

Creating Additive Value



TAFIGEL[®] PUR ASSOCIATIVE THICKENER

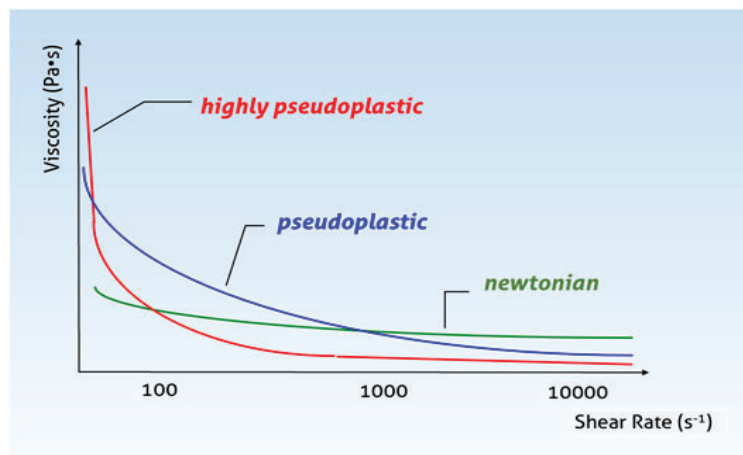
HEUR - Hydrophobically modified ethoxylated urethanes (non-ionic)

Superior leveling, higher gloss and water resistance, and low spattering are some key advantages of the HEUR class over the classic thickeners, including cellulosics and ASE. They can be used along with the latter often with synergistic effects.

Features of TAFIGEL[®] PUR:

- Wide range of adjustable rheology profiles: *Newtonian, Pseudoplastic and Highly Pseudoplastic*
- Highly Pseudoplastic profile given by PUR 60, 61, 64, 65 allow for excellent atomisation of spray applied coatings and high sag resistance
- Newtonian profiles given by PUR 45, 55, 80, 85, etc. allow for excellent leveling, high gloss, ideal brush drag and high film build (better hiding)
- Medium Pseudoplastic profile given by PUR 40, 41, 44, 48, 50 etc. create a universal rheology profile useful for brush, roller as well as spray application
- No negative impact on water resistance
- Reduced spattering tendency
- Not sensitive to pH

Effectiveness can be influenced by coating components including but not limited to surfactants, co-solvents and binders

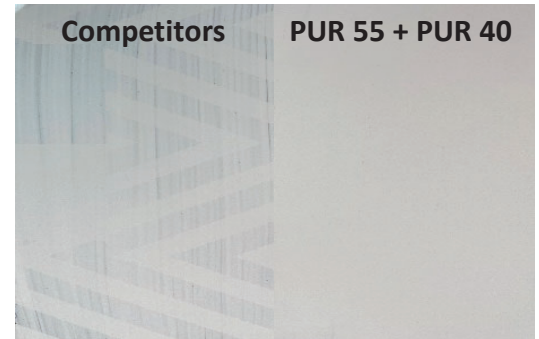


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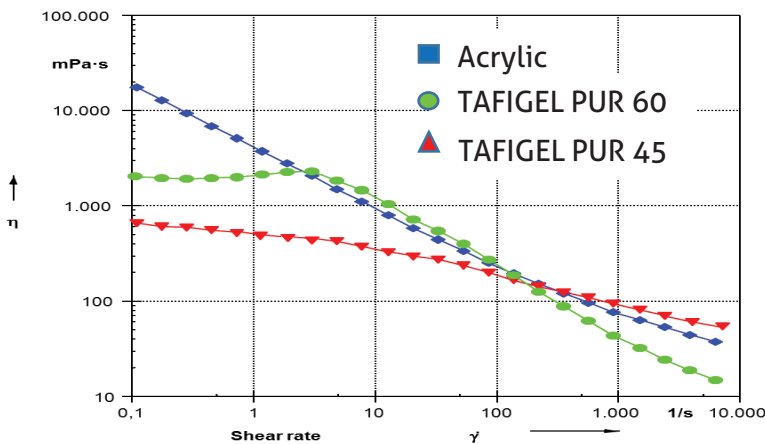
Acrylic Flat Paint

Thickener	KU (110-115)		Stability	ICI (10K 1/s)	Brush Drag	# of coats for 98.5% CR
	Initial	4 weeks 60 °C				
HEUR HASE	95	99	Slight Syneresis	0.6	low drag	5
TAFIGEL PUR 55 TAFIGEL PUR 44	116	118	very slight syneresis	1.3	good	4
TAFIGEL PUR 55 TAFIGEL PUR 40	111	114	very slight syneresis	1.5	good	4



TAFIGEL® PUR series provides improved brush drag, leveling and film build. Additionally, a good balance of KU and ICI viscosity was achieved. TAFIGEL® PUR series has superior hiding power compared to competitor's products resulting in need to use less overall paint to reach 98.5% Contrast Ratio (ABNT NBR 14942 Standard Method)

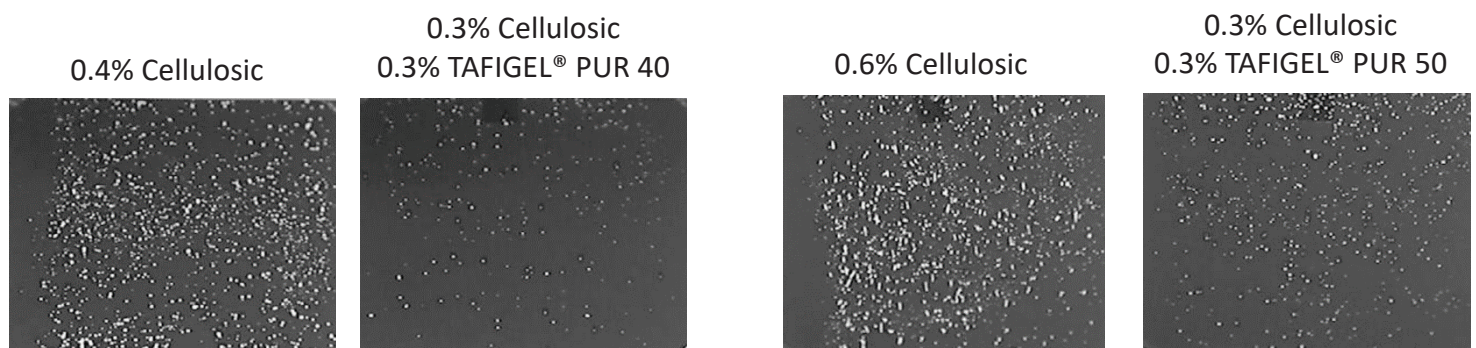
Spray applied gloss topcoat



Acrylic Thickener TAFIGEL® PUR 45 TAFIGEL® PUR 60

The overall rheology profile along with excellent spray atomization allowed for good leveling and high gloss as seen with TAFIGEL® PUR 60.

Emulsion Paint



Improved spatter resistance with reduced dosage of cellulosic in combination with TAFIGEL® PUR.

Creating Additive Value



Hybrid Technology Based Defoamer (Silicone Free)

Combination of Mineral Oil and Polyoxyalkylene Technology

AGITAN® 5091
Economical

AGITAN® 5035
Superior Performance

APPLICATIONS

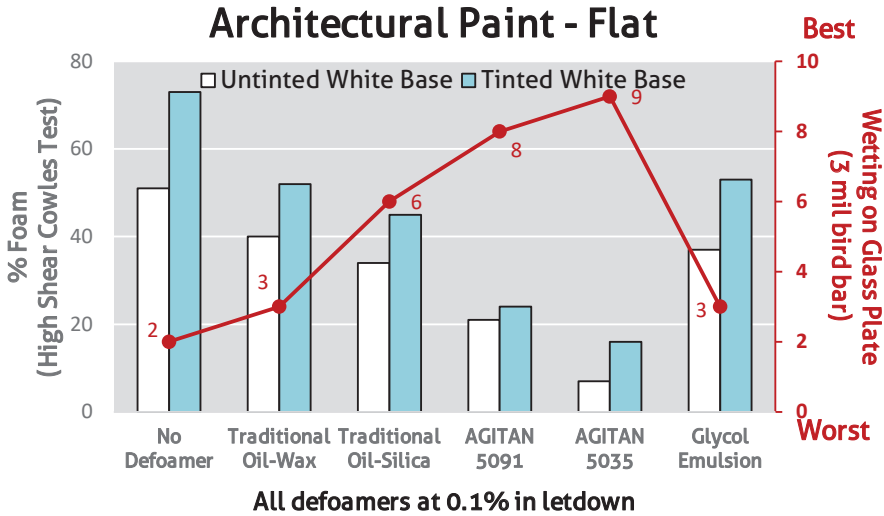
- » Flat to Semi-gloss Architectural Paints

FEATURES

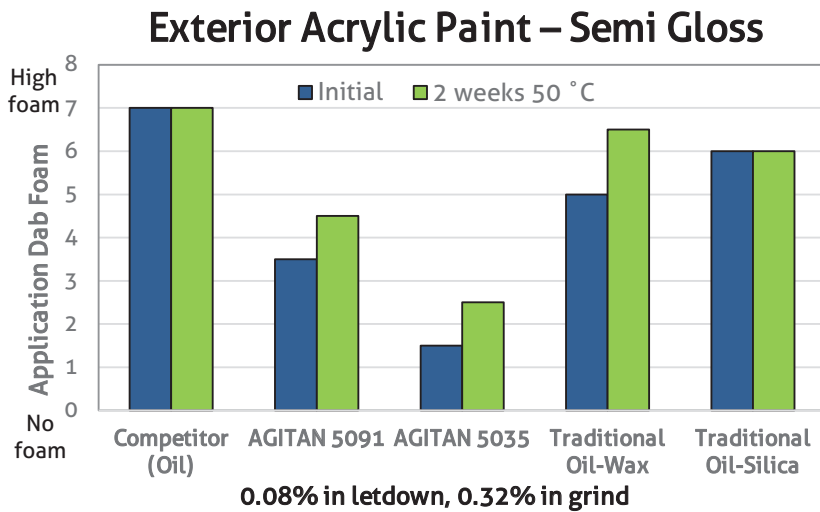
- » Integrates multiple technologies to provide superior effectiveness, persistence and fast air release over traditional mineral oil defoamers
- » Excellent defoaming during manufacture (high grind density) and fast foam break during application
- » Fast air release in high viscosity systems and thick films
- » AGITAN® 5091 is optimized to be economical whereas AGITAN® 5035 is boosted to provide superior performance in paints as well as viscous systems
- » Low VOC per EPA method 24 (<1%)
- » Conforms with FDA regulations 21 CFR 175.105, 176.170 and 176.180



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- AGITAN® 5091 and 5035 outperformed the traditional oil-based defoamers with less foam in grind (high shear cowles) and fast bubble break in roller application.
- Both defoamers provide good superior wetting characteristics.



- In semi-gloss paint, fast foam break resulting in smooth defect free films with no impact on gloss.
- Both defoamers continued to show good foam control after heat aging.



Creating Additive Value



Polymeric Dispersants for Aqueous Systems

EDAPLAN[®] 490, 492, 494

FEATURES

- Universal use for organic, inorganic, carbon black pigments and fillers
- High gloss and color strength development
- Excellent pigment stabilization with no flocculation or rub-out issues
- No negative influence on water resistance or film hardness and no foam
- Reduction of grind viscosity to allow high pigment concentration
- Broad compatibility with various binders

	EDAPLAN [®] 490	EDAPLAN [®] 492	EDAPLAN [®] 494
Copolymer structure	Non-ionic, high molecular weight, branched		Anionic, high molecular weight, branched
Active content	40% in water	35% in water	50% in water
pH	7.5	8.5	8.5
Viscosity, mPa.s	1000	200	250
VOC (EPA, Method 24)	0	0	< 1%
Suitable Pigments	<ul style="list-style-type: none"> • Organic • Carbon black • Inorganic • TiO₂ 	<ul style="list-style-type: none"> • Carbon black • Organic • Silica / matting • TiO₂ 	<ul style="list-style-type: none"> • Inorganic • TiO₂ • Organic • Carbon black • Transparent/ nanoscale • Alternate to grind resins

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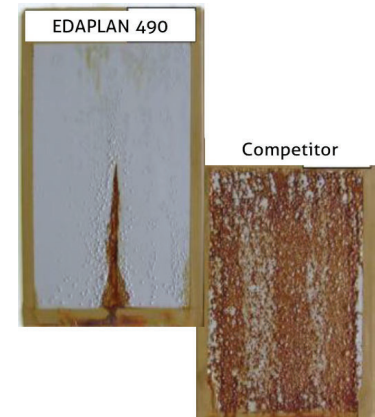
Exterior Paint

Dispersant @ 0.44%	Ease of pigment Incorporation	Viscosity in Krebs Units (KU) 25°C			Water Sensitivity Test
		Initial	1 week	4 weeks	
Competitor	Moderate	75.4	78.2	85.5	Yellowing, tacky
Polyacrylate	Difficult	72.1	Thick	Thick	Not tested
EDAPLAN® 494	Easy	81	83.6	84.2	Good

Excellent long-term stability in all types of coatings (architectural, roof, industrial, etc.)

Improved water resistance

White Anti-corrosion Primer

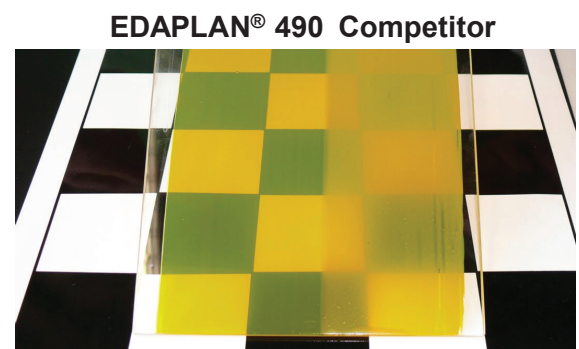


Improved corrosion resistance in salt spray test

Organic Pigments

EDAPLAN® 490	Competitor		
PV 23 (30% loading)	Competitor 1	Competitor 2	EDAPLAN 490
	65% Dispersant on Pigment		
Appearance of Dispersion	Water-Like	Low Viscosity	Water-Like
Color Strength in Wall Paint	100%	77%	108%

Increase in color strength and better stability using EDAPLAN® 490



Improved transparency and homogeneity in PY-83 dispersion in a printing ink

