Product Guide

Ink Resins

Varnishes and Additives

For Europe, Middle East and Africa

LAWTER™

Better, cleaner chemistry

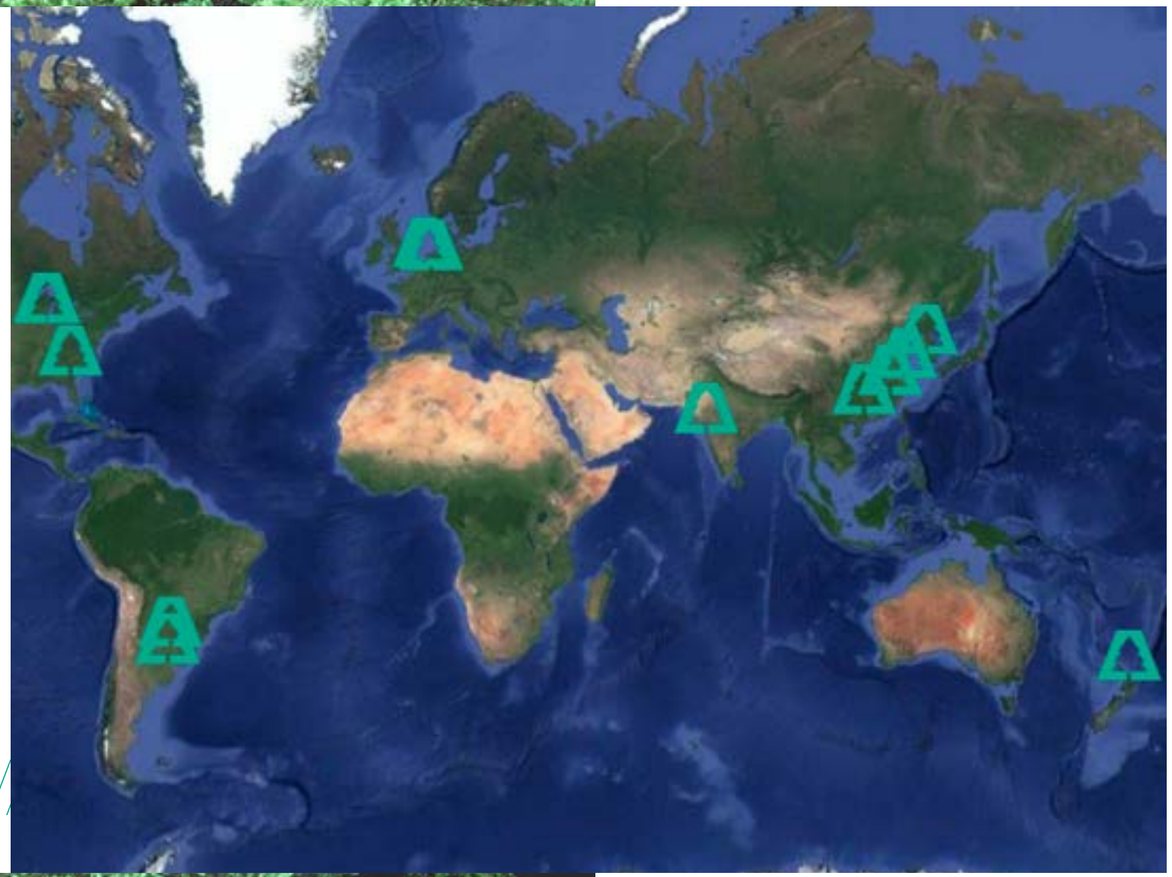
Lawter™ has over 70 years of experience in creating innovative solutions

Our global network of manufacturing plants gives us the ability to serve customers around the world. And with products formulated to meet thousands of diverse end-use applications, we are experts in serving a wide variety of industries.

With so many customers counting on us, our sales and production teams are backed by technical service and support that sets the industry standard. In an increasingly competitive world, you can count on Lawter to find a cost-effective and innovative solution to your industrial bonding and binding needs.

Lawter
is a leading global supplier of resins and resin dispersions for inks and adhesives.

Our resin derivatives are also used in applications such as pigments, rubber intermediates, aroma chemicals and road marking.



Global presence

Lawter's customers enjoy the benefits of global manufacturing, paired with regional support. Our production sites are located in:

- United States
- The Netherlands
- Belgium
- South Korea
- China
- New Zealand
- Argentina

Technical support

Your products are important to us. With technical service labs located in key regions of the world, Lawter is able to work closely with customers to achieve product excellence and value.

Our knowledge of resin chemistry paired with our customer's expertise has led to some exciting new products, including our latest waterborne tackifier systems.

Renewable raw material sources

Many of our raw materials are derived from renewable sources such as the rosin tapped from pine trees or from the pulp-making process for the paper industry.

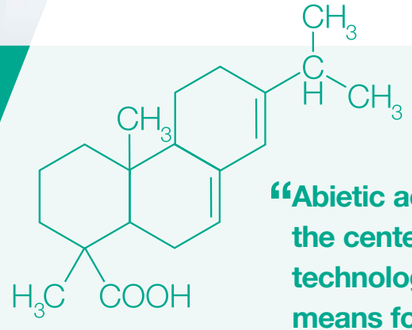
Research and development

We work in close cooperation with our customers to improve their results and help create value. This collaboration achieves the required results.

We have a proud history of creating innovative and successful solutions to meet the exact requirements in all the industries we serve. Combining our knowledge of resin chemistry and our customer's expertise in their field of excellence has been the impulse for the creation of new resin types, like our latest waterborne tackifier systems. Customised products are developed by working under mutually confidential conditions. We also have product development centers located in all key regions.

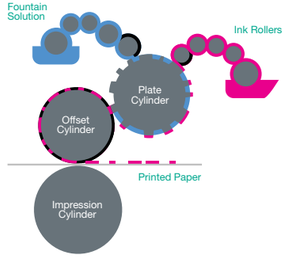
Lawter™ is a leading global supplier of quality raw materials for the printing ink industry.

We provide ink manufacturers with specialty products including resins, alkyds, vehicles and varnishes, wax compounds and additives for offset and liquid inks.



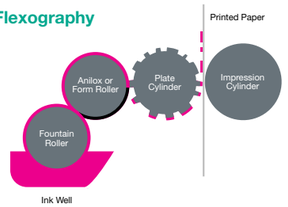
"Abietic acid is at the center of our technology and the means for creating valuable products."

The offset printing process

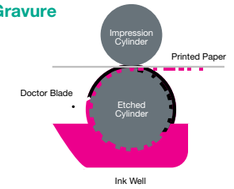


The liquid inks printing process

Flexography



Gravure



↓ Resin, alkyd and wax compound for offset printing inks.

Product Lines: Offset

Varnish

- Sheetfed
- Web Offset
- Grinding
- Metal Deco
- Overprint Base Varnishes

- Cinergi™
- Webvar™
- Eco-Set™
- Uroset™
- Decotherm™
- Miraglaze™

Resins

- Rosin Resins
- Hybrid Resins
- Alkyd Resins

- Setaprint™
- Eco-Rez™
- Alpha-Rez™
- Setalin™
- Synkyd™
- Trionol™
- Filtrez™

Waxes and Additives

- Wax Compounds
- Micronized Wax
- Additives

- Ultrapoly™
- Polysperse™
- Optilith™

Product Lines: Liquid Inks

Resins for Water Based Inks

- Filtrez™
- Hydro-Rez

Resins for Solvent Based Inks

- Flex-Rez™
- Reactol™
- Erkazit™
- Filtrez ™
- Eco-Rez™

Waxes and Additives

- Flexonic™ (water borne)
- Polyslip™ (solvent borne)

Brief description of test methods

Viscosity

Viscosity is measured with a rotational rheometer using a cone and plate. Materials tested include hard resins, alkyds and varnishes. A solution of hard resin is first made in a specified solvent or vegetable oil by using a Thermotronic (Novomatics GmbH). The viscosity of alkyds and varnishes are measured neat.

Another method of measuring viscosity is the Gardner-Holdt bubble tube method. The Gardner-Holdt bubble tube viscosity is run by adding a quantity of alkyd or vehicle to a predetermined height and sealing to a specified level, leaving a volume of air. The tube is inverted and the air bubble is then timed from one end of the tube to the other (or from one line to another) at an agreed-upon temperature. Air bubble time is compared to standardized tubes (Byk-Gardner).

The flow time is time needed to empty the cup by flowing out the opening. The flow is the time (seconds) starting from the moment when the liquid flows out of the orifice of the cup to the point that the flow is interrupted, at a given temperature and concentration.

Cloudpoint

Cloudpoint is measured in order to obtain an indication of the solubility of hard resins and varnishes based on a specified solvent. The resin or varnish is combined with a specified solvent and a solution is prepared using the Chemotronic (Novomatics GmbH). The solution is heated until the pre-set maximum temperature is reached. The solution is allowed to cool at a fixed rate. When clouding occurs, the temperature is recorded.

Acid value

Acid value is the number of milliliters of potassium hydroxide (at 0.1N) required to neutralize one gram of material (including alkyd, resin and varnish). A solution of testing material is prepared in a mixture of xylenes/alcohol (2:1). The value is determined with a known normality KOH solution using phenolphthalein as indicator.

Methanol value

Methanol compatibility is an indication of the polarity of material. Materials are first dissolved in toluene and then titrated with anhydrous methanol until the solution becomes just cloudy. The temperature (agreed upon between customer and supplier) should be maintained throughout the measurement.

Tack

The tack of varnishes is measured on an inkometer or tack-oscope at 32.2°C.Tack is read after a specified time at a specified speed, agreed upon between customer and supplier.

pH value

pH is measured with a glass/ calomel electrode filled with 3M KCl.

Solids

The solid content of an acrylic dispersion is measured by drying one hour at 125ºC.

Softening point

There are two methods for measuring softening point, Mettler Drop and Ring and Ball. In both methods, softening point is measured by filling a cup with molten resin. The excess material is removed using a slightly heated metal spatula. For Mettler Drop determination, the cup is placed in the Mettler apparatus and the heating program is started. The softening point is registered automatically by means of an optical sensor. For Ring and Ball determination, the cup is suspended in a glass container of glycerin and a steel ball is placed on its surface and the heating program is started. The softening point is the temperature at which the ball passes through the resin.

Molecular weight

Molecular weight is measured by means of gel permeation chromatography (GPC), relative to polystyrene standards.

Dilutability

The dilutability is the solvent (toluene) uptake (in percentage) of a varnish of certain concentration, diluted to a flow time in a special cup, at a given temperature.

Tg

The glass transition temperature (Tg) is measured by means of differential scanning calorimetry

Resins for Offset

Phenolic Modified Rosin Resins

Product Description	Applications	Physical Characterization	Features	Characteristics				
				Viscosity, Eurocommit* (Pa.s)			Cloudpoint Eurocommit** 10% Solids	
				Solids (%)	Test Oil	Typical Value	Test Oil	Typical Value (°C)
SETAPRINT™ 2376 E	High gloss webfed- and sheetfed offset inks. Wetting varnishes and flushes. Aromatic free inks and varnishes.	High soluble, medium low viscous resin.	Excellent pigment wetting. Very good co-resin (combine with high structured, high viscous and low soluble resins).	50	6/9	37	6/9 AF	134
SETAPRINT™ 2405 E	High gloss webfed- and sheetfed offset inks. Wetting varnishes and flushes. Aromatic free inks and varnishes.	High soluble, low viscous resin	Excellent pigment wetting. Very good co-resin (combine with high structured, high viscous and low soluble resins).	55	6/9 AFN	14	6/9 AFN	65
SETAPRINT™ 2868 E	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress.	Medium low soluble, medium high viscous resin. Low polarity.	Bisphenol A free version of Setaprint™ 2867 E. Very good gelling properties. Fast setting combined with high gloss. Very good water balance. Low tack.	40	6/9 ARB	42	6/9	104
SETAPRINT™ 3450 E	Sheetfed inks. Webfed (Heatset and Coldset) offset inks. Overprint varnishes.	Medium soluble, medium / low viscous resin.	Combination of high gloss with fast setting. Good gellability. High gloss in overprint varnishes.	40	6/9 ARB	17	6/9 AFN	120
SETAPRINT™ 5805 E	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress.	Medium soluble, high structured resin.	Bisphenol A free version of Setaprint™ 5800. High speed presses, high gloss, low misting.	35	6/9 ARB	25	6/9	84
SETAPRINT™ 6720 E	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress.	Medium soluble, medium high viscous, high structured visco-elastic resin. Low polarity.	Bisphenol A free version of Setaprint™ 6700 E. High gloss and excellent setting. Improved water balance. Low misting. Low tack. Less gelling.	40	6/9 ARB	55	6/9 AFN	125
SETAPRINT™ 8758 E	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress.	High soluble, medium / high viscous, structured visco-elastic resin.	Very high gloss and fast setting. Good press stability.	42.5	6/9 ARB	45	6/9 AF	132

*Viscosity measured according to Eurocommit test method at 23°C and 25s^{-1}. **Cloudpoint measured according to Eurocommit test method using Haltermann test oils.

Phenol Free Rosin Resins

Product Description	Applications	Physical Characterization	Features	Characteristics				
				Viscosity, Eurocommit* (Pa.s)			Cloudpoint Eurocommit** 10% Solids	
				Solids (%)	Test Oil	Typical Value	Test Oil	Typical Value (°C)
ECO-REZ™ 3405 E	Webfed (Heatset and Coldset) offset inks. Sheetfed. Low odour inks. Flushes. Wetting varnishes. Overprint varnishes.	Medium viscous, medium soluble rosin ester.	Low odour. Low yellowing. Good pigment wetting. No GHS hazard classification.	47.5	6/9 ARB	50	6/9 AFN	127
ECO-REZ™ 4237 E	Webfed (Heatset and Coldset) offset inks. Sheetfed. Low odour inks. Flushes. Wetting varnishes. Overprint varnishes.	High viscous, low soluble rosin ester.	Fast setting. Higher melting point. Low odour. Low yellowing.	42.5	6/9 AR	18	6/9	145
ECO-REZ™ 9520 E	Webfed (Heatset and Coldset Sheetfed). Let down varnishes. Overprint varnishes.	Medium viscous, medium soluble rosin ester.	Let down resin. Low odour. Low yellowing. Low misting. Low tack.	50	Methyl ester of rape oil fatty acid	21	6/9	93

*Viscosity measured according to Eurocommit test method at 23°C and 25s^{-1}. **Cloudpoint measured according to Eurocommit test method using Haltermann test oils.

Hybrid Resins

Product Description	Applications	Physical Characterization	Features	Characteristics				
				Viscosity, Eurocommit* (Pa.s)			Cloudpoint Eurocommit** 10% Solids	
				Solids (%)	Test Oil	Typical Value	Test Oil	Typical Value (°C)
ALPHA-REZ™ 3500 E	Offset inks, waterless inks.	Very high soluble, low viscous resin.	Very good pigment wetting resin, in particular for black and cyan.	60	6/9 AFN	55	6/9 AF	137
ALPHA-REZ™ 3910 E	Offset inks, waterless inks.	Medium soluble, medium/ high viscous hydrocarbon hybrid resin. Low polarity.	High gloss and fast setting, excellent water balance. Phenol free.	45	6/9 ARB	50	6/9	65
ALPHA-REZ™ 3920 E	Offset inks, waterless inks.	Medium soluble, medium/ high viscous hydrocarbon hybrid resin. Low polarity.	High gloss and fast setting, excellent water balance. Good wetting properties. Phenol free.	45	6/9 ARB	35	6/9 AFN	165

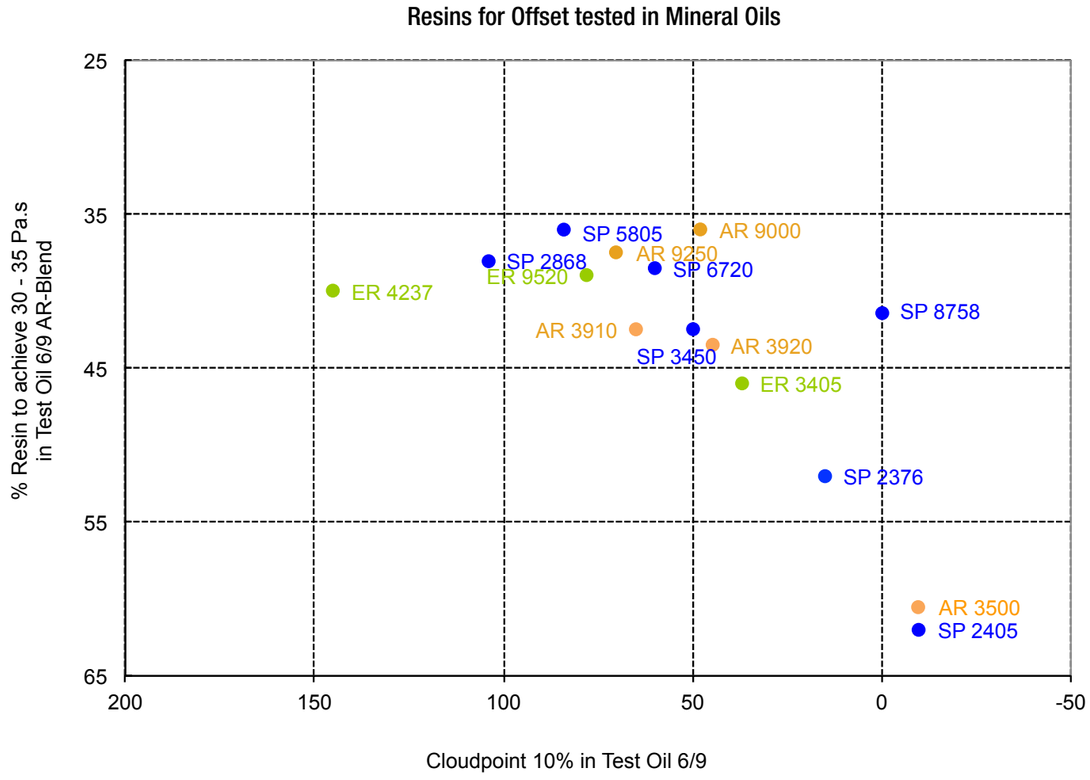
*Viscosity measured according to Eurocommit test method at 23°C and 25s^{-1}. **Cloudpoint measured according to Eurocommit test method using Haltermann test oils.

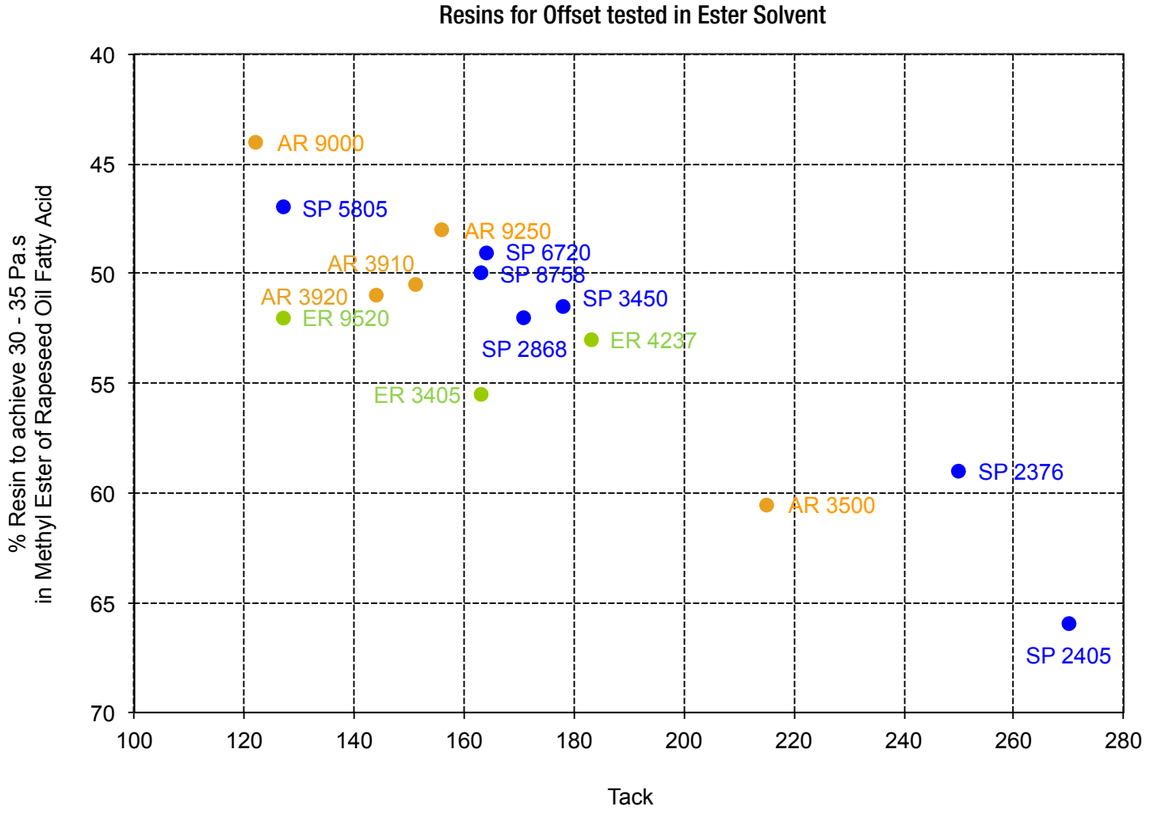
Resins for Offset (continued)

Hybrid Resins (continued)

Product Description	Applications	Physical Characterization	Features	Characteristics				
				Viscosity, Eurocommit* (Pa.s)			Cloudpoint Eurocommit** 10% Solids	
				Solids (%)	**Test Oil**	**Typical Value**	**Test Oil**	**Typical Value** (°C)
ALPHA-REZ™ 9000 E	Offset inks, waterless inks.	Medium soluble, high viscous phenolic modified hydrocarbon resin. Low polarity.	Excellent water balance. High gloss.	35	6/9 ARB	28	6/9 AFN	130
ALPHA-REZ™ 9250 E	Webfed (heatset and coldset) offset inks, sheetfed offset inks, waterless.	High soluble, high viscous structured visco-elastic hybrid resin, low polarity.	Very stable visco-elasticity, even at high temperatures, high stability of rheology under high shear condition, low tack.	40	6/9 ARB	50	6/9 AFN	120

*Viscosity measured according to Eurocommit test method at 23°C and $25s^{-1}$. **Cloudpoint measured according to Eurocommit test method using Haltermann test oils.





Alkyd Resins

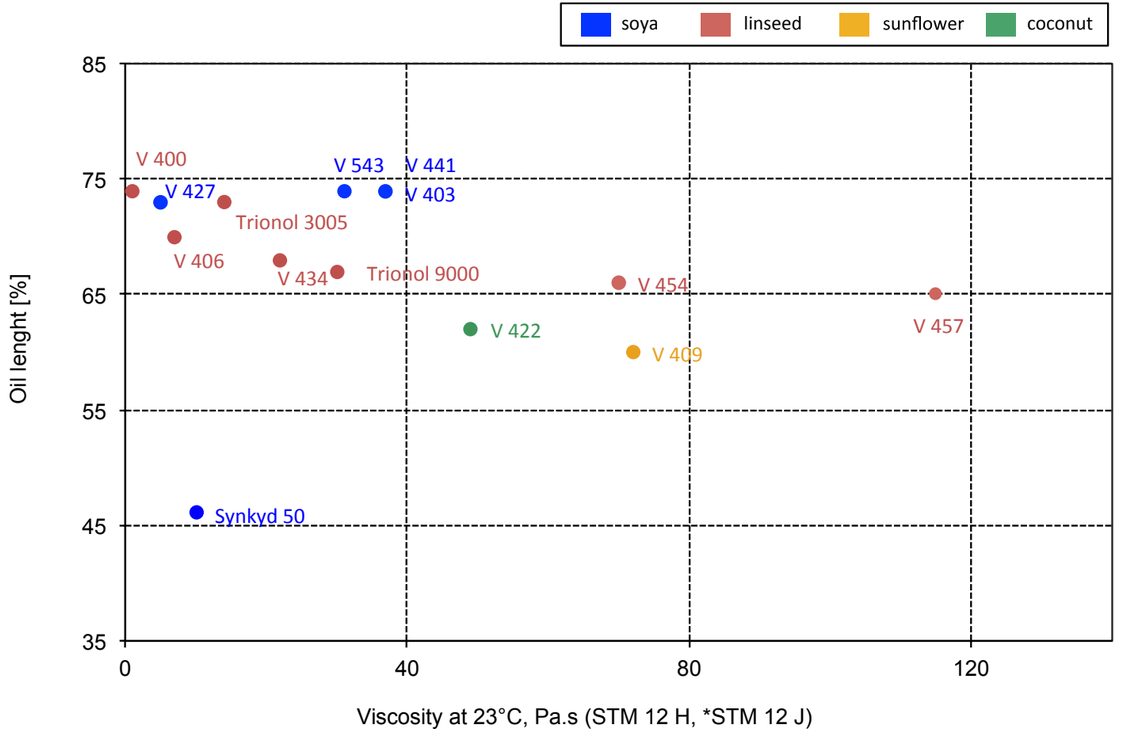
Alkyd Resins

Product Description	Applications	Features	Oil Type	Oil Length (%)	Acid Value (mg KOH/g substance) Typical Value	Viscosity @ 23°C 25 s^{-1} (Pa.s) Typical Value	Methanol Number (ml MeOH/5g substance) Typical Value
SETALIN™ V 400 E	Wetting Varnishes. Flow additive.	Tin free version of Setalin™ V 401 E. Improves flow. Increased water pick-up. Good pigment wetting. High gloss.	blend	74	9	1	55
SETALIN™ V 403 E	Sheetfed- and webfed offset inks. Metal deco inks. Low odour inks. Wetting and letdown.	Tin free version of Setalin™ V 402 E. Low polarity. Good overall properties: gloss, flow, water balance.	soya bean	74	9	37	28
SETALIN™ V 406 E	Sheetfed- and webfed offset inks.	Tin free version of Setalin™ V 405 E. Low bronzing. Good flow, very good piment wetting. Gloss.	linseed	70	8	7	45
SETALIN™ V 409 E	Metal deco inks (3-piece can), especially white inks. Low odour sheetfed inks.	Tin free version of Setalin™ V 407 E. Good pigment wetting. Low yellowing, low odour.	sunflower	60	8	72	45
SETALIN™ V 422 E	Wetting Varnishes. Sheetfed- and webfed offset inks. Metal deco inks (3-piece can). Low odour inks.	Tin free version of Setalin™ V 414 E. Low bronzing. Good flow, very good pigment wetting. Gloss. Due to character an improved hold out. Lower tack. Low odour. Easy de-inking.	coconut	62	8	49	70
SETALIN™ V 427 E	Sheetfed- and webfed offset inks. Wetting and letdown.	Tin free. Low viscous soya oil based alkyd. Good overall properties: gloss, flow, water balance.	soya bean	73	8	5	50
SETALIN™ V 434 E	Sheetfed- and webfed offset inks.	Tin free version of Setalin™ V 438 E. Fast setting. Good pigment wetting. High gloss.	linseed	66	8	22	40
SETALIN™ V 441 E	Sheetfed- and webfed offset inks. Wetting and letdown.	Tin free. Cost-effective alkyd. Low polarity. Good overall properties: gloss, flow, water balance.	soya bean	74	10	37	30
SETALIN™ V 454 E	Sheetfed- and webfed offset inks. Wetting and letdown. Letterpress and Screen inks.	Tin free. Very good pigment wetting. High gloss. Low bronzing.	linseed	66	12	70	35
SETALIN™ V 457 E	Sheetfed- and webfed offset inks.	Tin free version of Setalin™ V 456 E. Low bronzing. Very good pigment wetting. High gloss.	linseed	65	10	115	30

Alkyd Resins (continued)

Alkyd Resins (continued)

Product Description	Applications	Features	Oil Type	Oil Length (%)	Acid Value (mg KOH/g substance) Typical Value	Viscosity @ 23°C 25 s^{-1} (Pa.s) Typical Value	Methanol Number (ml MeOH/5g substance) Typical Value
SETALIN™ V 543 E	Sheetfed- and webfed offset inks.	Tin free. Cost-effective alkyd. Good overall properties: gloss, flow, water balance. Exelent wetting for high pigmented ink systems.	soya bean	74	8	31	35
SYNKYD™ 50 E	Offset inks. Heatset. Coldset. Screen inks. Letterpress inks. Flush varnishes.	Tin free. High solubility in mineral distillates. Alkyd "alternative". Low polarity. Better water resistance. Higher gloss. Fast setting. Improved transfer.	soya bean	46	20	10	26
TRIONOL™ 3005 E	Sheetfed- and webfed offset inks.	Tin free version of Trionol™ 3000 E. Stable rheology under higher shear conditions. Low misting. Combines high gloss with fast set speed and good drying.	linseed	73	8	14	36
TRIONOL™ 9000 E	Intaglio (water-wipe) inks.	Tin free. Good through drying. Water dilutable. Additive to increase water pick-up.	linseed	67	44	30	> 80



Varnishes

Sheetfed Varnishes Wetting

Product Description	Applications	Features	Drying Oil / Alkyd Type	Mineral Distillate Type	Non-Volatiles (%)	Viscosity @ 23°C, 25 s^{-1} (Pa.s) Typical Value / Viscosity	Viscosity @ 23°C, 25 s^{-1} (Pa.s) Typical Value / p-Ostwald	Tack, 1 min. @ 100 mpm Typical Value
UROSET™ 100S E	Pigment concentrates. Flushes. Offset, metal deco and letterpress inks.	Best grinding properties. Excellent pigment wetting. High pigment loading.	linseed	260 - 290	85	10	0.99	N/A
UROSET™ 110S E	Pigment concentrates. Flushes. Offset, metal deco and letterpress inks.	MO free alternative to the Uroset™ 100S E. Best grinding properties. Excellent pigment wetting. High pigment loading.	linseed oil alkyd	N/A	100	10	0.99	N/A
UROSET™ 7150 E	Pigment dispersions. Sheetfed. Quickset. Gloss offset.	Excellent pigment wetting. High pigment loading. Combines fast setting with high gloss. Very good rheological stability and press stability. Good water balance.	linseed	260 - 290	70	77	0.92	210

Sheetfed Varnishes Specialties

Product Description	Applications	Features	Drying Oil / Alkyd Type	Mineral Distillate Type	Non-Volatiles (%)	Viscosity @ 23°C, 25 s^{-1} Pa.s) Typical Value / Viscosity	Viscosity @ 23°C, 25 s^{-1} (Pa.s) Typical Value / p-Ostwald	Tack, 1 min. @ 100 mpm Typical Value
CINERGI™ 4170 E	Offset inks.	Very good rub and scuff resistance.	tung oil + linseed	N/A	100	135	0.95	300
CINERGI™ 7000 E	Sheetfed. Letterpress, metal deco and screen inks. Mineral distillate free inks.	Very high gloss. Very good water balance when using alcohol based fountain solutions. Very good transfer.	linseed	N/A	100	400	0.90	215
CINERGI™ 8000 E	High gloss inks. Mineral distillate free inks.	Very high gloss. Alkyd replacement. Fast setting. Very good rub resistance. Forms tough films.	blend	N/A	100	65 @ 30°C	0.92	210

Varnishes (continued)

Sheetfed Varnishes Letdown

Product Description	Applications	Features	Drying Oil / Alkyd Type	Mineral Distillate Type	Non-Volatiles (%)	Viscosity @ 23°C, 25 s^{-1} (Pa.s) Typical Value / Viscosity	Viscosity @ 23°C, 25 s^{-1} (Pa.s) Typical Value / p-Ostwald	Tack, 1 min. @ 100 mpm Typical Value
ECO-SET™ 4335 E	Sheetfed, phenol formaldehyde free systems.	Low tack and low misting, very good lithographic properties.	linseed / ester solvent	N/A	100	90	0.84	160
CINERGI™ 2242 E	Sheetfed. Quickset. Letdown.	Gel varnish. High gloss and fast setting. Good water balance. Excellent rheology- and press stability. Low aromatic mineral oil.	linseed	260 - 290	57	125	0.79	120
CINERGI™ 7105 E	Mineral oil free sheetfed inks. Letdown.	Low misting. Good gloss. Good water behaviour.	blend + ester solvents	N/A	100	75	0.80	260
CINERGI™ 7106 E	Sheetfed. Quickset. Letdown.	Structured, visco-elastic letdown varnish. Fast setting combined with high gloss. Good press stability (on high speed presses). Very good litho properties and stability of rheology.	ester solvents	260 - 310	64	275	0.70	125
CINERGI ™ 8500 E	Sheetfed.	Phenol formaldehyde free system. Structured, visco-elastic letdown varnish. Good press stability (on high speed presses). Good litho properties resulting in good anti-misting behavior.	linseed / ester solvent	N/A	100	95	0.84	165
CINERGI™ 8505 E	Sheetfed packaging.	Phenol formaldehyde free system. Low migration varnish. Structured, visco-elastic letdown varnish. Good press stability (on high speed presses). Good litho properties resulting in good anti-misting behavior.	sunflower / ester solvent	N/A	100	95	0.84	165

Webfed Varnishes

Product Description	Application	Features	Drying Oil / Alkyd Type	Mineral Distillate Type	Non-Volatiles (%)	Viscosity @ 23°C, 25 s^{-1} (Pa.s) Typical Value / Viscosity	Viscosity @ 23°C, 25 s^{-1} (Pa.s) Typical Value / p-Ostwald	Tack, 1 min. @ 100 mpm Typical Value
WEBVAR™ 1100 E	Heatset. Coldset (news ink).	Highly structured letdown varnish. High gloss and good dot sharpness. Good tack and press stability.	soya bean	240 - 290	60	88	0.84	110
WEBVAR™ 1142 E	Heatset.	Highly structured letdown varnish, with low tack. Very good litho properties, excellent printability on fast running heatset presses. Excellent anti-misting behavior.	soya bean	260 - 290	45	160 @ 30°C	0.68	90
WEBVAR™ 1200 E	Pigment dispersions. High gloss offset.	Replace alkyds in varnishes and inks. Fast setting. High gloss. Low water sensitivity. Good rub resistance.	soya bean	N/A	100	5.5	0.99	55
WEBVAR™ 2317 E	Coldset. News ink. No heat web offset.	Fast set speed. Excellent printability.	soya bean	280 - 310	45	25	0.94	135

Overprint Base Varnishes

Product Description	Applications	Composition	Features	Drying Oil Type	Non-Volatiles in Mineral Distillate (%)	Viscosity @ 23°C 25 s^{-1} (Pa.s) Typical Value	Tack, 1 min. @ 100 mpm Typical Value
MIRAGLAZE™ 1810 base E	Gelled overprint varnish base. Wet-on-wet and wet-on-dry.	Varnish without wax, no driers.	Good gloss, fast setting.	blend	75 in 260 - 290	90	130 at 85 mpm
MIRAGLAZE™ 8834 base E	Overprint varnish base. Wet-on-wet and wet-on-dry	Varnish with wax, no driers.	Combines very high gloss with fast setting and high rub resistance. Good tack ability.	tung	60 in 260 - 290	12	90 at 85 mpm
MIRAGLAZE™ 8909 base E	Gelled overprint varnish base. Wet-on-wet and wet-on-dry.	Varnish with wax, no driers.	Fast drying and setting in combination with very high gloss.	D.C.O / tung	71 in 260 - 290	10	75 at 85 mpm

Metal Decorating

Two Piece Can

Product Description	Applications	Product Description	Features	Solvent Type	Acid Value (mg KOH/g substance) Typical Value	Viscosity @ 23°C 25 s^{-1} (Pa.s) Typical Value
DECOTHERM™ 220 E	Dry offset / spindle printing.	Polyester resin in Tridecanol / Dobanol 23.	Gloss, printability MEK resistance.	TDA / Dobanol 23	50	200
DECOTHERM™ 255 E	Dry offset / spindle printing.	Catalyst (blocked).	Curing agent for polyester / melamine systems.	TXIB	105	2.5
DECOTHERM™ 260 E	Dry offset / spindle printing.	Polyester resin in Tripropylene glycol.	High performance, high gloss, fast cure, overcoatable with water-based coating.	TPG	26	100
DECOTHERM™ 290 E	Dry offset / spindle printing.	Structured polyester in TDA / TPG / mineral distillate.	Very low misting. Very fast curing. Low tack.	TDA / TPG / 260 - 290 distillate	35	105
DECOTHERM™ 295 E	Dry offset / spindle printing.	Structured polyester in TDA / TPG	MO free, Very low misting. Very fast curing. Low tack.	TDA / TPG	35	105

Three Piece Can

Product Description	Applications	Product Description	Features	Solvent Type	Acid Value (mg KOH/g substance) Typical Value	Viscosity @ 23°C 25 s^{-1} (Pa.s) Typical Value
DECOTHERM™ 100 E	Lithographic / flat sheet printing.	Complete varnish with high gloss and good adhesion on steel, tin and aluminium.	Very fast drying.	Mineral distillate 260 - 290	N/A	50
SETALIN™ V 403 E	Lithographic / flat sheet printing.	Soya bean oil alkyd for colours. Low odour.	Tin free version of Setalin™ V 402 E. Fast setting.	none	9	37
SETALIN™ V 409 E	Lithographic / flat sheet printing.	Sunflower oil based alkyd for mainly white inks.	Tin free version of Setalin™ V 407 E. Low yellowing and low odour.	none	8	72
SETALIN™ V 422 E	Wetting Varnishes. Sheetfed- and webfed offset inks. Metal deco inks (3-piece can). Low odour inks.	Coconut oil based alkyd.	Tin free version of Setalin™ V 414 E. Low bronzing. Good flow, very good pigment wetting. Gloss. Due to character an improved hold out. Lower tack. Low odour.	none	8	49

Wax Compounds Sheetfed

Product Description	Applications	Type	Features	Characteristics		
				Vegetable Oil (alkyd) **Type**	**PE Content** (%)	**Average Particle Size** (µm)
ULTRAPOLY™ 210 E	Sheetfed. Mineral distillate free inks.	PE compound.	100% non-volatile. Very high rub resistance and good gloss.	blend / alkyd	~ 40	2.5
ULTRAPOLY™ 530 E	Sheetfed, heatset. Mineral distillate free inks.	PE compound.	100% non-volatile. High rub resistance and good gloss. Low migration inks.	soya bean	~ 27	2.0
ULTRAPOLY™ 990 E	Sheetfed, heatset. Mineral distillate free inks.	PE compound.	100% non-volatile. Very good pumpability. High rub resistance and good gloss.	blend	~ 30	2.0
ULTRAPOLY™ 995 E	Sheetfed,heatset. Mineral distillate free inks.	PE compound.	100% non-volatile. GMO free. Very high rub resistance and good gloss.	GMO free vegetable oil	~ 36	2.3

Micronized Waxes

Product Description	Applications	Type	Features	Characteristics	
				Melting Point (°C)	**Average Particle Size** (µm)
POLYSPERSE™ E	Sheetfed, heatset and liquid inks.	Micronised FT wax.	Good rub resistance and good slip.	98	3

Ink Additives

Product Description	Applications	Features	Form	Benefits
OPTILITH™ 3001 E	Offset inks. Flushes.	Water balance regulator. Mineral oil free.	varnish	Regulates the water balance without influencing other ink properties. Gives a fast water break during flush production.

Resins for Solvent Based Liquid Inks

Polyketones

Product Description	Applications	Features	Characteristics		
			Acid Value (mh KOH/g substance)	**Hydroxyl Number** (mg KOH/g substance)	**Melting Point** (°C) (R&B)
REACTOL™ 1717 E	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks.	Broad compatibility with solvents and other resins. Very good pigment wetting and high gloss. Reduces gel point of polyamide inks. Improves adhesion. Low colour.	< 1	270	100
REACTOL™ 1717 H E	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks.	Broad compatibility with solvents and other resins. Very good pigment wetting and high gloss. Reduces gel point of polyamide inks. Improves adhesion. Low colour. Excellent solvent release. Higher melt point, improved solvent release. Improved heat resistance and block resistance.	< 1	270	120

Co-Solvent Soluble Polyamides

Product Description	Applications	Features	Characteristics		
			Acid Value (mh KOH/g substance)	**Hydroxyl Number** (mg KOH/g substance)	**Melting Point** (°C) (R&B)
FLEX-REZ™ 1074 CS C	Flexo and gravure inks and lacquers for polyolefin films. Cold seal release lacquers.	Good solvent release. High gloss. Excellent adhesion on treated films. Excellent cold seal release properties.	< 6	< 1	110
FLEX-REZ™ 3370 CS C	Flexo and gravure inks and lacquers for polyolefin films.	Improved gel resistance.	< 6	< 1	100

Alcohol Dilutable Polyamides

Product Description	Applications	Features	Characteristics		
			Acid Value (mh KOH/g substance)	**Hydroxyl Number** (mg KOH/g substance)	**Melting Point** (°C) (R&B)
FLEX-REZ™ 2433 AD C	Flexo and gravure inks and lacquers for polyolefin films.	Very high gloss.	< 6	< 1	120
FLEX-REZ™ 5111 AD C	Flexo and gravure inks and lacquers for polyolefin films. Deepfreeze packaging (bread bags).	Excellent gel resistance. High gloss combined with excellent water and ice crinkle resistance.	< 4	< 1	100

Alcohol Soluble Polyamides

Product Description	Applications	Features	Characteristics		
			Acid Value (mh KOH/g substance)	**Hydroxyl Number** (mg KOH/g substance)	**Melting Point** (°C) (R&B)
FLEX-REZ™ 1084 AS E	Flexo and gravure inks and lacquers for polyolefin films. Modifying resin.	Higher melt point. Very high heat resistance. No gel formation. Non-film forming.	< 15	< 1	185 (200°C MDSP)
FLEX-REZ™ 1155 AS C	Flexo and gravure inks and lacquers for polyolefin films. Cold seal release lacquers.	Rapid solvent release. Very good NC-compatibility. Very good gel resistance. High gloss. Good cold seal release lacquer properties.	< 6	< 1	115
FLEX-REZ™ 1255 AS C	Flexo and gravure inks and lacquers for polyolefin films. Cold seal release lacquers.	Cost effective version Flex-Rez™ 1155 AS C. Rapid solvent release. Very good NC-compatibility. Very good gel resistance. High gloss. Good cold seal release lacquer properties.	< 6	< 1	125

Resins for Solvent Based Liquid Inks (continued)

Fumaric Modified Rosin Resins. Polyesters.

Product Description	Applications	Features	Characteristics		
			Acid Value (mh KOH/g substance)	**Hydroxyl Number** (mg KOH/g substance)	**Melting Point** (°C) (R&B)
HYDRO-REZ™ 5626 E	Flexo and gravure inks and lacquers. Water / Alcohol soluble inks and lacquers.	Rapid water release in aqueous systems. Improves gloss and adhesion in aqueous systems. Good flexibility. Low viscosity.	200	< 15	160 (175°C MDSP)
HYDRO-REZ™ 6500 A	Flexo and gravure inks and lacquers. Water / Alcohol soluble inks and lacquers.	Excellent rub resistance. Good adhesion on aluminium foil. Good flexibility. Low viscosity.	305	< 15	150
REACTOL™ 5145 A	Flexo and gravure inks and lacquers. Water / Alcohol soluble inks and lacquers.	Improves gloss and adhesion. Is cross linkable. Excellent compatibility with cellulose resins (NC, CAP, CAB). Very good heat, product, water, alkali, oil, solvent and block resistance (when cured). Flexible and fast solvent release.	130	130	120

Solvent Borne Wax Dispersions

Product Description	Applications	Type	Features	Characteristics		
				Solvent	**Solids** (%)	**Average Particle Size** (µm)
POLYSLIP™ FA06 E	Gravure and flexo inks.	Synthetic wax compound.	Combines good rub and scratch resistance with high gloss.	Iso-propanol	40	15
POLYSLIP™ FA09 E	Gravure and flexo inks.	PE compound.	Combines good rub and scratch resistance with high gloss.	Iso-propanol	25	10
POLYSLIP™ VM 55 E	Metallic base coats.	PE compound.	Quick drying. Minimizes migration.	Xylene / n-Butylacetate	6	8
POLYSLIP™ VM 70 E	3-piece internals and 2-piece externals. Gold lacquers.	Synthetic wax. Carnauba wax.	High slip, scratch, slip and levelling.	Iso-propanol / Solvesso 100	20	4

Resins for Water Based Liquid Inks

Self Crosslinking Acrylic Emulsions

Product Description	Applications	Features	Characteristics				
			Solids (%)	**Viscosity** (mPa.s)	**pH**	**Tg** (°C)	**Acid Value** (mg KOH/g substance)
HYDRO-REZ™ 800 E	Flexo and gravure inks and OPV.	Self crosslinking emulsion with excellent adhesion, water resistance, drying properties, good temperature resistance (>200°C).	44	300	8.9	N/A	19
HYDRO-REZ™ 820 E	Flexo and gravure inks and OPV.	Self crosslinking emulsion with excellent adhesion on Alum, good temperature resistance (>200°C).	40	72	8	15 (MFFT)	19

Acrylic Emulsions

Product Description	Applications	Features	Characteristics				
			Solids (%)	**Viscosity** (mPa.s)	**pH**	**Tg** (°C)	**Acid Value** (mg KOH/g substance)
HYDRO-REZ™ 655 E	Flexo and gravure inks and OPV.	General purpose emulsion with excellent resolubility and heat seal properties. APE free.	51	100	2.1	140	200
HYDRO-REZ™ 3013 E	Flexo and gravure inks. Inks for tissues, wall paper and wrapping paper.	High rub resistance. High grease resistance.	30	125	8.5	22	55

Resins for Water Based Liquid Inks (continued)

Fumaric Modified Rosin Resins

Product Description	Applications	Features	Characteristics				
			Solids (%)	**Viscosity** (mPa.s)	**pH**	**Tg** (°C)	**Acid Value** (mg KOH/g substance)
HYDRO-REZ™ 5626 E	Flexo and gravure inks and lacquers. Water / alcohol soluble inks and lacquers.	Excellent rub resistance. Good adhesion on aluminium foil. Good flexibility. Low viscosity.	100	-	-	N/A	200
HYDRO-REZ™ 6500 A	Flexo and gravure inks and lacquers. Water / alcohol soluble inks and lacquers.	Rapid water release in aqueous systems. Improves gloss and adhesion. Good flexibility. Low viscosity.	100	-	-	N/A	305

Water Borne Wax Emulsions

Product Description	Applications	Type	Features	Characteristics		
				Solvent	**Solids** (%)	**Average Particle Size**
FLEXONIC™ EN41 E	W / B inks and overprint varnishes.	PE wax dispersion.	Good rub and scratch resistance with gloss retention.	water	33	50 nm
FLEXONIC™ W378 E	W / B inks and overprint varnishes.	PE wax dispersion.	Excellent compatibility with good rub and scratch resistance with gloss retention.	water	55	6 µm

Resins for Publication Gravure Inks

Product Description	Resin Type	Features	Metal Type	AV	Flow Time (Typical Value)				Dilutability (Typical Value)			
				(mg KOH/g typical value)	**Solids** (%)	**Type of Cup**	**Temp.** (°C)	**Value** (s)	**Solids** (%)	**Type of Cup**	**Final Time** (s)	**Value** (%)
ERKAZIT™ 4908 E	Rosin based resinate.	Excellent pigment wetting. Very fast drying. Low viscosity and good solubility.	Ca / Zn / Mg	28	45	DIN #4	20	50	45	GS #3	30	71
ERKAZIT™ 7880 E	Phenolic modified rosin resin.	Very good dilutability. Fast drying. Good block resistance.	N/A	17	31.5	DIN #4	20	50	31.5	GS #3	32.5	165

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