

Coating Additives Solutions for UV curing wood coatings



UV-curable coatings have many advantages: They are environmentally friendly, nearly universally applicable, have a very fast, efficient, and productive application process. But expanding their application field comes with few challenges. How do you overcome the restrictions on the matting ability?

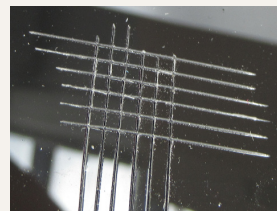
SLIP AND FLOW ADDITIVE

TEGO® Glide 432

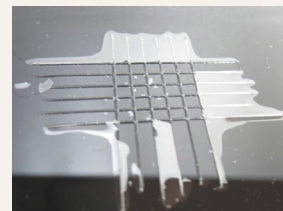
- Good haptic, slip property
- Good scratch resistance
- Good substrate wetting and leveling property
- Less foam stabilization
- Polyether siloxane copolymer

TEGO® Glide 496

- Good scratch resistance
- Good substrate wetting & leveling property
- Good compatibility
- Without compromising recoatability
- Various regulations compliance
- Polyether siloxane copolymer

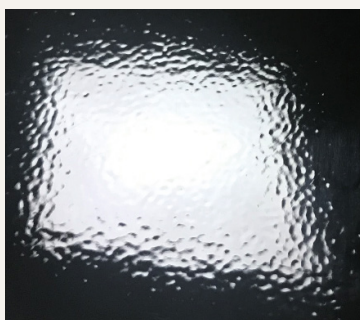


TEGO® Glide 496



Benchmark

Leveling and substrate wetting test



0.3 % Competitor



0.3 % TEGO® Glide 432



0.3 % TEGO® Glide 496

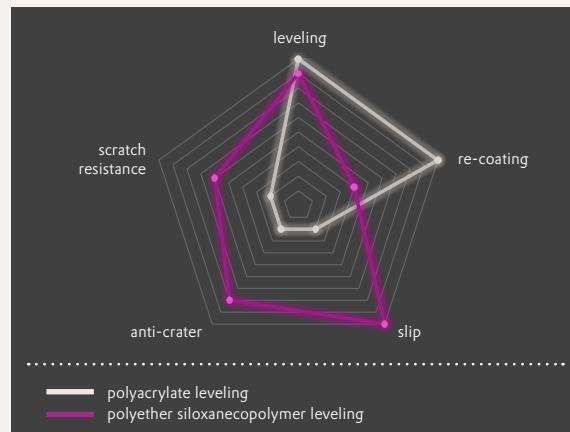
Good wetting and leveling property

How do you ensure a smooth and perfect surface appearance e.g. for high gloss? And how do you balance the formulation and application machine know-how?

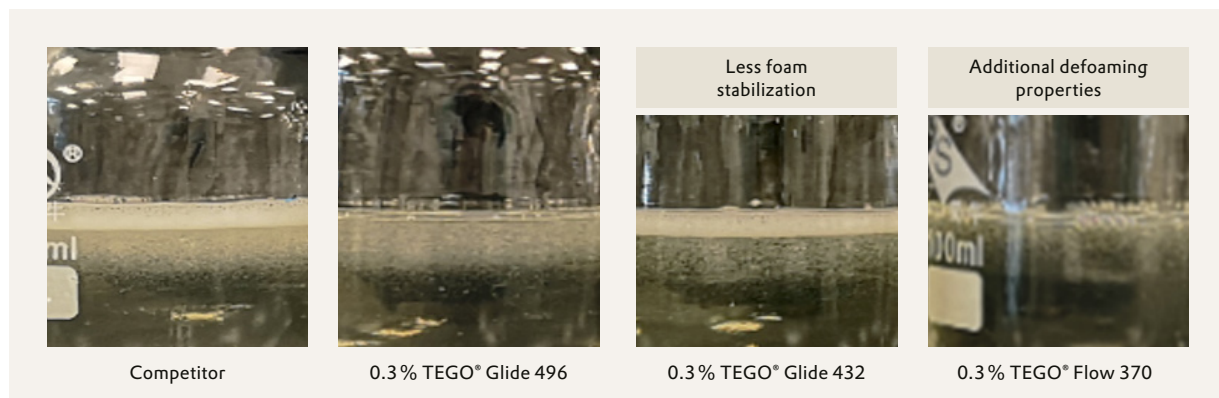
SLIP AND FLOW ADDITIVE

TEGO® Flow 370

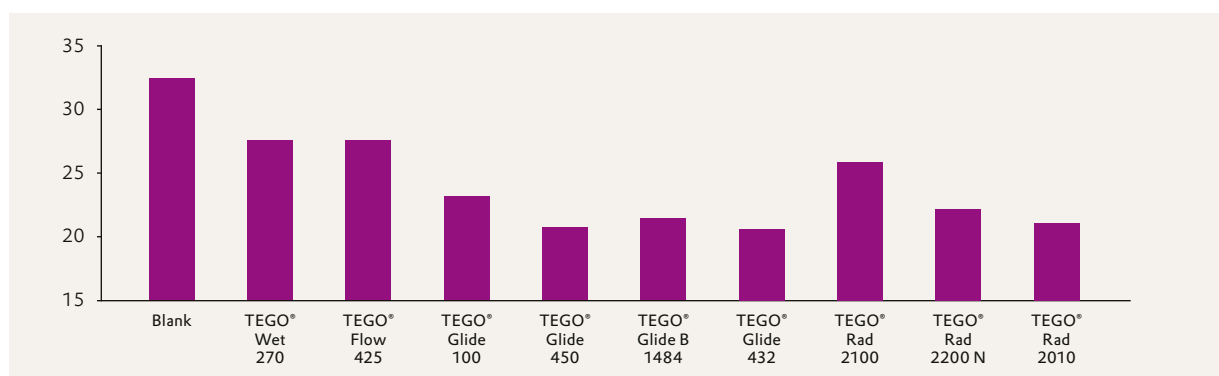
- Excellent flow promotion
- Additional defoaming properties
- Good compatibility
- Recoatable
- Silicone-free polyacrylate leveling agent



Compatibility and foam elimination test



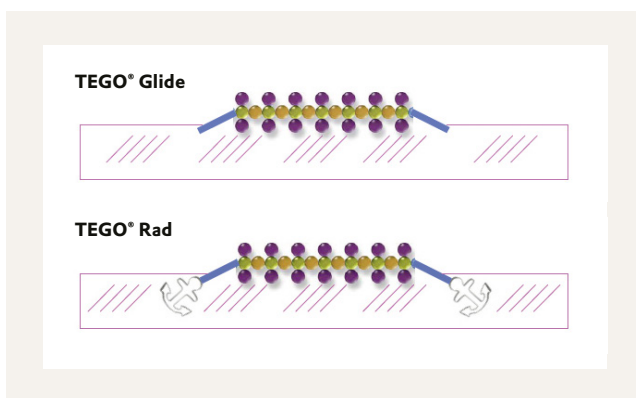
Static surface tension reduction test – dyne (Dosage 1.0%)



RADIATION CURING ADDITIVE

TEGO® Rad Characteristic

- Radically cross-linkable
- Introduce durable surface effects



TEGO® Rad 2100

- Excellent leveling and flow
- Highly compatible
- Low foaming

TEGO® Rad 2300

- Good haptic, slip
- Good scratch resistance
- Excellent substrate wetting
- No tendency to create foam
- Suitable for both pigmented and clear formulations

TEGO® Rad 2700

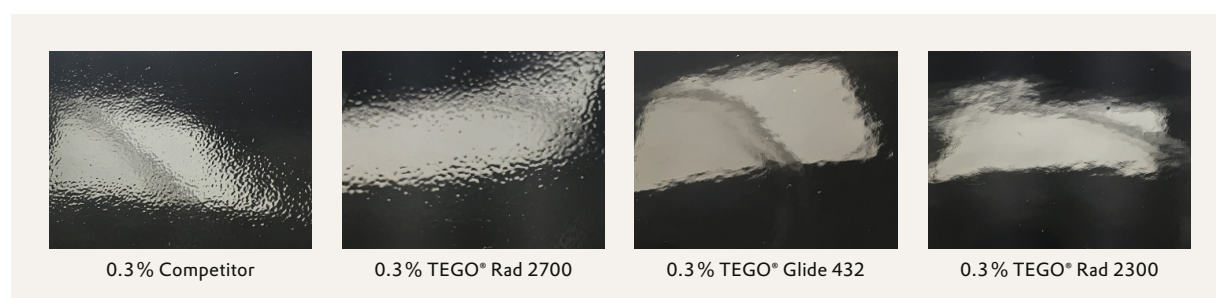
- Utmost release and slip properties
- Efficient defoamer
- Efficient anti-graffiti property

TEGO® Rad 2700 for anti-graffiti



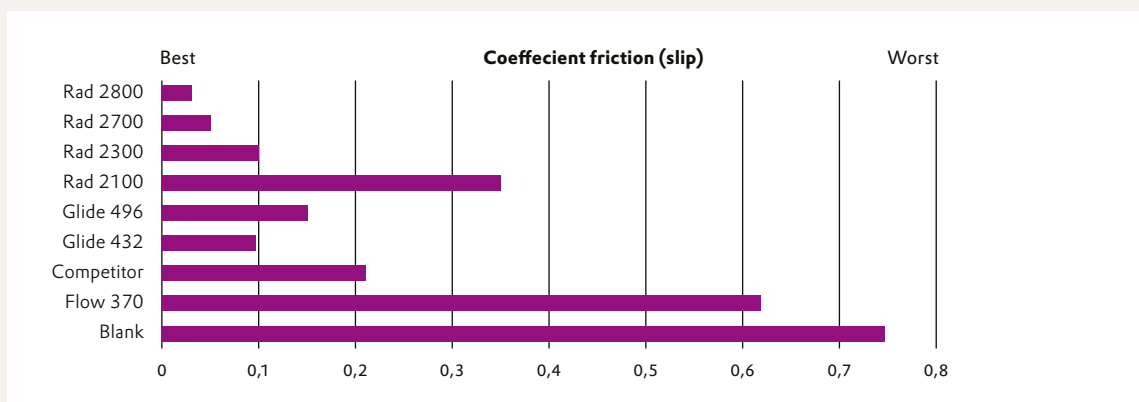
TEGO® Glide / TEGO® Rad Substrate wetting test

Epoxy/PUD acrylate UV system 25um on Leneta card Dosage: 0.3 %

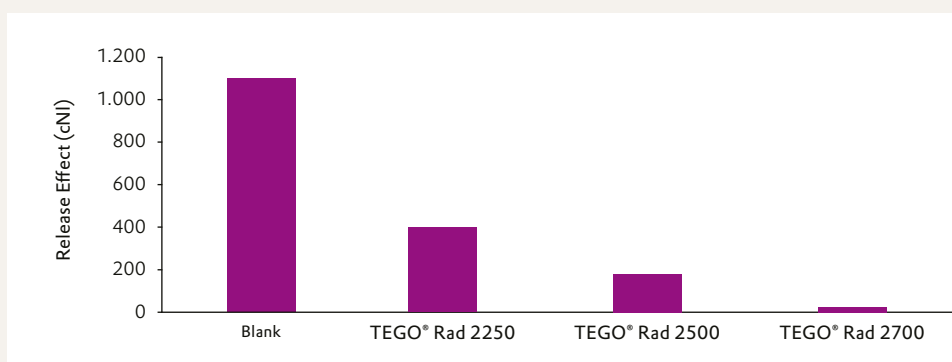


RADIATION CURING ADDITIVE

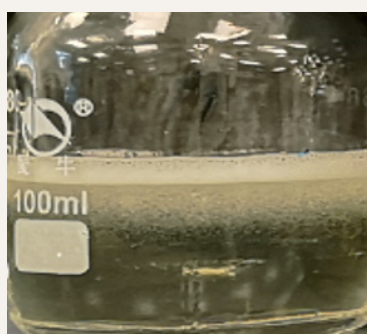
TEGO® Flow / TEGO® Glide / TEGO® Rad Slip properties (Dosage 0.3 %)



TEGO® Rad – Release Effect in UV Coatings (Dosage 0.3 %)



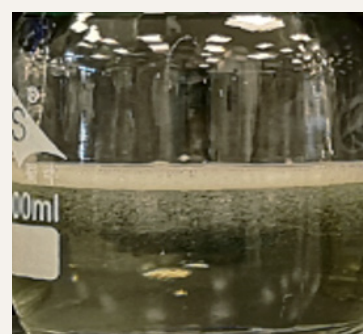
TEGO® Rad Radiation curing additive Compatibility and foam elimination test



0.3 % TEGO®
Rad 2100



0.3 % TEGO®
Rad 2300



0.3 % TEGO®
Rad 2700

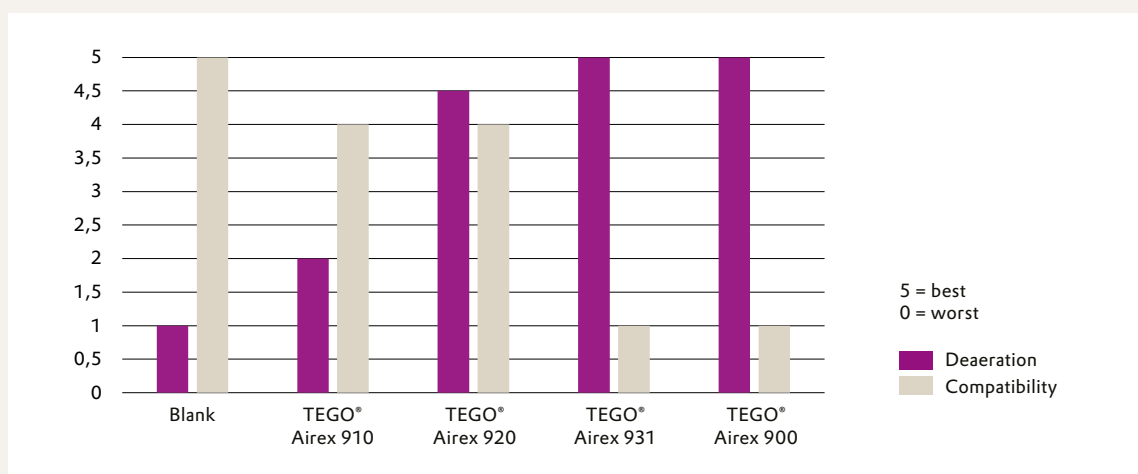
DEAERATOR AND DEFOAMER

TEGO® Airex 920

- Excellent balance on effectiveness and compatibility
- Recoatable and glueable
- Easy to incorporate
- Universally used deaerator for UV formulations
- Suitable for different application methods
- Silicone-free deaerator concentrate

The perfectly balanced deaerator

UV parquet coating based on PU / Epoxy acrylate, roller application

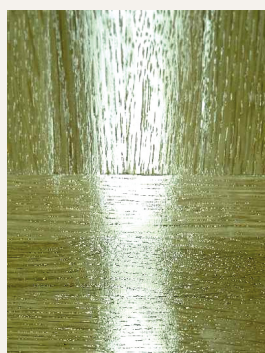


Excellent balance on effectiveness and compatibility

UV parquet coating based on PU/ Epoxy acrylate



Silicone based deaerator



TEGO® Airex 920



Silicone based deaerator



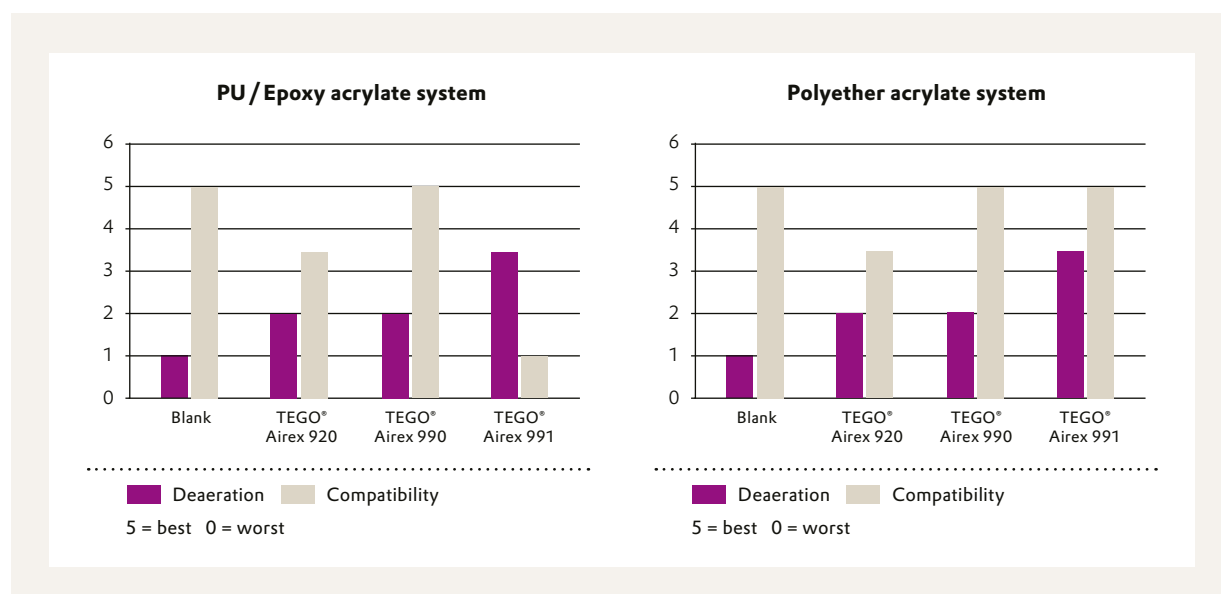
TEGO® Airex 920

DEAERATOR AND DEFOAMER

TEGO® Airex 990

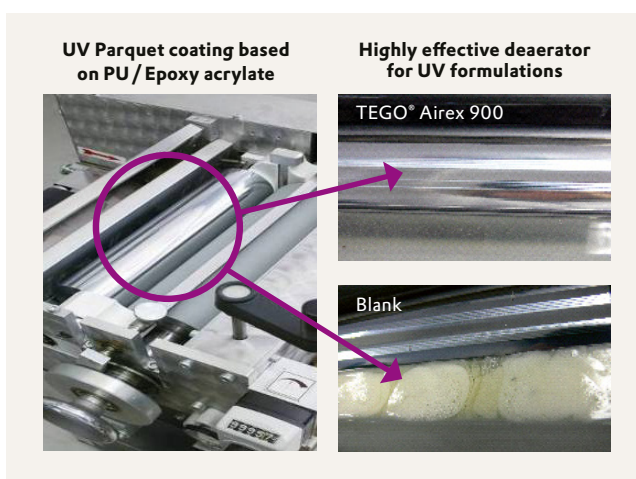
- Excellent compatibility deaerator with good efficiency
- Excellent for sensitive coatings, easy to incorporate
- Universal use for all application methods
- 100% active matter content

Excellent compatibility deaerator with good efficiency (Dosage 0.3 %)



TEGO® Airex 900

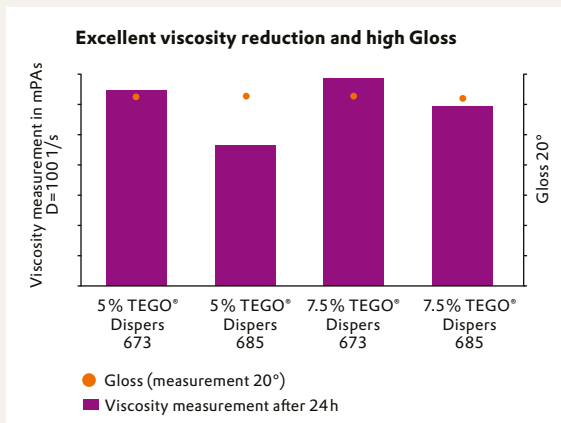
- Highly effective deaerator for UV formulations
- Especially suitable for roller applications
- Outstanding performance in higher viscosity formulations
- Mainly recommended for matt and pigmented formulations
- 100% active matter content



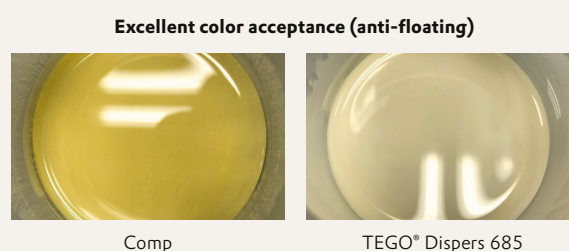
WETTING AND DISPERSING ADDITIVE

TEGO® Dispers 685

- Excellent viscosity reduction and flow behavior
- Excellent color strength and color acceptance
- Excellent gloss and haze property
- Stabilizes all kinds of pigments
- Outstanding performance even with critical organic pigments
- 100% active matter and liquid supply form



High Gloss PU / Epoxy acrylate UV white,
 Tinted with 0.5 % yellow paste,
 2 weeks storage



TEGO® Dispers 689

- Excellent viscosity reduction for matting agent
- Additional flow promotion
- Enables high matting agent concentrations in UV coatings
- Provides long-lasting matting effect
- 100% active matter and liquid supply form

Note: TEGO® Dispers 688 will be the alternative if need better viscosity reduction (contains solvent)



TEGO® Dispers 652

- Good viscosity reduction and grinding efficiency for inorganic pigments
- Effective stabilization of inorganic pigments
- Improve color acceptance
- 100% active matter and liquid supply form

Epoxy acrylate UV clear sealer
 Additive dosage: 4% solid on pigment



Effective stabilization of inorganic pigments

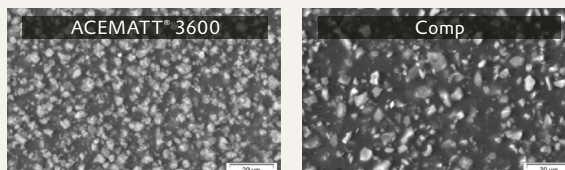
MATTING AGENT

ACEMATT® 3600

A fine particle sized specially after-treated precipitated silica, ideal for UV coatings

- Ideal for radiation curing coatings
- Very low viscosity impact
- High surface smoothness

SEM-Picture of ACEMATT® 3600 in UV Coating
Rounder particle morphology, More uniform particle distribution



High transparency of ACEMATT® 3600



ACEMATT® OK 500

A wax-treated, medium particle sized precipitated silica

- Very low viscosity impact
- High surface smoothness
- Universal use for all application

ACEMATT® 607

A fine particlesized wax-treated precipitated silica

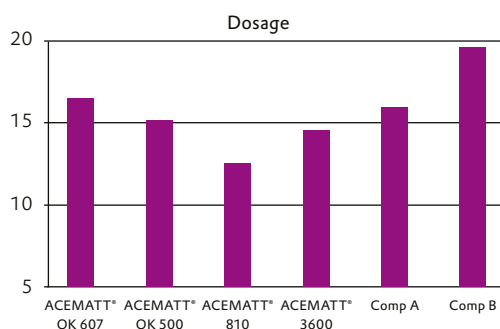
- Very low viscosity impact
- High surface smoothness

ACEMATT® 810

An untreated, coarse particle sized precipitated silica

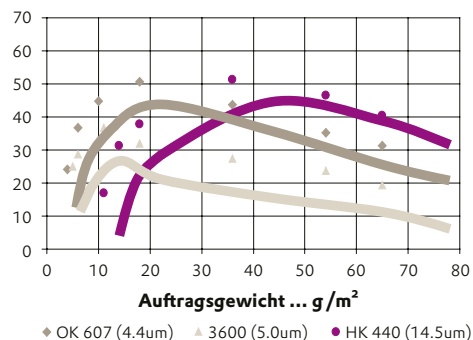
- Highly efficient
- very low sheen

Matting efficiency – 9um DFT, Gloss Unit 10
(Gloss measurement by 60°)



The matting effect in relation to layer thickness and particle size

Measurement by 60° – Gloss value under different layer thickness



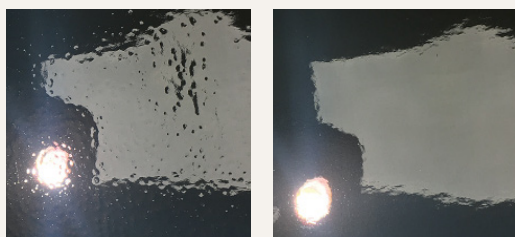
Gloss value under different layer thickness (Measurement by 60°)

SUBSTRATE WETTING ADDITIVE

TEGO® Twin 4100

- Excellent crater prevention and elimination
- Supports flow and leveling
- No foam stabilization
- Good effectiveness
- Good compatibility
- A siloxane-based gemini surfactant

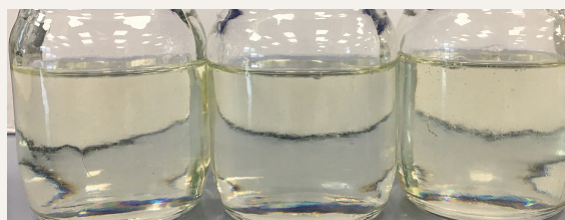
Excellent crater prevention and Supports leveling



Comp

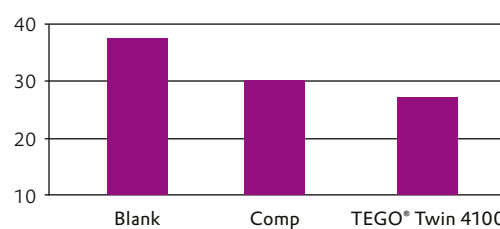
TEGO® Twin 4100

Good compatibility



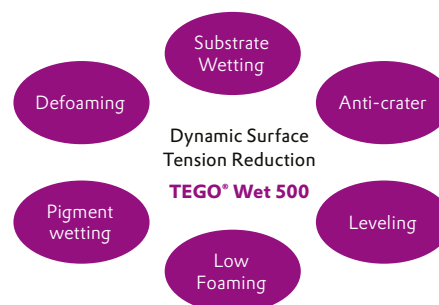
Blank Comp TEGO® Twin 4100
0.5% in Epoxy / Polyether acrylate UV clear system

Static Surface Tension (dyn)



TEGO® Wet 500

- Good reduction of dynamic surface tension
- Low foaming
- Improve the leveling of roller application
- Improve the stability of curtain application
- A silicone-free substrate



SILICA-BASED RHEOLOGY CONTROL ADDITIVE

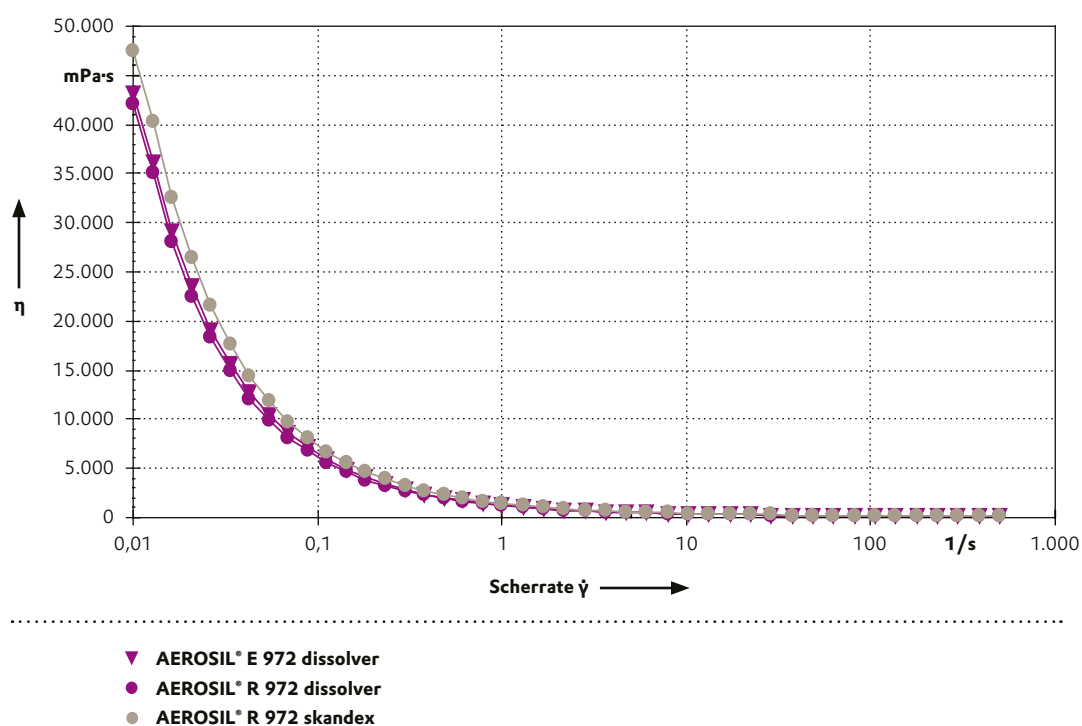
Easy to Disperse fumed silica – AEROSIL® E 972

AEROSIL® E 972 is a developmental easy-to-disperse fumed silica hydrophobized with DDS (Dimethyldichlorosilane)

- Improvement of anti-settling property
- Improvement of anti-sagging property
- Improvement rheology property
- Easy to disperse

Dispersing property – 2% in Full Gloss UV topcoat for test

PRODUCT	Dispersion		Grindometer value (µm)
	equipment	remarks	
AEROSIL® R 972	45 min Skandex	Glass beads	13
AEROSIL® R 972	15 min Dissolver	8 m/s	38
AEROSIL® E 972	15 min Dissolver	8 m/s	13



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DYNOL™, NANOCRYL®,
NANOPOL®, SILIKOFTAL®,
SILIKOPHEN®, SILIKOPON®,
SILIKOPUR®, SILIKOTOP®,
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