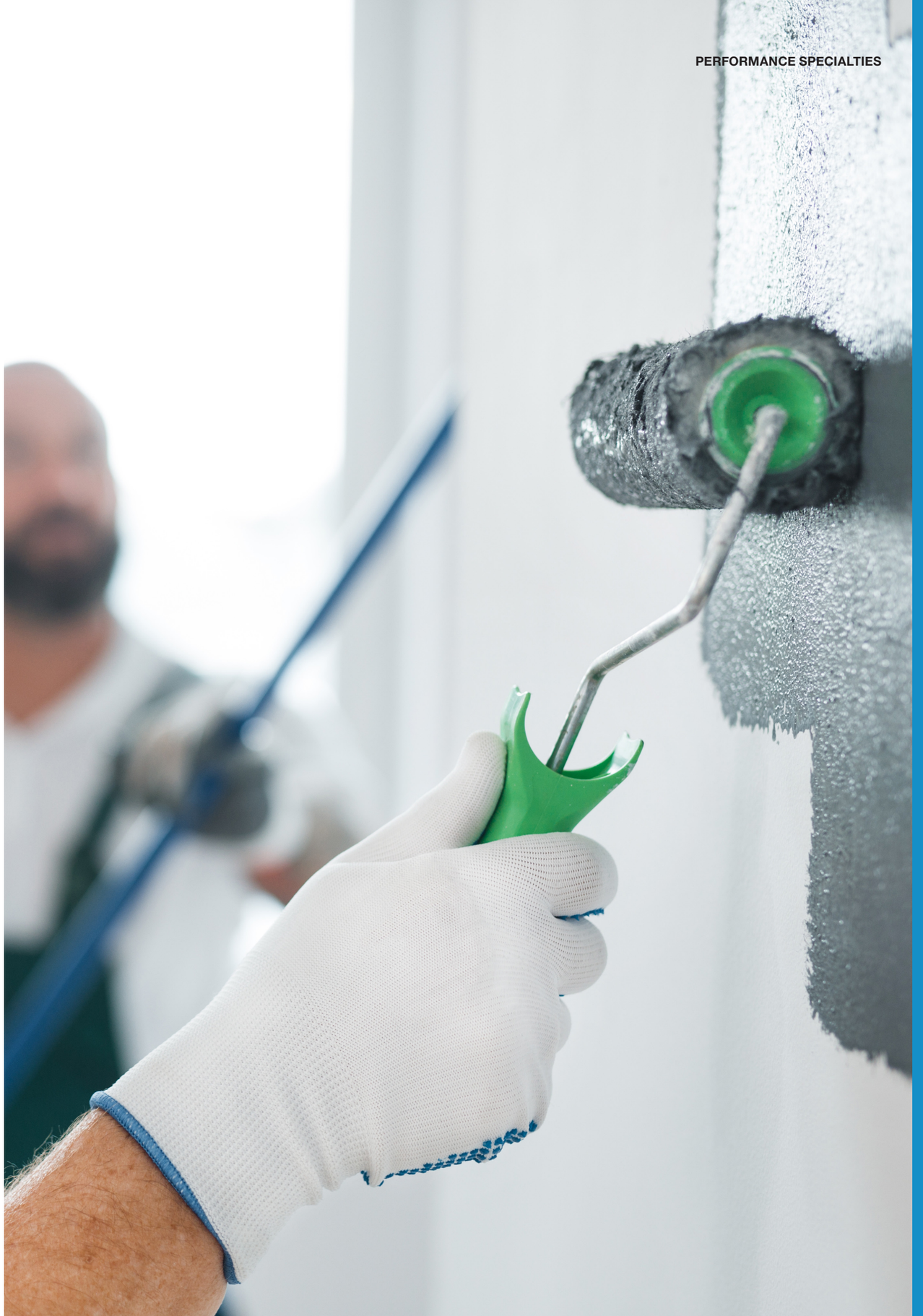
Product Name	Chemistry	Description and key benefits	Suitable for VOC compliant systems	Volatile components	Typical use level,%	Active %	Shear Rate		
							Low	Medium	High
RHEOLATE® FX 1070	Polyether polyurethane	• Efficient high- shear-viscosity builder with significant mid-shear-viscosity contribution. • Ideal also for systems with low NVC or resin-free pigment concentrates.	•	Water	0.3-3.0	20%	•	••	•••
RHEOLATE® 244	Polyether urea polyurethane	• High- to medium-shear-viscosity builder.		Water/ butyl diglycol	0.1-0.6	25%		••	•••
RHEOLATE® 644 IF	Polyether urea polyurethane	• VOC-reduced and isothiazolinone free version of RHEOLATE® 244	•	Water	0.3-3.0	25%		••	•••
RHEOLATE® 278 TF	Polyether urea polyurethane	• Mid-/high-shear-viscosity builder.		Water/ butyl diglycol	0.4-3.0	25%		•••	••
RHEOLATE® 678 IF	Polyether urea polyurethane	• VOC-reduced and isothiazolinone free version of RHEOLATE® 278 TF.	•	Water	0.5-5.0	25%		• ••	••
RHEOLATE® 208	Polyether urea polyurethane	• Mid-/high-shear-viscosity builder. • Often as single thickener in use. • Powder version for sustainable formulations.	•	None	0.5-5.0	100%		•••	••
RHEOLATE® CVS-11	Polyether polyurethane	• Good viscosity stability upon colorant addition and minimizes viscosity-drop post tinting. • Excellent balance of sag resistance and flow. • Broad compatibility with binder chemistries.		Water	0.1-1.5	20%		•	•
RHEOLATE® 310 D	Polyether polyol	• Excellent mid-shear viscosity builder. • Less sensitive to higher HLB surfactants and to coalescents. • Due to specific chemistry the performance of the product is less impacted by other formulation components like surfactants.	•	Water	0.3-3.0	32%		••	
RHEOLATE® HX 6050 IF	Polyether polyurethane	• Highly efficient high-shear-viscosity builder for larger particle size binder systems with good mid-shear-viscosity contribution. • Ideal especially for systems using larger particle sized binders (e.g. VAE, vinyl-ester). • IF-version: isothiazolinone free.	•	Water	0.4-2.0	25%		••	•••

••• highly recomended •• recommended • suitable

Product Name	Chemistry	Description and key benefits	Suitable for VOC compliant systems	Volatile components	Typical use level,%	Active %	Shear Rate		
							Low	Medium	High
RHEOLATE® 255	Polyether urea polyurethane	• Mid-shear-viscosity builder with slight impact on low-shear-viscosity. • “Allrounder”.		Water/ butyl diglycol	0.2-2.0	20%		••	
RHEOLATE® 655 IF	Polyether urea polyurethane	• VOC-reduced and isothiazolinone free version of RHEOLATE® 255.	•		0.2-2.0	20%		••	
RHEOLATE CVS®-15	Polyether polyurethane	• Special mid-shear-viscosity builder tinting systems providing reduced KU-drop upon tinting.	•		0.25-1.5	50%	••	••	
RHEOLATE® 658	Polyether urea polyurethane	• Low-/mid-shear-viscosity builder, especially with small particle-size binders. • Ideal for combination with high-shear-thickener and for roller/brush application.	•		0.2-1.0	18%	••	••	
RHEOLATE® BIO 5075	Polyether urea polyurethane, bio-based	• Mid-shear viscosity builder, especially with small particle-size binders. • Ideal for combination with high-shear-thickener RHEOLATE BIO 5010 and for roller/brush application. • 90% bio-based carbon content.	•		0.2-1.0	18%	••	••	
RHEOLATE® FX 1010	Polyether polyurethane	• Low-shear-viscosity builder. • Ideal also for systems with low NVC or resin-free pigment concentrates.		Water/ butyl diglycol	0.2-2.0	50%	••	•	
RHEOLATE® FX 1080	Polyether polyurethane	• VOC-reduced version of RHEOLATE® FX 1010.	•		0.3-2.5	33%	••	•	
RHEOLATE® FX 1100	Polyether polyurethane	• Powder version of RHEOLATE® FX 1010 for sustainable formulations.	•		0.2-1.0	100%	••	•	
RHEOLATE® 266	Polyether urea polyurethane	• Low-shear-viscosity builder for combination with high-shear-thickener. • Specifically for roller/brush application.		Water/ butyl diglycol	0.2-6.0	20%	••	•	
RHEOLATE® 666 IF	Polyether urea polyurethane	• VOC-reduced and isothiazolinone free version of RHEOLATE® 266	•		0.4-2.0	20%	••	•	
RHEOLATE® 288	Polyether urea polyurethane	• Highly efficient low-shear-thickener that provides excellent sag resistance during spray application.		Water/ butyl diglycol	0.2-2.0	25%	•••		
RHEOLATE® 299	Polyether urea polyurethane	• Most efficient low-shear-thickener providing strongest pseudoplastic flow behaviour, resulting in perfect atomization during industrial spray application. • Also suitable for dip application where homogenious film-thickness is required.		Water/ butyl diglycol	0.2-2.0	25%	•••		

••• highly recomended •• recommended • suitable

PERFORMANCE SPECIALTIES



RHEOLATE® acrylic thickeners for aqueous systems

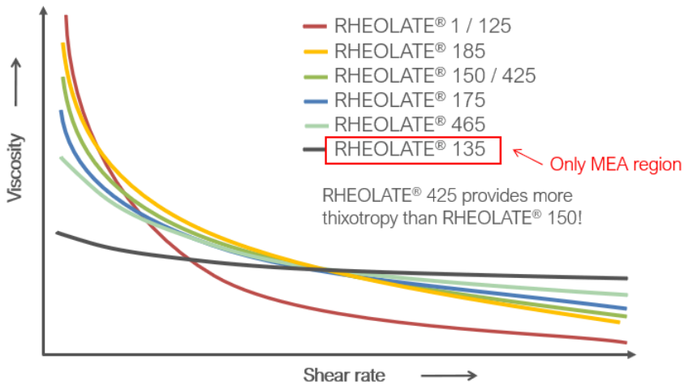
RHEOLATE® alkali swellable rheological additives are free-flowing liquids, based on vinyl copolymer chemistry and are known for their ability to swell and thicken when neutralized with alkali.

Each product enhances viscosity development, flow and application properties and can easily be post-added in the manufacturing process of various aqueous systems, including paints, coatings, adhesives, and construction materials.

RHEOLATE® ASE/HASE benefits:

Broad range of RHEOLATE® NiSAT for different application techniques to achieve optimum application properties:

- Easy to incorporate into different stages of production
- Resistant to microbiological and enzyme spoilage
- Long-term stability in the final product.
- Providing a balanced flow and sag properties
- Potential use as full or partial replacements for HEC and HMHEC



Product Name	Chemistry	Description and key benefits	Shear Rate		
			Low	Medium	High
RHEOLATE® 1	Acrylic, ASE-type	• Low-shear-viscosity builder. • Replacement for HEC with improved sag resistance and less settling. • Specifically for low PVC systems.	•		
RHEOLATE® 125	Acrylic, ASE-type	• Excellent low-shear-viscosity builder providing pseudoplastic flow properties resulting in perfect spray application.	•		
RHEOLATE® 150	Acrylic, HASE-type	• Very good low-shear-viscosity builder. • Cost-effective alternative to high-molecular-weight HEC with good sag/levelling balance.	•		
RHEOLATE® 175	Acrylic, HASE-type	• Excellent mid-to high-shear-viscosity builder providing excellent film build, leveling and spatter resistance.		•	•
RHEOLATE® 185	Acrylic, HASE-type	• Excellent low-shear-viscosity builder developed to replace HEC in interior and exterior paint formulations, giving improved applied hide and reduced spatter. • Imparting shear-thinning flow for sag resistance and anti-settling. • Reducing mud cracking of paints.	•		
RHEOLATE® 425	Acrylic, HASE-type	• Excellent mid-shear-viscosity builder. • Good balance of KU/ICI viscosities in paint formulations for sag resistance and anti-settling. • Good all rounder with improvements in spattering resistance.		•	
RHEOLATE® 465	Acrylic, HASE-type	• High-shear-viscosity builder providing unique flow and leveling properties in roller/ brush applied paint formulations - improved spatter resistance and brush drag. • Highly efficient in systems with small particle size emulsions.			•

• recommended

THIXATROL® organic thixotropes

THIXATROL® and THIXCIN® organic thixotrope rheological additives for non-aqueous systems are based on castor wax derivatives and polyamides.

They typically need appropriate wetting and a certain activation temperature window to achieve optimum performance.

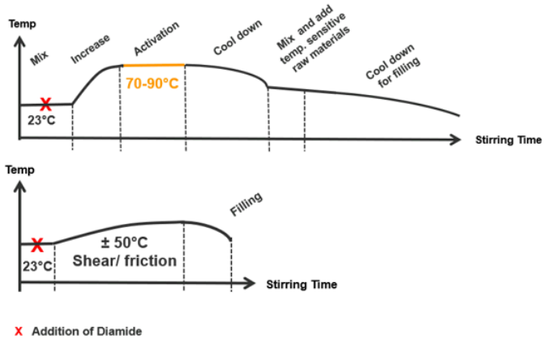
THIXATROL® benefits:

- Imparting thixotropy/ pseudoplastic flow characteristics
- Perfect rheology modifier for spray application and extrusion process
- Excellent sag resistance at extremely high film thickness
- Uniform film formation also at low film thickness

THIXATROL® AS and PM benefits:

- Higher efficiency compared to references and mineral based rheological additives
- Lower activation temperature (as of 40°C)
- Shorter process times allowing for time savings and leading to higher production capacity
- Wider temperature activation window resulting in more robust process
- Improved storage stability of final formulation
- Higher elasticity in final application compared to mineral based rheological additives

„Old“ high temperature process vs. optimized process



Product	Renewable content (ISO 16128 calculated) in %	Renewable carbon content* in %
THIXATROL® AS 8053	69,7	78,3
THIXATROL® PM 8056	72,0	81,8
THIXATROL® PM 8058	74,8	82,5
THIXATROL® MAX	86,8	92,3

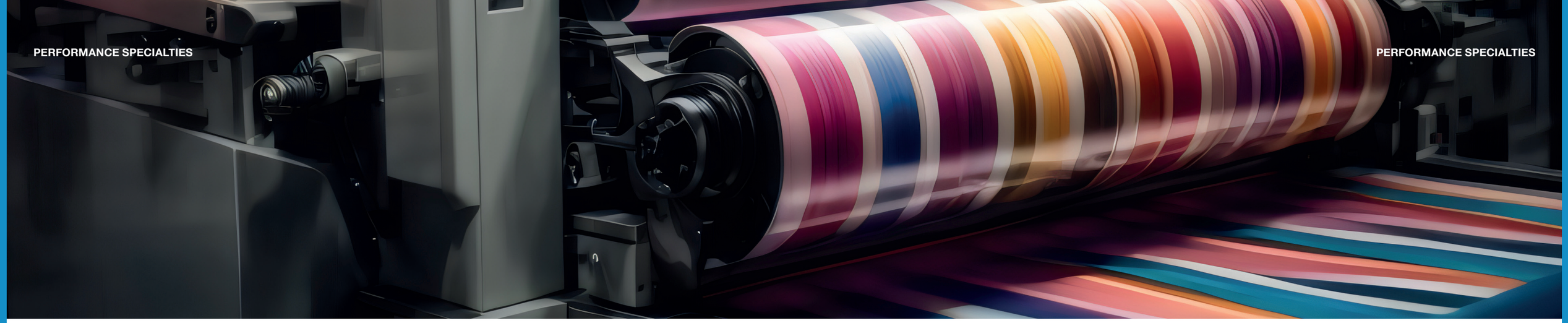
*%Renewable carbon calculates percentage of renewable carbon to total organic carbon, as per ASTM D6866, and can be validated via measurement of 14C content

PERFORMANCE SPECIALTIES

Product Name	Chemistry	Description and key benefits	Solid %	Solventborne	Solventfree
THIXATROL® AS 8024	Proprietary organic	• Special grade for sag resistance at elevated temperatures occurring during application process.	100	•	
THIXATROL® AS 8053	Proprietary organic	• Thixotropic agent for activation at low temperature (40-60°C). • Suitable for solvent-free and solvent-containing formulations. • Imparting strongly pseudoplastic flow characteristics resulting in slump/sag resistance and easy extrudability. • Excellent atomization when used in spray applied coatings and good levelling even at very low wet-film-thickness.	100	•	•
THIXATROL® MAX	Proprietary organic	• Thixotropic agent for activation at high temperature (60-100°C depending on polarits). • Suitable for solvent-free and solvent-containing formulations. • Imparting strongly pseudoplastic flow characteristics resulting in slump/sag resistance and easy extrudability/ spray application.	100	•	•
THIXATROL® P220X-MF	Polyamide paste	• Paste of thixotropic agent for solvent borne systems (in xylene). • Ideal also for transparent systems and for post-addition. • No temperature activation necessary.	20	•	
THIXATROL® PLUS	Proprietary organic	• Thixotropic agent for activation temperature (50-90°C depending on polarity). • Suitable for solvent-containing and solvent-free top coats. • Imparting strongly pseudoplastic flow characteristics resulting in high sag resistance and very good sprayability.	100	•	•
THIXATROL® PM 8056	Proprietary organic	• Thixotropic agent for activation at a wide tempoerature window (50-75°C). • Suitable for solvent-containing and solvent-free formulations. • Imparting strongly pseudoplastic flow characteristics resulting in high sag resistance and excellent sprayability.	100	•	•

• highly recommended

Product Name	Chemistry	Description and key benefits	Solid %	Solventborne	Solventfree
THIXATROL® PM 8058	Proprietary organic	• Thixotropic agent for activation at a wide temperature window (50-75°C). • Suitable for solvent-containing formulations, specifically for high polar solvent composition including alcohols. • Imparting strongly pseudoplastic flow characteristics resulting in high sag resistance and very good sprayability.	100	•	•
THIXATROL® ST	Organic modified castor wax derivative	• Thixotropic agent suitable for solvent-containing and solvent-free formulations, especially for low polarity aliphatic and aromatic systems.	100	•	•
THIXCIN® R	Derivative of castor wax	• Thixotropic agent suitable for solvent-containing and solvent-free formulations, especially for low polarity aliphatic systems.	100	•	•



PERFORMANCE SPECIALTIES

Wetting & Dispersing Agents

NUOSPERSE® wetting and dispersing agents

NUOSPERSE® wetting and dispersing agents provide good application performance for inorganic and organic fillers and pigments. They are widely compatible with aqueous, solvent-based and solvent -free coatings, construction, adhesives & sealants formulas. They are essential agents for achieving uniform dispersion of pigments and fillers and improved stability which directly impacts the quality and durability of the final product.

NUOSPERSE® wetting and dispersing agents benefits:

- Rapid pigment/ filler wetting
- Full colour and maximum tinting strength development
- Long-term stability (anti-settlement/ flocculation resistance)
- Increased mill output
- Good flow at high pigment/ filler loading
- Compatibility with a broad range of formulations
- Elimination of floating, flooding and rub-up
- Maximum colour acceptance of all bases

Product Name	Chemistry	Description and key benefits	Active [%]	Solventborne	Waterborne	Compatibilizer
Dispersants for waterborne formulations						
NUOSPERSE® FX 504	Polyacrylic (ammonia-neutralized)	• For hydrophilic pigments and extenders used in paints and coatings.	30		•	
NUOSPERSE® FX 605	Polyacrylic (NaOH-neutralized)	• For hydrophilic pigments and extenders used in paints and coatings with increased solids content for VOC compliant systems.	45		•	
NUOSPERSE® FX 365	Multi-functional polymer	• Rapid pigment wetting and good pigment stabilization. • For all kind of pigments in waterborne coatings, inks and pigment preparations.	90		•	
NUOSPERSE® FX 600	Multi-functional polymer	• For use of organic and inorganic pigments in decorative coatings and colorants. • Typically combined with a NUOSPERSE FN 260 of FX 365.	25		•	
NUOSPERSE® FX 610	Multi-functional polymer	• VOC free version of NUOSPERSE® FX 600	25		•	
NUOSPERSE® FX 631	Hydrophobic copolymer (NaOH-neutralized)	• For inorganic pigments, hydrophobic, (NaOH-neutralized).	24-26		•	
NUOSPERSE® FX 665	Hydrophobic copolymer (ammonia-neutralized)	• For inorganic pigments, hydrophobic, (ammonia-neutralized). • Improved water resistance.	21-22.5		•	
NUOSPERSE® FX 7500W	Polymeric	• Universal dispersant for all kind of pigments in resin-free pigment preparations. • Excellent colour strength and stabilisation of carbon black pigments.	100	•	•	
NUOSPERSE® W-30	Polymeric	• For high concentrated, low-viscosity, waterborne pigment preparations.	100		•	
NUOSPERSE® W-33	Polymeric	• For high performing industrial coatings and pigment preparations (binder-free and binder-containing) with high colour strength. • Excellent performance in stabilizing titanium dioxide and organic pigments (avoiding flocculation issues).	40		•	

• highly recommended

Product Name	Chemistry	Description and key benefits	Active [%]	Solventborne	Waterborne	Compatibilizer
Wetting agents for waterborne formulations						
NUOSPERSE® W-39	Polymeric	• For high performing industrial coatings and pigment preparations with high colour strength. • Excellent performance in stabilizing organic pigments (avoiding flocculation issue).	25		•	
NUOSPERSE® FX 7600W	Polymeric	• Universal dispersant for all kind of pigments. • Good colour strength development and stabilisation of carbon black pigments. • Preferrable for resin-containing pigment preparations.	35		•	
NUOSPERSE® 2000	Hydrophilic humectant	• Humectant for pigment preparations. • Preventing drying-out during storage (nozzle-clogging).	71			
NUOSPERSE® 2006	Anionic surfactant	• Universal wetting agent and colour acceptance improver for water based and non-aqueous systems.	76		•	•
NUOSPERSE® 2008	Anionic surfactant	• Universal pigment dispersant for carbon blacks and organic pigments for water based and non-aqueous systems.	100	•	•	
NUOSPERSE® FA 115	Anionic surfactant	• Improvement of incorporation of universal colorants into base paints.	50		•	•
NUOSPERSE® FA 162	Alcohol ethoxylated phosphate ester	• Wetting and dispersing agent for use in water based and non-aqueous systems. • For pigments in plasticizer and universal tinting aids and recommended for masterbatches.	100		•	
NUOSPERSE® FA 196	Phosphate ester	• Pigment dispersant for carbon blacks and organic pigments.	91	•	•	•
NUOSPERSE® FN 211	Nonionic surfactant	• Wetting agent and compatibilizer for aqueous deco and industrial systems, hydrophobic. • Suitable for silicate systems and extander (talc) slurries.	100		•	
NUOSPERSE® FN 260	Nonionic surfactant	• Wetting agent for organic and inorganic pigments and fillers with low foam stabilization.	95		•	
NUOSPERSE® FN 265	Nonionic surfactant	• Wetting agent for pigments and fillers with low foam stabilization • Hydrophilic. • For architectural and industrial applications.	90		•	•
NUOSPERSE® FN 267	Nonionic surfactant	• Wetting agent for pigments and fillers with low foam stabilization. • Highly hydrophilic	100		•	
NUOSPERSE® FN 270	Nonionic surfactant	• Wetting agent for pigments and fillers with low foam stabilization. • Hydrophilic. • Specifically for architectural paint systems.	100		•	

• highly recommended

Product Name	Chemistry	Description and key benefits	Active [%]	Solventborne	Waterborne	Compatibilizer
Wetting and dispersing agents for solventborne system						
NUOSPERSE® 2008	Anionic surfactant	• Pigment dispersant for carbon blacks and organic pigments. • Rapid pigment wetting. • Compatibilizer.	100	•	•	•
NUOSPERSE® FA 196	Phosphate ester	• Pigment dispersant for carbon blacks and organic pigments and compatibilizer (improving compatibility between pigment preparations and base paints). • Wetting agent for fillers/ extenders in solventfree formulations enabling for higher filler load while improving storage stability.	100	•	•	•
NUOSPERSE® FA 601	Anionic surfactant	• Effective for both organic and inorganic pigments.	50	•		
NUOSPERSE® 657 RD	Dispersing resin	• For industrial and deco coatings and primers; for all kind of pigments.	70-75	•		
NUOSPERSE® 757	Dispersing resin	• For industrial and deco coatings and primers and for all kind of pigments (very low content of aromatic solvent).	70-75	•		
NUOSPERSE® 9850	Polymeric	• Universal dispersant for all kind of pigments; providing high colour strength and stabilisation pigments.	46	•		
NUOSPERSE® FX 9086	Polymeric	• Providing stable pigment dispersions as far as stable formulations with extenders/ fillers in solventborne and solventfree systems (in aromatic-free solvent).	50	•		

• highly recommended

Defoamers and Specialties

DAPRO® Defoamers

DAPRO® defoamers are based on a variety of active materials to provide air release and bubble-breaking for most applications as paints, coatings, inks, adhesives & sealants and construction products. They help prevent and eliminate foam formation, which can cause defects and reduce the efficiency of production processes.

DAPRO® defoamers benefits:

- Excellent antifoaming and defoaming properties
- Easy to use and incorporate
- Good compatibility
- Very good long-term efficiency

DAPRO® Coalescing agent and plasticizer

DAPRO® FX 514 is used for the reduction of the film formation temperature. In adhesive formulations it shows a plasticizing effect depending on use level.

M-P-A® Anti-settling Agents

M-P-A® are ready-to-use anti-settling agents for water- and solventborne systems improve the storage stability of the final formulation while not having negative impact on the application viscosity.

NALZIN® Flash rush inhibitors

NALZIN® flash rust inhibitor support the reduction of flash-rust formation and minimize in-can corrosion.

HYPOMER Matting resins for solvent-borne systems

HYPOMER matting resins are essential ingredients in the formulation of solvent-borne coatings, providing a matte finish and enhancing the aesthetic and functional properties of the final product. This is achieved by introducing micro-roughness on the surface of the coating, which scatters light and reduces its reflectivity.

Special additives for non-aqueous systems				
Product Name	**Chemistry**	**Description and key benefits**	**Solventborne**	**Waterborne**
Anti-settling agents				
M-P-A® 2000-X	Organic compound; low-viscous paste	• Anti-settling agent for low to high polarity systems (contains traces of water).	•	
M-P-A® 60-X	Organic compound; paste	• Anti-settling agent for low to high polarity systems; specifically for anti-corrosion systems.	•	
Others				
DAPRO® BEZ 75	Sulphonated castor wax	• Anti-settling agent especially for aromatic-free systems and efficient polar activator for organoclays.	•	
HYPOMER MT-2550K	Acrylic resin with hydroxyl functionality	• Cross-linkable matting resin providing low gloss levels with uniform matting effect while showing high transparency and high D.O.I. • Less layer thickness depending matting effect. • Mar and scrub resistance significantly better than conventional matting agents. • No negative impact on chemical resistance.	•	

• recommended

Special additives for aqueous systems				
Product Name	**Chemistry**	**Description and key benefits**	**Solventborne**	**Waterborne**
Defoamers				
DAPRO® DF 17	Blend of mineral oil and hydrophobic particles	• Defoamer for all kind of paints, coating, inks and adhesives. • Siloxane-free.		•
DAPRO® DF 21	Blend of hydrophobic silica and mineral oil	• Effective defoaming, particularly useful for transparent and higher gloss formulations due to its relatively good compatibility.		•
DAPRO® BIO 9910	Vegetable oil	• Realtively good compatibility while providing good defoaming properties and excellent long-term efficiency. • For sustainable formulations.		•
Anti-settling agent				
RHEOLATE® 2001	Polyolefine wax dispersion	• Liquid anti-settling agent, e.g. for highly filled waterborne pigment preparations.		•
Others				
THIXATROL® 5020W	Modified EVA emulsion	• Improvement of orientation of effect pigments and anti-sagging and anti-settling effect.		•
NUOSPERSE® 2000	Hydrophilic humectant	• Humectant for pigment preparations, preventing drying-out during storage (nozzle-clogging).		•
NALZIN® FA 579	Nitrite-free corrosion inhibitor	• Liquid flash rust inhibitor for acidic waterborne systems.		•
DAPRO® FX 514	Coalescent	• Reduction of MFFT (minimum film-formation-temperature) in adhesives with plasticizer function.		•

• recommended

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