

ARKEMA

RHEOLOGY & SPECIALTY ADDITIVES

CRAYVALLAC[®] ADDITIVES

Coatings, Inks,
Adhesives & Sealants



Arkema, a leader in Specialty Materials

Arkema is the manufacturer and supplier of the **Crayvallac® range of additives**, used in the coating industry since the 1960's. We are very proud of the reputation and trust that we have developed with our **customers around the world** — as a leading and serious provider of rheological, flow and levelling, matting, dispersing, texturing, slip and rub solutions.

Our strategic direction to bring continuous new product development and innovation is led from our central **R&D facility in France**, which is supported by our **regional application laboratories** around the world, including Brazil, China, France, Malaysia, Spain and the USA.

Our **Regulatory Affairs team** ensures our products comply with the ever demanding and growing regulations around the world. **Sustainability**, and being a socially responsible partner with our customers, employees and the communities where we operate, continues to be a focus of our business.

Our product range is stocked and sold in over 100 countries, and locally supported by our dedicated team of experts.

For more information please visit our website at: crayvallac.com

RHEOLOGY MODIFIERS

- ▶ Various range of supply forms : Powders, pastes and liquids
- ▶ With shear-thinning rheology

SURFACE MODIFIERS

- ▶ Polymeric waxes
- ▶ Matting agents
- ▶ Surface properties

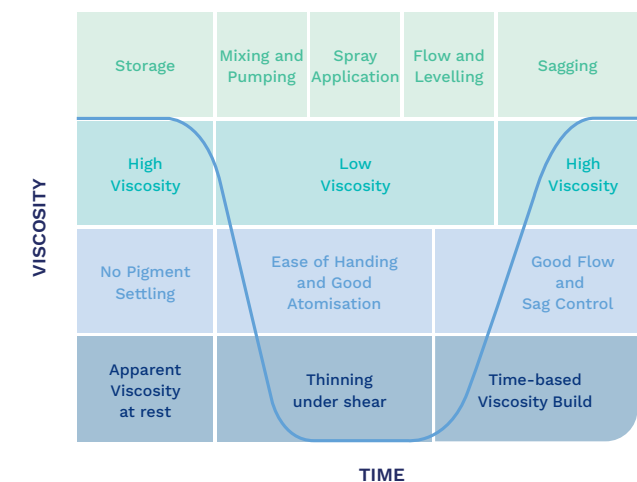
FLOW AND LEVELLING AGENTS

- ▶ Liquid additives for aspect improvement
- ▶ Surface wetting enhancement
- ▶ Air-release properties



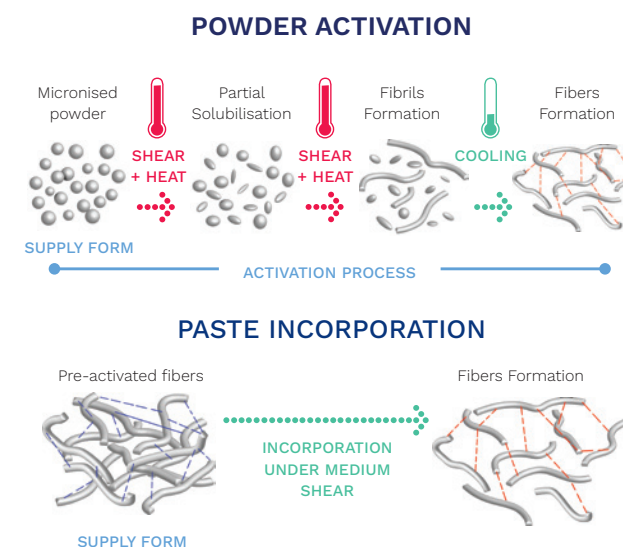
CRAYVALLAC® Additives for Coatings, Adhesives and Sealants

Rheological performance and benefits



CRAYVALLAC® rheology modifiers provide coatings with a high viscosity under low shear conditions which is typically required for **storage stability**. It results in excellent **antisedimentation** characteristics in pigmented systems thus maintaining a good dispersion and preventing hard settling. In addition, the excellent shear thinning behaviour of the **CRAYVALLAC® rheological additives** ensures that coatings are easily applied under the high shear conditions (brush, roller or spray). The thixotropic nature of the CRAYVALLAC® rheology modifiers, or time dependent viscosity recovery, provides sufficient time for **good flow and levelling**, yet enables sufficient viscosity build up to prevent sag.

How to use Crayvallac® rheological modifiers



CRAYVALLAC® powders require to be activated by heat and high shear into a rheological fibrous network. It is possible to benefit from the grinding stage to perform this **activation**.

For manufacturing processes without such a grinding stage then **CRAYVALLAC® Pastes** are a great alternative since the polyamide has already been **pre-activated**. This means that the paste can be directly incorporated into the paint system under medium shear without requiring either heat or high shear.

CRAYVALLAC® Liquid additives are activation-free and can be simply stirred into the formulation.



Construction



Consumer



Industrial

CRAYVALLAC® Polyamide technology ensures robustness and versatility toward processing conditions for a wide range of adhesives & sealants technologies

Combine:

Rheological performance + Storage stability + Workability

...with our range of rheology modifiers



Looking to replace screws & bolts ?
Need an extra boost of strength with workability for your system ?
CRAYVALLAC® SLW is an additive specifically designed for highly filled systems providing extra efficiency & performance with ease of extrusion. Ideal for demanding applications.

Key benefits:

- Anti-settling
- Long term stability
- Viscosity stability
- Easy application
- Extrusion control
- Non-slumping
- Curing & adhesion integrity ensured
- Weatherability

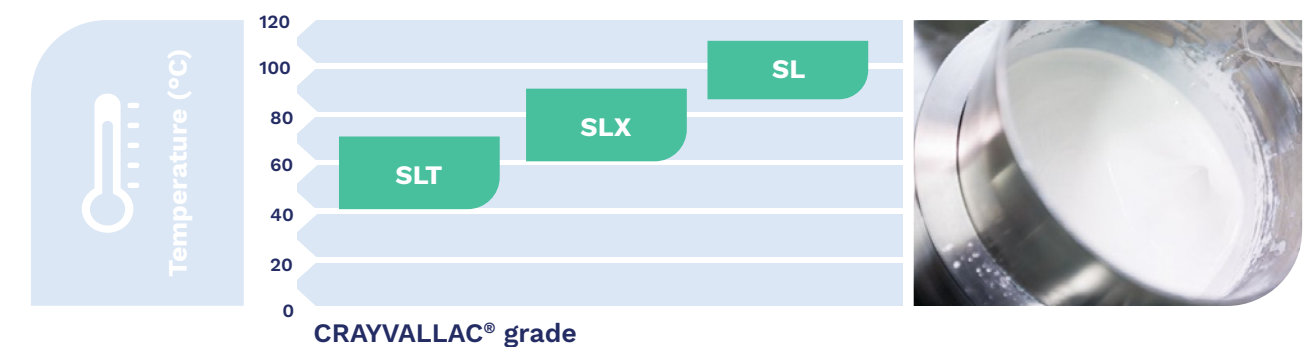


ADHESIVES AND SEALANTS

Rheology Modifiers

Products	Chemistry	Technical data			Adhesives & Sealants Technologies								
		Supply form	Dosage (weight %)	Incorporation	STP	2K PU	2K Epoxy	Sili-cones	Acry-lates	Butyl Rubber	Poly-suphi-des	Poly-chloro-prenes	WB sys-tems
Antisettle CVP	Castor derivative	100% active powder	1 - 8%	Activation through heat & high shear	••			•			•	•	
MT	Castor derivative				••	•	••	••	•		•	••	
SL	Polyamide				•••	•••					•		
SLX	Polyamide				•••	•••			••	•	••		
SLT	Polyamide				•••	•••	••	•••	••				
NEW SLW	Polyamide					1 - 5%		•••	••	••		•	•
LA-350	Modified urea	Liquid	0.1 - 2%	Activation free								•••	

• Possible - •• Suitable - ••• Recommended

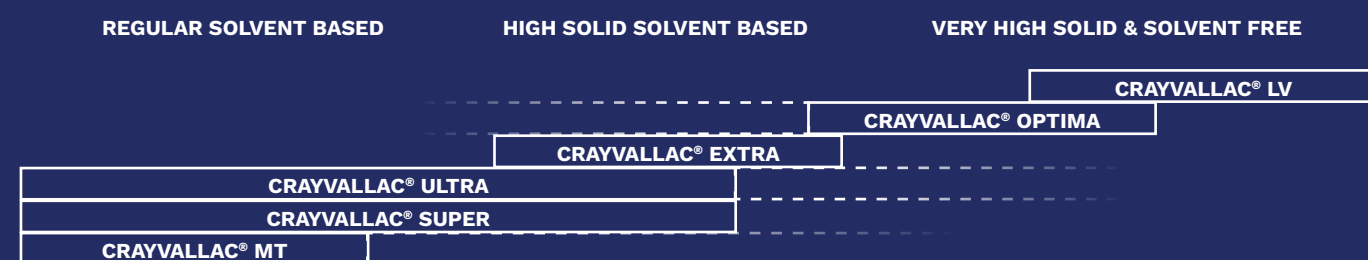


PROTECTIVE AND MARINE COATINGS, GENERAL INDUSTRY

► Rheology Modifiers

Products	Technical data			SB regular		SB High Solid		Special			Remarks		
	Supply form	Dosage (weight %)	Incorporation	Primer	Top Coat / DTM	Primer	Top Coat / DTM	Solvent Free Systems	Anti-fouling	Intumescent			
MT	100 % active powder	0.2 2.0	Activation through heat & high shear	•	••	•	••	•			Amide-modified castor oil derivative: cost effective and easy to activate		
SUPER						•••		••			•	Pure polyamide recommended for top coat and DTM coatings	
ULTRA		0.5 1.5		•••	•	•				•		Pure polyamide especially recommended in 2K epoxy primers for its robustness. Allows excellent recoatability and sag control	
EXTRA					•		••			•	•	Pure polyamide especially recommended in 2K epoxy primers for its high temperature tolerance	
NEW OPTIMA					•	•	•••	•••	••	•	•	Pure polyamide recommended for very high solid and solvent free for its ease of activation and smooth viscosity recovery (good levelling)	
NEW LV		0.5 2.0					•	•	•	•••	••	•••	Pure polyamide recommended for solvent free systems for its efficiency
60X	Paste	0.5 5.0	Medium shear	•		•			••	••	Polyethylene paste recommended to prevent irreversible hard setting		
PA3 XAF 20				•	•	•	•			•••	•••	Alcohol free version of pre-activated polyamide paste	
PA3 X 20 PA3 BA 20				••	•	••	•						Pre-activated polyamide paste with highest efficiency. Optimum sag resistance and viscosity
PA4 X 20 PA4 BA 20				•	•••	•	•••						Pre-activated polyamide with enhanced transparency, excellent anti-sagging, anti-settling properties
LA-150	Liquid	0.1 2.0	Post addition	•	•	•	•		•	•	Modified urea thixotropic agent especially recommended for antisetting and viscosity adjustment. Simple stir-in incorporation, suitable for post addition		

CRAYVALLAC® Technologies in PCM typical formulations



► Surface Modifiers

Products	Chemistry	Properties				Characteristics				Remarks
		Matting	Slip	Abrasion resistance	Scratch resistance	D50 (µm)	D100 (µm)	Dropping point (°C)	Solid content (%)	
WN-1135	Modified PP	•••	•	••	••	5.5	26	151	100%	Stronger matting effect
WN-1535		•••	•	••	••	6	26			Easy to disperse in WB system
WN-1495	Polyethylene	•	••	•	••	4.5	20	112	100%	Fine particle size distribution
WF-3200	Modified PTFE	•	••	•••	•••	5	25			High performance wax

► Flow and levelling Agents

Products	Systems			Properties			Characteristics		Remarks
	Solvent Based	UV Cure	Water Based	Film aspect enhancement	Air-release	Substrate wetting	Active content (%)	Solvent	
FLOW-200	••	•		••	•	••	100%	None	Polyester with balanced compatibility
A-620-A2	••	•		••	•	•	60%	Xylene	Polycrylate with medium molecular weight
A-2201-M	••	•		•	••	•	70%	Xylene Butanol	Polycrylate with synergistic effect when blended with other flow additive

• Possible - •• Suitable - ••• Recommended

PCM / GI sub-applications



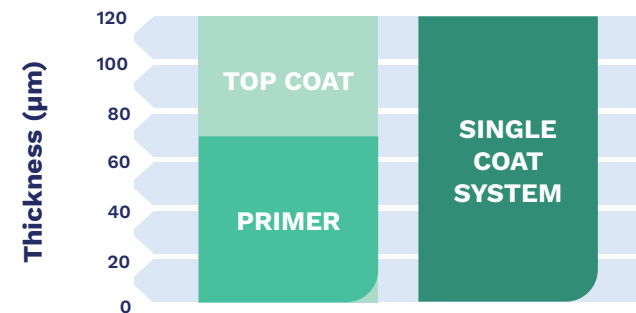
PROTECTIVE AND MARINE COATINGS, GENERAL INDUSTRY

► Direct To Metal

The development of Direct To Metal (DTM) solutions helps to:

- REDUCE THE NUMBER OF LAYERS,
- PROVIDE THE BEST BALANCE BETWEEN PRIMER AND TOPCOAT PROPERTIES: good adhesion, corrosion resistance and exterior durability.

CRAYVALLAC® rheology modifiers, with their strong shear thinning characteristics allow you to apply a higher film thickness without sagging. CRAYVALLAC® flow agents will improve the surface aspect by removing defects and by improving the gloss.



Key benefits:

- Chemical resistance
- Weatherability
- Gloss
- Adhesion
- Corrosion resistance
- Barrier properties

Products	Systems	Description			Characteristics		Remarks
	Direct to Metal	Functionality	Chemistry	Supply form	Active content (%)	Solvent	
PA3 X 20	●●	Rheology modifier	Polyamide	Paste	20%	Xylene	Post-addition for viscosity adjustment (no activation required). Ease of formulation by simple mixing. Enhanced thixotropy to get high sag resistance with gloss retention.
SUPER	●●			Powder	100%	None	Controlled flow behavior, with ease of application and excellent sag resistance. High film thickness while achieving good levelling.
FLOW-200	●●	Levelling agent	Polyester	Liquid			Polyester with balanced compatibility for an enhanced film aspect without defects.

► Waterborne

Our duty is to protect the environment and to help our customers manufacture coatings with reduced VOC's. We see strong growth in powder coatings and also waterborne coatings are being developed for most challenging conditions. In addition, we see conventional solvented systems becoming increasingly higher in solids and also solvent free.

POWDER 0 g/L VOC <small>Suitable for some applications</small>	WB 120 g/L VOC <small>Cost vs performance</small>	VERY HIGH SOLID 150 g/L VOC <small>Cost vs performance</small>	SOLVENT FREE 60 g/L VOC <small>Specific equipment required</small>
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Liquid additives are the most suitable alternative for waterborne coatings as waterborne resins are very often sensitive to temperature and shear preventing the required activation for polyamide powder. As a non associative rheology modifier, **CRAYVALLAC® LA-350** provides good sag resistance and antissettling properties in a wide range of waterborne systems. When the aspect of the film is essential, **CRAYVALLAC® A-2678-M** helps to prevent surface defect and can also prevent air bubbles. **CRAYVALLAC® WN-1535** can be easily dispersed in WB coatings and results in good scratch resistance. Depending on the dosage it is possible to use the matting effect to obtain a semi gloss finish.

Products	Systems	Description			Characteristics		Remarks
	Waterborne	Functionality	Chemistry	Supply form	Active content (%)	Solvent	
LA-350	●●●	Rheology modifier	Modified urea	Liquid	50%	DMSO	Post addition. No activation required.
WN-1535	●●●	Surface modifier	Modified PP	Powder	100%	None	Possibility to use with stronger matting agent for enhanced mechanical properties.
A-2678-M	●●●	Levelling agent	Polyacrylate	Liquid	50%	Water glycol	Grind aid for water-based coatings.

● Possible - ●● Suitable - ●●● Recommended



WOOD COATINGS

Rheology Modifiers

Products	Technical data			SB		Special coatings		Water-borne	Remarks
	Supply form	Dosage (weight %)	Incorporation	Regular solid	High solid	UV	Polyester		
LV	Powder	0.2 1.5	Heat & high shear	•	••	••	••		Pure polyamide recommended for solvent free for its efficiency
PA3 X 20 / PA3 BA 20	Paste	0.5 5.0	Medium Shear	••	••	••	••		Pre-activated paste with highest efficiency (optimum sag resistance and viscosity)
PA3 S 12				•	•	•	•••		Pre-activated paste with highest efficiency (optimum sag resistance and viscosity)
PA4 X 20 / PA4 BA 20				••	•••	••	••		Pre-activated paste with enhanced transparency, excellent anti-sagging, anti-settling properties
LA-150	Liquid	0.1 2.0	Post addition	••	•	•	•		Urea-urethane thixotropic agent especially recommended for antisetling and viscosity adjustments
LA-350								••	Simple stir-in incorporation Suitable for post addition

Flow and levelling Agents

Products	Systems			Characteristics			Properties Characteristics		Remarks
	Solvent Based	UV Cure	Water Based	Film aspect enhancement	Air-release	Substrate wetting	Active content	Solvent	
FLOW-200	••	•		••	•	••	100%	None	Polyester with balanced compatibility
FLOW-100	••	•		••	•	•			Polyacrylate with high molecular weight
A-2678-M			••	••	•	••	50%	Water Glycol	Polyacrylate providing defoaming improved properties, substrate and pigment wetting

• Possible - •• Suitable - ••• Recommended



Arkema's Crayvallac® range of surface modifiers are mainly based on polyethylene, polypropylene and PTFE. These products are available as micronised powders or dispersions of micronised powders in water or solvent. These high performance products enable the formulator to control both the lubricity and appearance of coatings.

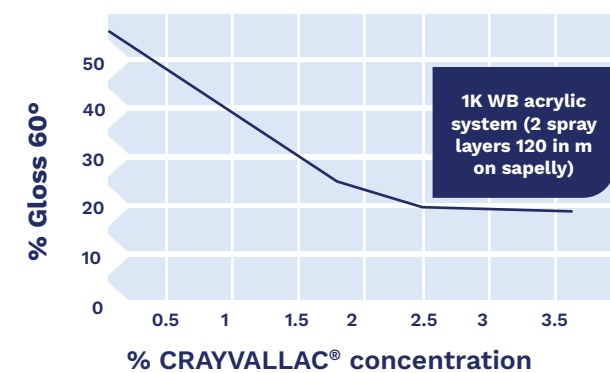
The following performance enhancements are to be obtained by using these products:

- Gloss and matt control
- Slip and scratch
- Mar, rub and abrasion
- Sanding aids
- Blocking resistance
- Solvent resistance and water repellency
- Texturing
- Stain resistance

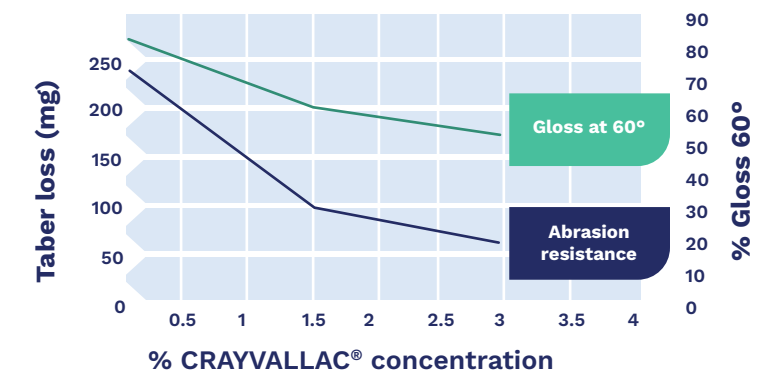
Surface Modifiers

Products	Chemistry	Properties				Characteristics				Remarks	
		Matting	Slip	Abrasion resistance	Scratch resistance	D50 (µm)	D100 (µm)	Drop-point (°C)	Dry content (%)		
SOLID POLYMERIC WAX	WN-1135	Modified PP	•••	•	••	••	5.5	26	151	100%	Matting and anti-scratch
	WN-1265	Modified polyamide	•••	••	••	••		30	146		Slip and satin effect
	WN-1495	Polyethylene	•	••	••	••	4.5	20	112		Slip and anti-scratch (fine particule size distribution)
	WN-1442		•	•	••	••	6	30	112		Slip and anti-scratch
	WN-1535	Modified PP	•••	•	••	••	5.5	26	151		Possible combination with fumed silica for deep mat finishes Easy to disperse in WB system
	WN-1875	Crosslinked polymer	•••	••	••	••	5.5	30	> 200		Strong matting effect and anti-scratch
	WF-3200	Modified PTFE	•	••	••	••	5	25	112		Slip and high anti-scratch Good gloss retention
	WF-6010		•	••	••	••					Slip and high anti-scratch without gloss decrease
	WF-9200		•	•	••	••					6
AQUEOUS DISPERSION	WW-1001	Polyolefin	•	••	••	••	4.5	20	112	40%	Improved surface properties
	WW-1077	Modified PTFE	•	••	••	••	5	25	112	50%	Improved surface properties
	WW-9500	Modified PP	••	•	••	••	5.5	151	35%	Matting and anti-scratch	

Matting Crayvallac WN-1535 In WB formulation



Matting and Abrasion resistance in SB formulation



AUTOMOTIVE COATINGS

Rheology Modifiers

Products	Technical data			Solventborne				Remarks
	Supply form	Dosage (weight %)	Incorporation	Top Coat	Base Coat	Primer	Water-borne	
NEW SUPER	100 % active powder	0.5 1.5	Activation with heat and high shear	●●	●	●		Pure polyamide featuring excellent sag resistance and edge covering with low thickening
OPTIMA				●	●	●●		Pure polyamide recommended for its ease of activation and smooth viscosity recovery (good levelling)
LV				●●	●	●		Pure polyamide recommended for its high efficiency
PA3 X 20 / PA3 BA 20	Paste	0.5 5.0	Medium shear	●●	●●	●		Pre-activated paste with highest efficiency (optimum sag resistance and viscosity)
PA4 X 20 / PA4 BA 20				●●	●●	●		Pre-activated polyamide with enhanced transparency, excellent anti-sagging, anti-settling properties
LA-150	Liquid	0.1 2.0	Post addition	●	●●	●		Modified urea thixotropic agent especially recommended for antisetting and viscosity adjustment
LA-350						●●		Modified urea thixotropic agent especially recommended for antisetting and viscosity adjustment

Flow and levelling Agents

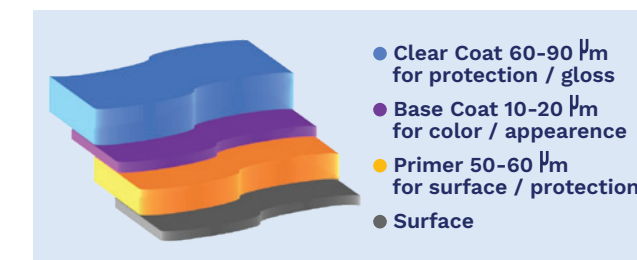
Products	Systems			Properties			Characteristics		Remarks
	Solvent Based	UV Cure	Water Based	Film aspect enhancement	Air-release	Substrate wetting	Active content	Solvent	
FLOW-200	●●	●●		●●	●●	●●	100%	None	Polyester with high efficiency and balanced compatibility. Especially recommended in OEM
FLOW-100	●●	●●		●●	●	●●			Polyacrylate with balanced compatibility
A-620-A2	●●	●		●●	●	●●	60%	Xylene	Polyacrylate with medium molecular weight
A-2201-M	●●	●		●	●●	●	70%	Xylene Butanol	Polyacrylate with enhanced efficiency when blended with other flow additive
A-72-A2-60	●●	●		●●	●	●●	60%	Xylene	Higher molecular weight version of CRAYVALLAC® A-620-A2
A-2678-M		●	●●	●	●	●●	50%	Water glycol	Polyacrylate with enhanced efficiency when blended with other flow additive. Grinding aid for waterborne coating

● Possible - ●● Suitable - ●●● Recommended

Surface Modifiers

Products	Chemistry	Properties				Characteristics				Remarks
		Matting	Slip	Abrasion resistance	Scratch resistance	D50 (µm)	D100 (µm)	Dropping point (°C)	Solid content (%)	
WN-1875	Polymeric	●●●	●	●●	●●	5.5	30	> 200	100%	Stronger matting effect
WN-1535	Modified PP	●●●	●	●●	●●		26	151	100%	Possible combination with fumed silica for deep matt finishes. Easy to disperse in WB system
WN-1495	Polyethylene	●	●●	●	●●	4.5	20	112	100%	Fine particle size distribution
WF-3200	Modified PTFE	●	●●	●●●	●●●	5	25		100%	High performance wax Good gloss retention

Rheology Modifiers - Polyester Putties for Vehicle Refinish



Useful for car repair - specific rheological need

CRAYVALLAC® key benefits for Polyester Putties:

- Very good in-can stability
- Smooth structure, easy to break
- Product stays on the knife, no sag
- No foam

Products	Technical data			Remarks
	Supply form	Dosage (weight %)	Incorporation	
NEW Antisettle CVP	100 % active powder	0.2 2.0	Activation through heat & high shear	Castor oil derivative cost effective and easy to activate (40 - 45 °C)
PF				Finest particle size distribution for easier activation conditions and free-flow powder
MT				Amide-modified castor oil derivative with improved stability for butter-like putties
SF				Amide-modified castor oil derivative with improved stability for harder putties and better in-can stability



CAN & COIL

► Rheology Modifiers

Products	Technical data			Solventborne				Remarks
	Supply form	Dosage (weight %)	Incorporation	Top Coat	Base Coat	Primer	Water-borne	
PA3 X 20 / PA3 BA 20	Paste	0.5 5.0	Medium shear	●	●●●	●●●		Pre-activated paste with highest efficiency (optimum sag resistance and viscosity)
PA4 X 20 / PA4 BA 20				●●●	●●	●●		Pre-activated polyamide with enhanced transparency excellent anti-sagging, anti-settling properties
LA-150	Liquid	0.1 2.0	Post addition	●●●	●●	●●		Urea-urethane thixotropic agent especially recommended for antisetting and viscosity adjustments

► Flow and levelling Agents

Products	Systems			Properties			Characteristics		Remarks
	Solvent Based	UV Cure	Water Based	Film aspect enhancement	Air-release	Substrate wetting	Active content	Solvent	
FLOW-200	●●	●●		●●	●●	●●	100%	None	Polyester with high efficiency and balanced compatibility. Especially recommended in OEM
FLOW-100	●●	●●		●●	●	●●			Polyacrylate with balanced compatibility
A-620-A2	●●	●		●●	●	●●	60%	Xylene	Polyacrylate with medium molecular weight
A-2201-M	●●	●		●	●●	●	70%	Xylene Butanol	Polyacrylate with enhanced efficiency when blended with other flow additive
A-72-A2-60	●●	●		●●	●	●●	60%	Xylene	Higher molecular weight version of CRAYVALLAC® A-620-A2

● Possible - ●● Suitable - ●●● Recommended

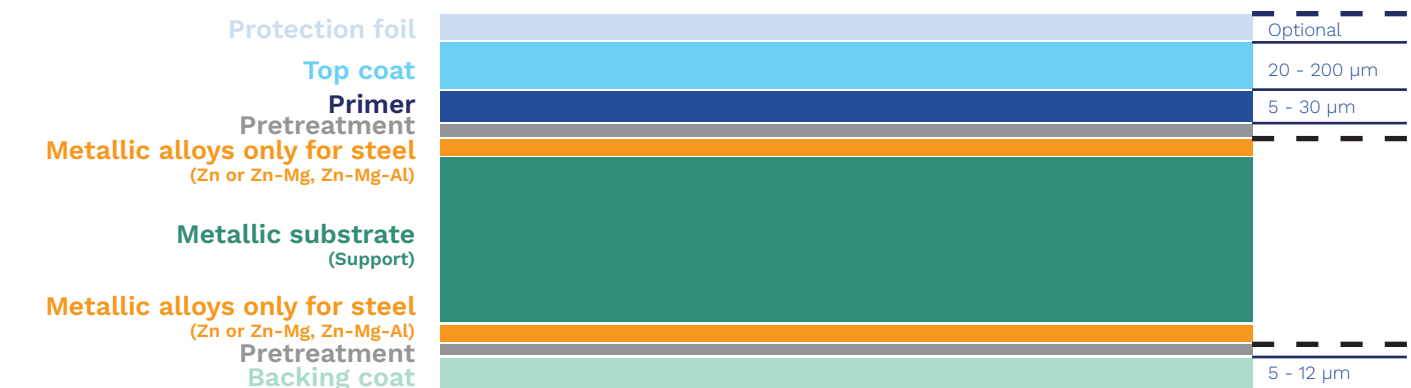
CRAYVALLAC® leveling additives are high performance agents for the control of coating surface properties. Based on polyester and acrylic chemistries, they have been developed to provide the following benefits:

- No film surface defects
- Improved substrate wetting
- Air release properties
- Defoaming properties.

► Surface Modifiers

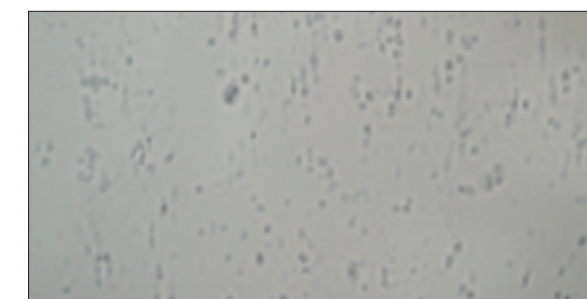
Products	Chemistry	Properties				Characteristics				Remarks
		Matting	Slip	Abrasion resistance	Scratch resistance	D50 (µm)	D100 (µm)	Dropping point (°C)	Solid content (%)	
WN-1135	Modified PP	●●●	●●●	●●	●●	5.5	26	151	100%	Matting agent with excellent hardness and slip resistance reduction
WN-1495	Polyethylene	●	●●	●●	●●	4.5	20	112		Shows good hardness, abrasion, heat and solvent resistance. Ideal for general purposes
WN-1265	Modified polyamide	●●●	●●●	●	●	5.5	30	146		Matting and texturing ('Orange-peel' effect) and slip resistance reduction
WF-3200	Modified PTFE	●	●●	●●●	●●●	5	25	112		Improves anti-blocking, abrasion resistance, surface hardness and slip resistance reduction
WN-1875	Polymeric	●	●●●	●●●	●●●	5.5	30	> 200		High performance wax

Typical coil coating layers

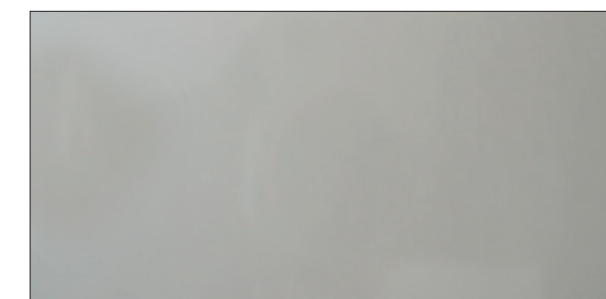


Example of coil coating with and without Crayvallac® FLOW-200

WITHOUT CRAYVALLAC® FLOW-200



WITH CRAYVALLAC® FLOW-200



ARCHITECTURAL COATINGS

Rheology Modifiers

Products	Technical data			Application		Remarks
	Supply form	Dosage (weight %)	Incorporation	Solvent-borne	Waterborne	
MT	100 % active powder	0.2 2.0	Activation with heat and high shear	•		General purpose thixotrope for solventborne coatings
SUPER				•		Excellent sag control with low thickening and good levelling balance. Suitable for premium quality, architectural solventborne paints
PA3 WDA 20	Paste	0.5 5.0	Medium Shear	•		Paste in mineral oil to provide excellent anti-settling and sag control properties with good levelling properties
PA4 WDA 12				•		Softer version of PA3 WDA 20, with much easier incorporation. Suitable for aerosols, wood stains and decorative paints
LA-250	Liquid	0.1 2.0	Suitable for post addition	•		Anti-settling and sag control additive, with excellent levelling properties. Also used for viscosity adjustment
LA-350					•	Provides anti-settling properties to water-based coating, with excellent levelling properties

Surface Modifiers

Products	Technology	Properties				Characteristics				Remarks
		Matting	Slip	Abrasion resistance	Scratch resistance	D50 (µm)	D100 (µm)	Dropping point (°C)	Solid content (%)	
WN-1135	Modified PP	●●●	•	●●	●●	5.5	26	151	100%	For satin finish. Excellent dispersability, hydrophobicity, slip and mar resistance
WN-1535		●●●	•	●●	●●					Easy to disperse in WB system
WN-1495	Polyethylene	•	●●	•	●●	4.5	20	112		Fine particle size distribution
WF-3200	Modified PTFE	•	●●	●●●	●●●	5	25			Improves anti-blocking, abrasion, mar resistance and surface hardness
WW-1001	WB Dispersion	•	●●	•	●●	4.5	20	112	40%	Good compatibility and rapid dispersion
WW-1077		•	●●	●●●	●●●	5	25		50%	Wide compatibility and excellent stability in water-based systems

• Possible - ●● Suitable - ●●● Recommended

POWDER COATINGS

Flow and levelling agents

Products	Technical data		Characteristics		Remarks
	Supply form	Chemistry	Melting point (°C)	Molecular weight (g/mol)	
PC	Powder	Modified Castor Derivative	83 88		High efficient flow, levelling and degassing additive without gloss reduction. Adhesion of sealants is preserved
MT			130 140		High efficient flow, levelling and degassing additive without gloss reduction, with improved storage stability
WN-1265		Amide	146		Improved degassing, flow and levelling. Also provides some slip and matt
REAFREE F3300-A15	Masterbatch	Acrylic		High (>50.000)	Masterbatch with 15% active content in hydroxylated polyester. Recommended to improve levelling of pigmented powder coatings
REAFREE F8585-R10				Low (<15.000)	Masterbatch with 10% active content in carboxylated polyester. Recommended to improve levelling of pigmented powder coatings
REAFREE F3300-R10					Masterbatch with 10% active content in hydroxylated polyester. Recommended to improve levelling of pigmented powder coatings

Matting & Texturing & Surface Protection

Products	Chemistry	Properties							Characteristics		Remarks
		Leveling	Degassing	Matting	Texturing	Slip	Abrasion resistance	Scratch resistance	D50 (µm)	Dropping point (°C)	
WN-1150	Modified PE		•	●●		•			6.5	113	Matting agent for TGIC, Hybrid and PRIMID® based powder coatings. Ultra low gloss can be achieved in dry blend systems. Does not affect weatherability or mechanical properties
WN-1442	PE	●●	•	•		•			5.5	112	Matting agent with improved surface properties. Provides degassing and improves flow and throughput during extrusion
EF-30P	Polymeric			●●●					-	125 (Tg)	Strong reactive matting agent specifically for pure epoxy and polyester-epoxy systems. Smooth surface appearance with very good color stability and nonyellowing. Ultra low gloss can be achieved in one shot
WF-1039	PTFE/PE			●●	●●		●●	●●	5	112	Fine textured finish effect with good temperature, solvent and abrasion resistance. Addition level: 0.5 - 3%
WN-1135	Modified PP	•	●●				•	•	5.5	151	Matting agent with excellent hardness and slip resistance reduction
WF-3200	PTFE/PE			•		•	•	•	6	112	Versatile max providing high slip and anti-blocking. Improves abrasion, mar resistance and surface hardness
WF-6010	PTFE/PE			•		●●●	●●	•			Versatile max providing high slip and anti-blocking. Improves abrasion, mar resistance and surface hardness
WN-1875	Polymeric						●●●	●●●	5.5	>200	Increases surface hardness and scratch resistance. Advised for UV powder coatings. Reduces pill flow

SUMMARY

Rheology Modifiers

Products	Systems					Applications							Processing Conditions			Properties					
	Aliphatic	Aromatic	Aromatic / polar	Solvent-Free	Water-Based	PCM	GI	Architectural	IWF	Automotive	UPR	Adhesives & Sealants	Powder coatings	Activation (High shear)	High temperature	Low temperature	Shear-thinning	Sag control	Anti-setting	Leveling	
Antisettle CVP	●●			●●			●	●●	●		●●	●		●●●	●	●●	●	●●	●●	●●	●
PC				●●●									●●●	●●●	●	●●	●	●	●●	●●●	
PF	●●			●●						●●	●			●●●	●	●●	●	●●	●●	●	
MT	●●	●●	●			●	●●	●●	●		●●	●●	●●	●●●	●	●●	●	●●●	●●	●●●	●
SF	●	●●	●●			●●	●			●●				●●●	●	●●	●	●●●	●●	●●●	●
SUPER	●	●●●	●			●●	●●	●	●	●●	●			●●●	●●	●	●●●	●●●	●●●	●●	
ULTRA		●	●●●			●●●	●●							●●●	●●	●	●●●	●●●	●●●	●●	
EXTRA		●	●●●	●●●		●●	●							●●●	●●	●	●●●	●●●	●●●	●●	
OPTIMA	●	●●	●●	●●●		●●●	●●●		●	●				●●●	●●	●	●●●	●●●	●●●	●	
LV				●●●		●●●	●●		●●					●●●	●●	●	●●●	●●●	●●●	●	
SLW				●●●							●●●			●●●	●	●●	●●●	●●●	●●●	●	
SLT				●●●							●●●			●●●	●	●●	●●●	●●●	●●●	●	
SLX				●●●							●●●			●●●	●●	●	●●●	●●●	●●●	●	
SL				●●●							●●●			●●●	●●	●	●●●	●●●	●●●	●	

● Possible - ●● Suitable - ●●● Recommended

Products	Systems					Applications						Processing Conditions			Properties				
	Aliphatic	Aromatic	Aromatic / polar	Solvent-Free	Water-Based	PCM	GI	Architectural	IWF	Automotive	UPR	Adhesives & Sealants	Activation (High shear)	Medium shear	Post-addition	Shear-thinning	Sag control	Anti-setting	Leveling
60X	●●	●●	●●●			●●	●●		●					●		●	●	●●●	
PA3 XAF 20	●	●●●	●●●			●●	●							●●●		●●	●●	●●	●
PA3 X 20		●●●	●●●			●●	●●		●●	●		●		●●		●●	●●●	●●	●
PA4 X 20		●●●	●●●			●	●		●●●	●●				●●		●●	●●	●●	●●
PA3 BA 20		●●●●	●●●			●	●●		●●	●				●●		●●	●●●	●●	●
PA4 BA 20		●●●	●●●			●	●●		●●●	●●				●●		●●	●●	●●	●●
PA3 S 12								●●		●●●				●●		●●	●●	●●	●●
PA3 WDA 20	●●					●	●	●●	●					●●		●●	●●	●●	●●
PA4 WDA 12	●●													●●		●●	●●	●●	●●
LA-150		●	●●			●	●		●	●●		●		●●	●●●	●●	●	●●●	●●
LA-250	●●	●	●●			●	●	●●	●	●●				●●	●●●	●●	●	●●●	●●
LA-350					●●	●	●	●●	●	●●		●		●●	●●●	●●	●	●●●	●●



SUMMARY

► Surface Modifiers

Products	Chemistry	Applications						Properties				Characteristics				
		PCM	GI	Architectural	IWF	Automotive	Powder coatings	Matting	Slip	Abrasion resistance	Scratch resistance	D50 (µm)	D100 (µm)	Dropping point (°C)	Solid content (%)	
EF-30P	Polymer						●●●	●●●	●	●●	●●			125		
WN-1875			●●	●	●●	●●●	●	●●●		●	●		30	200		
WN-1135	Polypropylene	●●	●●	●●	●●	●●●	●●	●●●	●	●●	●●	5.5	26	151	100%	
WN-1535		●●	●●	●●●	●●	●●●	●	●●●	●	●●	●●					
WN-1265	Polyamide		●●	●●	●●	●	●	●●	●●			30	146			
WN-1150	Modified Polyethylene						●●	●●●	●●●	●●	●●		6.5	113		
WN-1442	Polyethylene		●	●	●●	●●	●●	●●	●●●	●●	●●	6	20	112		
WN-1495		●	●	●	●●	●●	●	●●	●●●	●●	●●	4.5				
WN-2950				●	●●	●●	●●		●	●●	●●●	●●	6	30		130
WF-3200	Modified PTFE	●●	●●	●●	●●	●●	●●		●●●	●●●	●●●	5	25	112		
WF-6010			●●	●●	●●	●●			●●●	●●●	●●●					
WF-9200					●	●●	●		●●●	●●●	●●●	6	30	130		
WF-1039								●●●	●●	●●●	●●	●●	5	80	112	
WF-1000				●●	●	●	●	●●		●●●	●●●	●●●	7.5	30	325	
WW-1001	PE in WB			●●	●●	●●				●●	●●	●●	4.5	20	112	40%
WW-9500			●●	●	●	●				●●	●●	●●	5.5	26	151	35%
WW-1077	PE-PTFE in WB		●●	●●	●●	●			●	●●	●●	5	25		50%	
WS-4700	PE in SB			●	●●	●			●●	●●	●●	4.5	20		40%	

● Possible - ●● Suitable - ●●● Recommended

► Flow and levelling agents

Products	Systems			Applications				Properties		
	Solvent Based	UV Cure	Water Based	GI / PCM	IWF	Automotive	Coil & can	Film aspect enhancement	Air release	Substrate wetting
FLOW-200	●●	●●		●●	●●	●●	●●●	●●	●●	●●
FLOW-100	●●	●●			●●	●●	●●●	●●	●	●●
A-620-A2	●●	●		●●		●●	●●	●●	●	●●
A-2201-M	●●	●		●		●●	●●	●	●●	●
A-72-A2-60	●●	●				●●	●●	●●	●	●●
A-2678-M			●●	●	●●	●●	●●	●●	●	●●



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