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Product Guide

Ink Resins

Varnishes and Additives

For Asia Pacific



Better, Sustainable chemistry



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

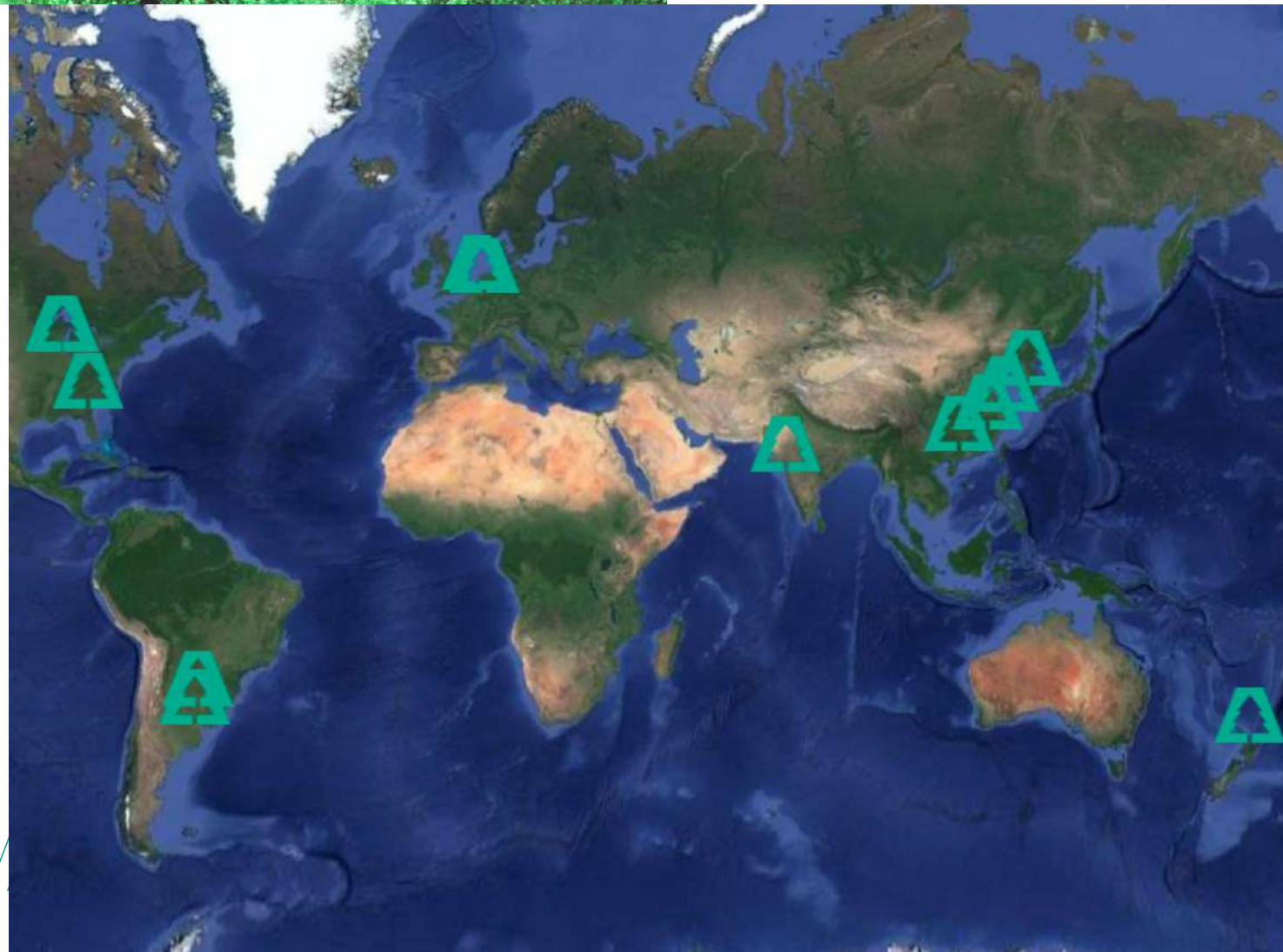
Our global network of manufacturing plants gives us the ability to serve customers around the world. And with products formulated to meet thousands of diverse end-use applications, we are experts in serving a wide variety of industries.

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

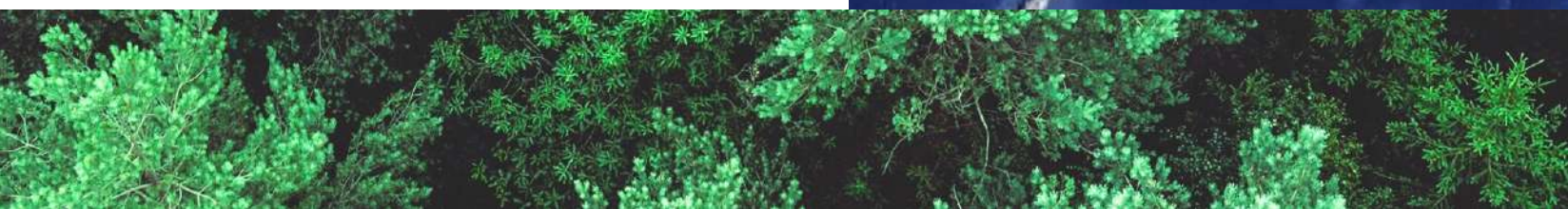
Technical support

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

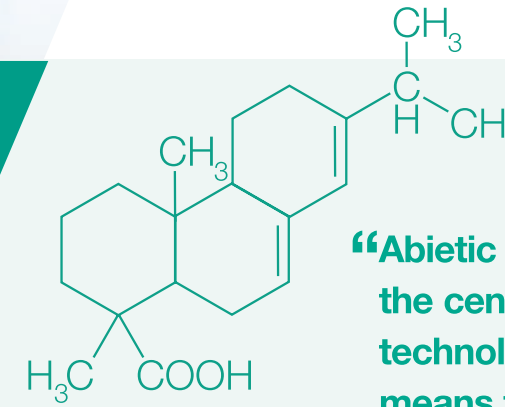
We work in close cooperation with our customers to improve their results and help create value. This collaboration achieves the required results.

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.

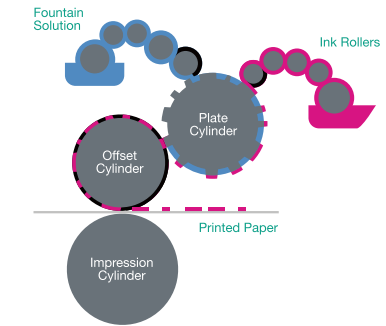


“Abietic acid is at the center of our technology and the means for creating valuable products.”

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

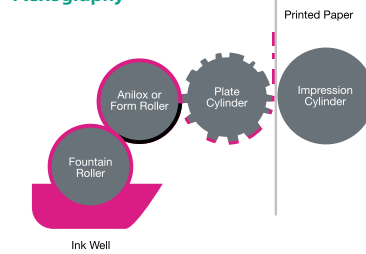


The offset printing process

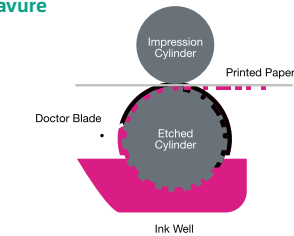


The liquid inks printing process

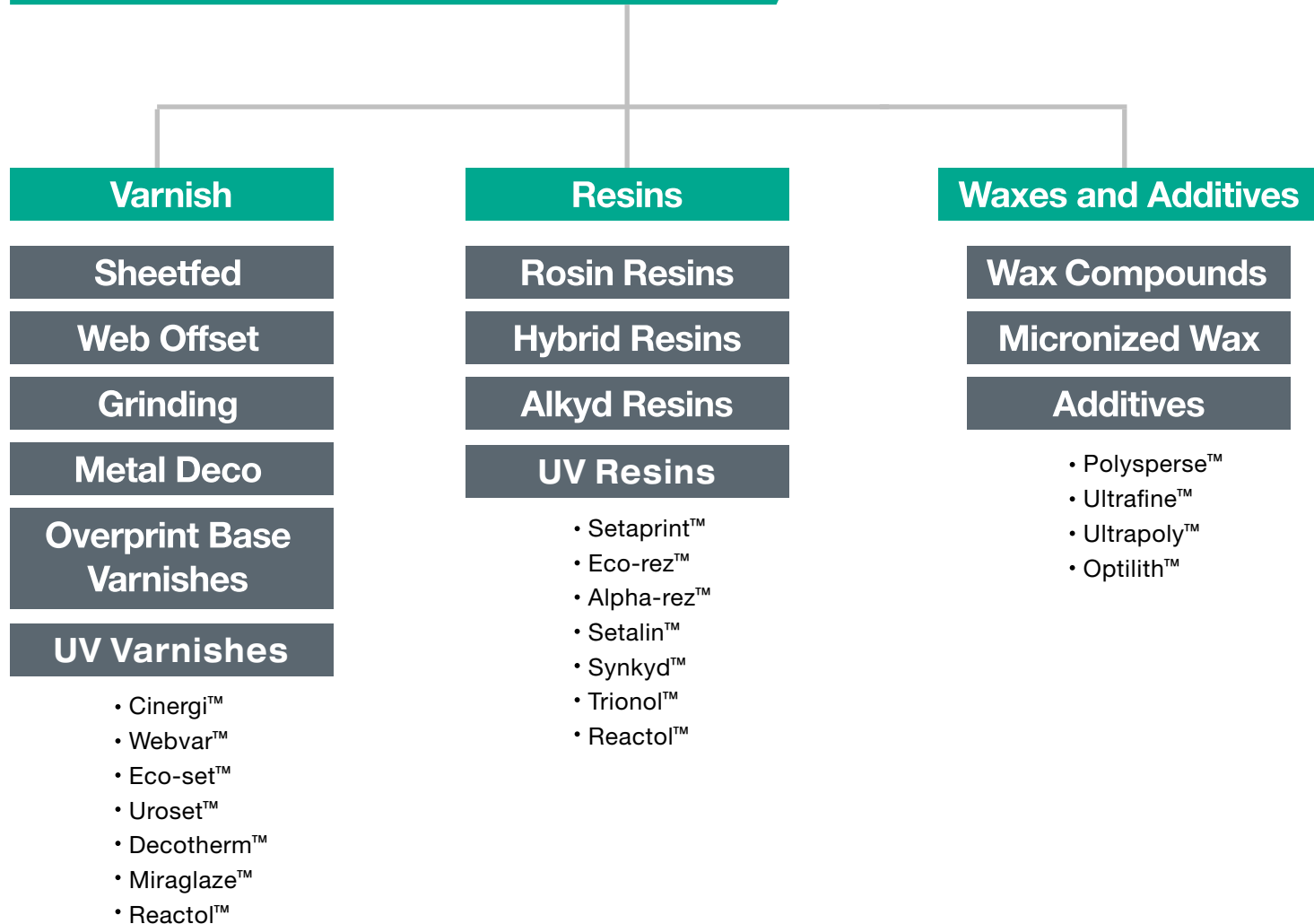
Flexography



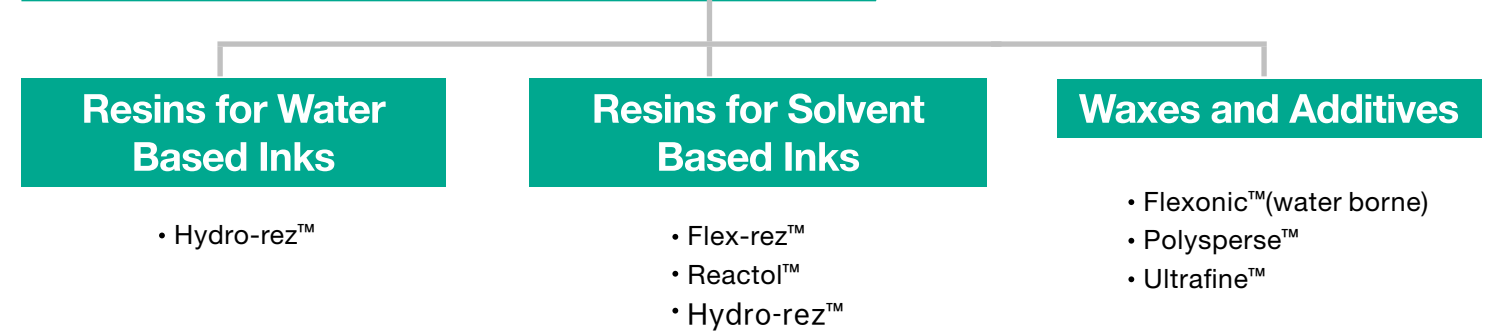
Gravure



Product Lines: Offset



Product Lines: Liquid Inks



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 125°C.

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 Ink

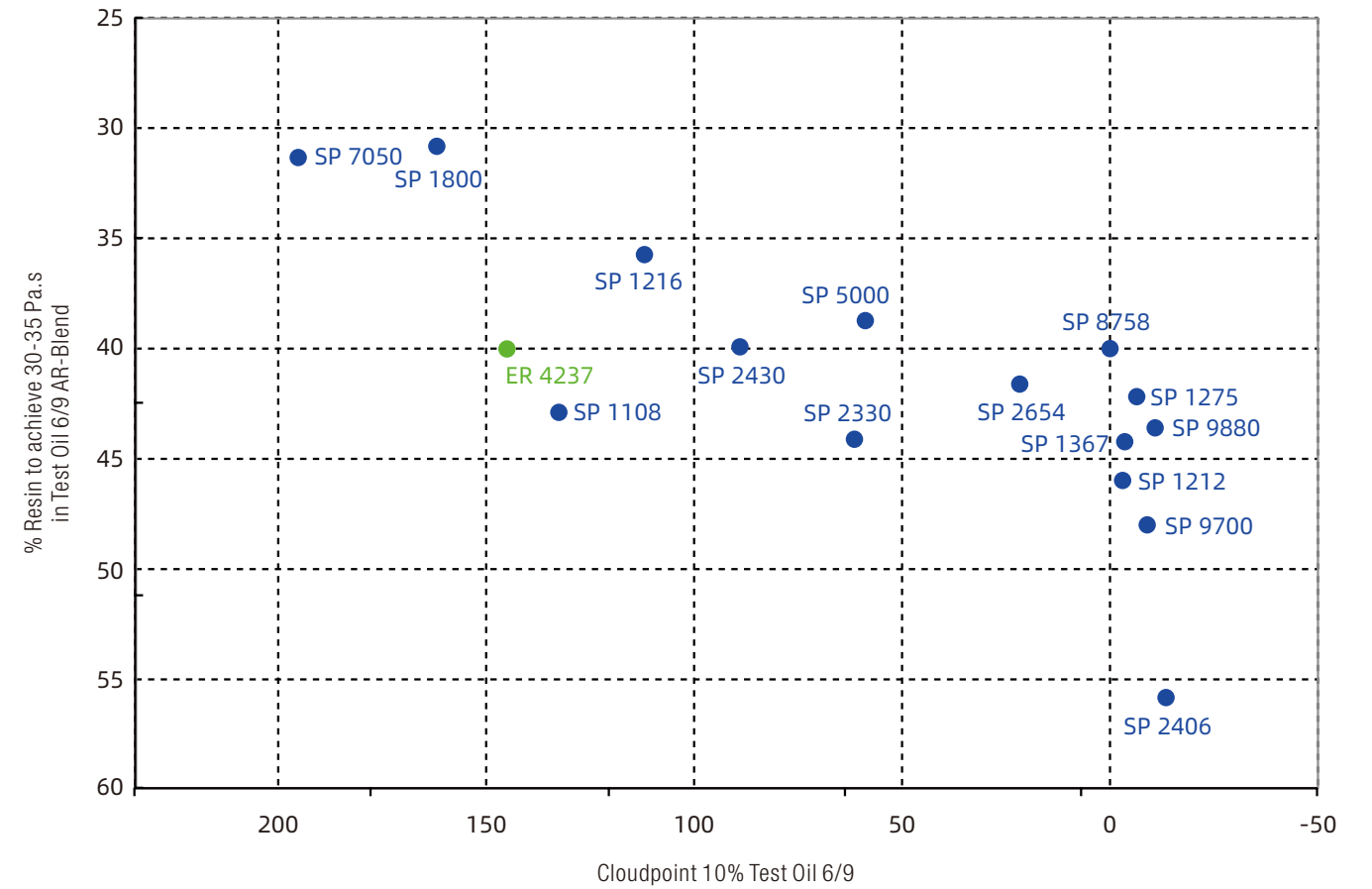
Phenolic Modified Rosin Resins

Product Description	Applications	Physical Characterization	Features
Setaprint™ 1108 C	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Letterpress	medium/low viscous resin	fast setting, high gloss, low misting
Setaprint™ 1212 C	High gloss webfed- and sheetfed offset inks. Wetting varnishes and flushes. Aromatic free inks and varnishes.	High soluble, medium/high low viscous resin	High gloss,very good water balance, low misting
Setaprint™ 1216 C	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks.	medium/low viscous resin	fast setting, high gloss, low misting
Setaprint™ 1275 C	High gloss webfed- and sheetfed offset inks. Gel and let down varnishes	High soluble, medium/high viscous resin. Medium structured	High gloss,very good water balance, low misting and good pigment wetting
Setaprint™ 1367 C	High gloss webfed- and sheetfed offset inks.	High soluble, medium/low viscous resin	High gloss,very good water balance, low misting and good pigment wetting
Setaprint™ 1800 C	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress	Medium soluble, high viscous, high structured visco-elastic resin.	Fast setting, good press stability, very high stabilityof rheology under high shear conditions. Improved water balance. Low misting. Low tack. Less gelling.
Setaprint™ 2330 C	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress.	Medium and high soluble resin	Fast setting,high gloss, less gelling
Setaprint™ 2406 C	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).
Setaprint™ 2430 C	High gloss webfed- and sheetfed offset inks. Gel and let down varnishes	Medium soluble, medium viscous	Fast setting,high gloss, low misting
Setaprint™ 2654 C	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress.	Medium soluble, medium/high viscous, structured visco-elastic resin.	High gloss, Very fast setting. Very good water balance. Low misting, less gelling
Setaprint™ 5000 C	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress.	Medium soluble, medium high viscous, high structured visco-elastic resin. Low polarity	High gloss, and excellent setting. improved water balance. Low misting, Low tack. Less gelling
Setaprint™ 7050 C	For mineral distillate free inks and inks based on vegetable oil. Inks based on esters of tall oil fatty acide/ vegetable oil fatty acid	Very high structured visco-elastic resin. Very low solubility in mineral distillates. Very high viscosity	High gloss, and fast setting in mineral distillate free inks. Excellent for inks based on soya bean oil and ester solvents
Setaprint™ 8758 C	Webfed (Heatset and Coldset) offset Inks. heetfed offset inks. Waterless. Letterpress.	High soluble, medium/high viscous resin. structured visco-elastic resin.	Very high gloss and fast setting. Good press stability
Setaprint™ 9700 C	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Grinding varnishes	High soluble, medium viscous resin.	High gloss. Excellent water balance,Excellent pigment grinding
Setaprint™ 9880 C	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Grinding varnishes	Very high soluble. High viscous resin	High gloss. Excellent water balance,Excellent pigment grinding. Good flow

Product Description	Characteristics					
	Viscosity on Physica @23°C and 25s-1 (Pa.s)			Cloud point (°C)		
	Solid(%)	Test oil	Typical Value	Solid(%)	Test oil	Typical Value
Setaprint™ 1108 C	42.5	6/9 ARB	28.3	10	6/9	130
Setaprint™ 1212 C	45	6/9	23	10	6/9	<20
Setaprint™ 1216 C	36	6/9 ARB	26.2	10	6/9	110
Setaprint™ 1275 C	40	6/9	24.1	10	6/9 AFN	68
Setaprint™ 1367 C	44.5	6/9ARB	31.3	10	6/9	<20
Setaprint™ 1800 C	35	6/9 AR	33	10	6/9	160
Setaprint™ 2330 C	42.5	6/9 ARB	25	10	6/9	55
Setaprint™ 2406 C	55	6/9 AFN	57.5	10	6/9 AFN	59
Setaprint™ 2430 C	40	6/9 ARB	30	10	6/9	85
Setaprint™ 2654 C	40	6/9 ARB	20	10	6/9 AFN	85
Setaprint™ 5000 C	40	6/9 AR	25.3	10	6/9 AFN	130
Setaprint™ 7050 C	45	methyl ester of rape oil fatty acid	18	10	6/9 ARB	115
Setaprint™ 8758 C	42.5	6/9 ARB	40	10	6/9 AF	130
Setaprint™ 9700 C	47.5	6/9 ARB	32	10	6/9 AFN	43
Setaprint™ 9880 C	43.5	6/9 ARB	35	10	6/9 AFN	51

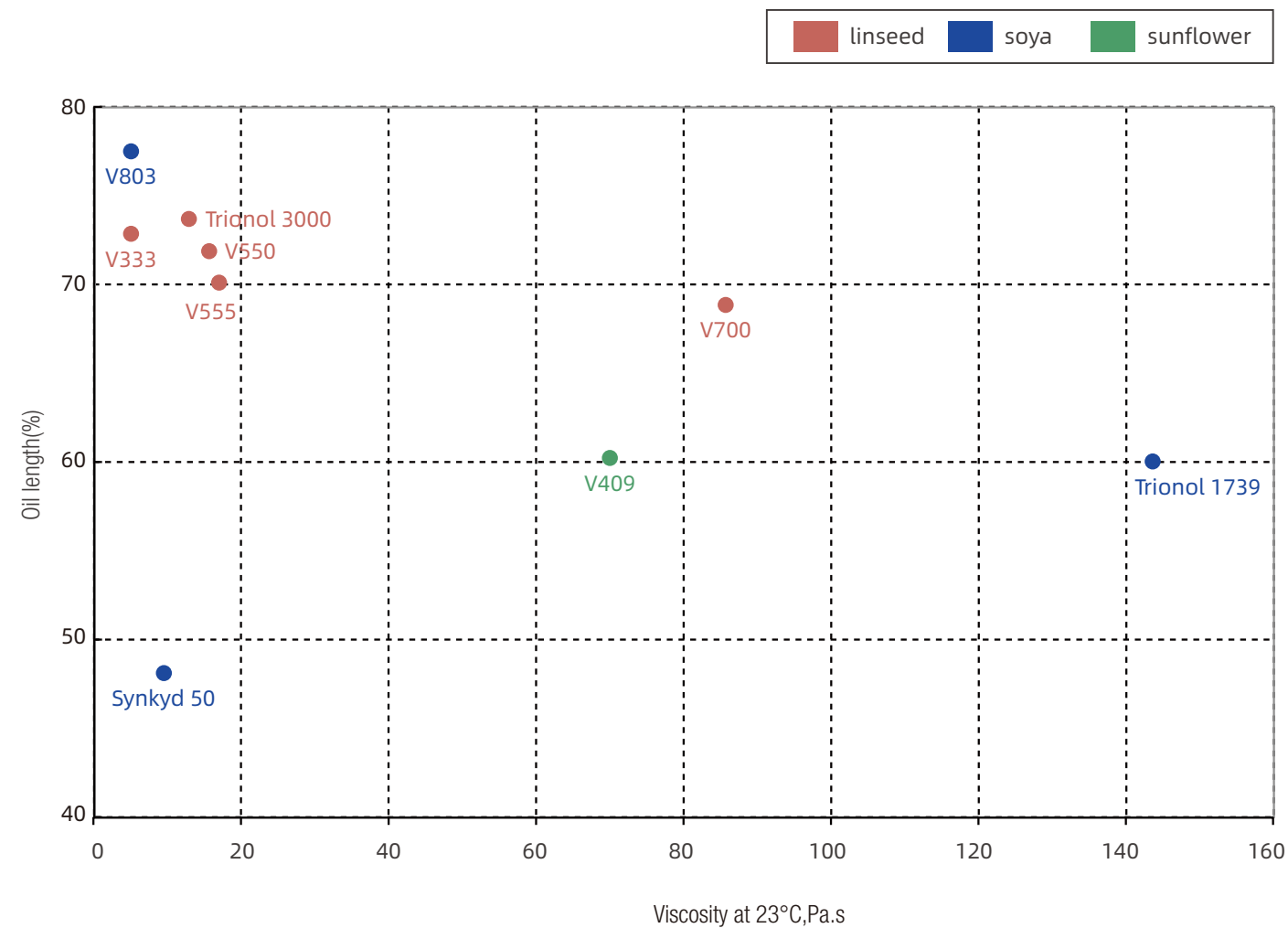
Phenolic Free Rosin Resins

Product Description	Applications	Physical Characterization	Features	Characteristics					
				Viscosity on Physica @23°C and 25s-1 (Pa.s)			Cloud point(°C)		
				Solid(%)	Test oil	Typical Value	Solid(%)	Test oil	Typical Value
Eco-Rez™ 4237 C	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.	40%	6/9 ARB	31.7	10	6/9	145



Alkyd

Alkyd							
Product Description	Applications	Features	Characteristics				
			Oil Type	Oil length (%)	Acid Value (mgKOH/g substance)	Viscosity @23°C 25 s-1 (Pa.s)	Methanol Number (ml MeOH/5g substance)
					Typical Value	Typical Value	Typical Value
Setalin™ V333 C	Wetting Varnishes. Sheetfed and webfed offset inks	Good pigment wetting. Good overall proerties. Gloss, flow.	linseed	72	10	6	45
Setalin™ V409 C	Metal deco inks (3-piece can), especially white inks. Low odour sheetfed inks.	Good pigment wetting. Low yellowing, low odour.	sunflower	60	8	72	45
Setalin™ V550 C	Wetting Varnishes. Sheetfed and webfed offset inks	Good pigment wetting. Good overall proerties. Gloss, flow.	blended oil	71	10	16	44
Setalin™ V555 C	Wetting Varnishes. Sheetfed and webfed offset inks	Good pigment wetting. Good overall proerties. Gloss, flow.	linseed	70	10	17	40
Setalin™ V700 C	Wetting Varnishes. Sheetfed and webfed offset inks	Good pigment wetting. Good overall proerties. Gloss, flow.	linseed	66	10	86	36
Setalin™ V803 C	Wetting Varnishes. Sheetfed and webfed offset inks. Metal deco inks(3-piece can). Low odour	Good pigment wetting. Low yellowing. Good gloss. Improved flow	soya bean	76	9	7	45
Synkyd™ 50 E	Offset inks. Heatset. Coldset. Screen inks. Letterpress inks. Flush varnishes.	High solubility in mineral distillates. Alkyd "alternative". Low polarity. Better water resistance. Higher gloss. Fast setting. Improved transfer.	soya bean	46	20	10	26
Triono™ 1739 C	Sheetfed and webfed offset inks, Metal deco inks(3-piece can). Low odour.	Good pigment wetting. Excellent litho properties. High gloss.Fast setting. Low color and low yellowing.	soya bean	60	10	142	39
Triono™ 3000 C	Sheetfed and webfed offset inks, fluorescent ink	Stable rheology under higher shear conditions. Low misting. Combines high gloss with fast setspeed and good drying	linseed	72	8	14	36



Varnishes

Sheetfed Varnishes

Product Description	Applications	Features	Characteristics				
			Drying Oil / Alkyd Type	Mineral Distillate Type	Non-Volatiles (%)	Viscosity @30°C, 2.5 s ⁻¹ (Pa.s)	Tack Value @1min,400rpm
						Typical Value	Typical Value
Cinergi™ 1210 C	Sheetfed printing inks.	Gel varnish. High gloss, Fast setting, Good water balance	soyabean	280-310	82	110	16
Cinergi™ 1407 C	Sheetfed printing inks. Letter press. Carton and packaging. Plastic stock. Flat sheet metal decorating	Excellent hard film forming. Enhances gloss. Increase water resistance. Enhances rub resistance. Excellent soap and alkali resistance	tung oil/ linseed	N/A	100	400	35
Cinergi™ 2149 C	Sheetfed printing inks	Superior water balance. Companion to Cinergi 2150	linseed	280-310	88	110	13
Cinergi™ 2150 C	Sheetfed printing inks	Superior water balance. Very heavy gel. Good set	linseed	280-310	88	800	11
Cinergi™ 1061	Sheetfed printing inks	Gel varnish. Fast setting, Good water balance	linseed	280-310	58	70	11
F4600VB C	Sheetfed dispersions and flushes	Excellent pigment wetting	linseed	N/A	100	7.4	9
Uroset™ FGVAFC	Dry grinding pigment dispersion	Premium fast setting flushing /grinding varnish for dry pigment dispersion including carbon black	linseed	280-310	63	240 sec(G-H)	8

Webfed and Specialty Varnishes

Product Description	Applications	Features	Characteristics				
			Drying Oil / Alkyd Type	Mineral Distillate Type	Non-Volatiles (%)	Viscosity @30°C, 2.5 s ⁻¹ (Pa.s)	Tack Value @1min,400rpm
						Typical Value	Typical Value
Webvar™ 1126 C	Heatset gel varnish	Fast setting. High gloss. Excellent press stability. Good water balance	soya bean	260-290	60	170	7
Webvar™ 1127 C	Heatset freeflow	Good pigment wetting. Excellent water balance	linseed	260-290	73	60	20

Metal Decorating

Two Piece Can

Product Description	Applications	Product Description	Features	Characteristics		
				Solvent Type	Acid Value (mg KOH/g substance)	Viscosity @ 23°C, 25 s ⁻¹ (Pa.s)
					Typical Value	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™ 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™ 261 C	Dry offset / spindle printing.	Polyester resin in glycol Ethers	High performance, high gloss, fast cure, overcoatable with water-based coating.	Glycol Ether	28	115
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

Three Piece Can

Product Description	Applications	Product Description	Features	Characteristics		
				Solvent Type	Acid Value (mg KOH/g substance)	Viscosity @ 23°C, 25 s ⁻¹ (Pa.s)
					Typical Value	Typical Value
Decotherm™ 1720 C	Lithographic / flat sheet printing.	Varnish on steel, tin, and aluminium	fast setting and pigment setting. Lower the baking temperature.	Mineral distillate 260-290	N/A	279(30°C)
Setalin™ V409 C	Lithographic / flat sheet printing.	Sunflower oil based alkyd for mainly hite inks.	Low yellowing and low odour.	none	8	27
Trionol™ 1739 C	Lithographic / flat sheet printing.	Soya bean oil alkyd for colours. Low odour.	Low odour, tough ink films	none	10	142

UV Resins and Varnishes

UV Resins and Varnishes

Product Description	Type	Features	Characteristics		
			Acid Value (mgKOH/g substance)	Viscosity @25°C(cps)	Softening Point (R&B) (°C)
			Typical Value	Typical Value	Typical Value
Reactol™ UV-170R C	Polyester Resin	Good pigment dispersion. Excellent curing and anti-water pickup.Excellent flowing	13	/	110
Reactol™ UV-172R C	Polyester Resin	Good pigment dispersion. Excellent flow and gloss	13	/	120
Reactol™ UV-172V C	Polyester Resin in mixed Monomer TMPTA	Good pigment dispersion. Excellent flow and gloss		50000	0
Reactol™ UV-180R C	Polyester Resin	Good pigment dispersion. Excellent flow and gloss	13	/	110
Reactol™ UV-2000R C	Polyester Resin	Light color for overprint varnish and white ink. Good balance between curing and adhesive. Suitable for various substrated such as paper. Films(PET, PE)	35	/	122
Reactol™ UV-2000V C	Polyester Resin	Light color for overprint varnish and white ink. Good balance between curing and adhesive. Suitable for various substrated such as paper. Films(PET, PE)	15	160000	/
Reactol™ UV-2050R C	Polyester Resin	Good balance between curing and adhesive. Suitable for various substrated such as paper. Films(PET, PE)	18	/	113

Resins for Solvent based Liquid Ink

Co-Solvent Soluble Polyamides

Product Description	Applications	Features	Characteristics			
			Acid Value (mgKOH/g substance)	Amine Value (mgKOH/g substance)	Softening point (°C (R&B))	Viscosity (second) *
			Typical Value	Typical Value	Typical Value	Typical Value
Flex-Rez™ 1074CS 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	<6	100	43

*Ford 4 cup, 25°C(40% in solution(xylene/IPA/Ethanol=1:1:1))

Alcohol Dilutable Polyamides

Product Description	Applications	Features	Characteristics			
			Acid Value (mgKOH/g substance)	Amine Value (mgKOH/g substance)	Softening point (°C) (R&B)	Viscosity (second)*
			Typical Value	Typical Value	Typical Value	Typical Value
Flex-Rez™ 2433AD C	Flexo and gravure inks and lacquers for polyolefin films.	Very high gloss	<6	<6	120	46
Flex-Rez™ 4399AD C	Flexo and gravure inks and lacquers for polyolefin films.	High gloss. Good gel resistance. Good water and ice crinkle	<4	<6	100	48
Flex-Rez™ 4584AD C	Flexo and gravure inks and lacquers for polyolefin films. Ink jet	Good gel resistance and recovery.Very good water and ice crinkle resistance. High gloss and excellent adhesion. Very high flexibility	<6	<6	116	48
Flex-Rez™ 5111AD 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	<6	110	51

*Ford 4 cup, 25°C (50% in Ethanol)

Alcohol Soluble Polyamides

Product Description	Applications	Features	Characteristics			
			Acid Value (mgKOH/g substance)	Amine Value (mgKOH/g substance)	Softening point (°C) (R&B)	Viscosity (second)*
			Typical Value	Typical Value	Typical Value	Typical Value
Flex-Rez™ 1084AS E	Flexo and gravure inks and lacquers for polyolefin films. Modifying resin.	Higher melt point. Very high heat resistance. No gel formation.	<15	<15	185	132
Flex-Rez™ 1155AS 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	<6	115	46

*Ford 4 cup, 25°C (50% in Ethanol)

Resins for Solvent based Liquid Ink

Polyketones

Product Description	Applications	Features	Characteristics	
			Acid Value (mgKOH/g substance)	Softening point (°C) (R&B)
			Typical Value	Typical Value
Reactol™ 1717LS C	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks and coating	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	85
Reactol™ 1717B C	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks and coating	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	92
Reactol™ 1717H C	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks and coating	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. High melt point. Improved heat resistance and block resistance	<1	110
Reactol™ 1719H C	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks and coating	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 heat resistance and block resistance	<1	150

Fumaric Modified Rosin Resins. Polyesters.

Product Description	Applications	Features	Characteristics	
			Acid Value (mgKOH/g substance)	Softening point (°C) (R&B)
			Typical Value	Typical Value
Hydro-Rez™ 5614 C	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers	Rapid water release, Improves gloss and adhesion in aqueous systems. Good flexibility. Low viscosity.	185	170
Hydro-Rez™ 5626 C	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers	Rapid water release, Improves gloss and adhesion in aqueous systems. Good flexibility. Low viscosity.	200	175(mettler)

Fumaric Modified Rosin Resins. Polyesters.

Product Description	Applications	Features	Characteristics	
			Acid Value (mgKOH/g substance)	Softening point (°C) (R&B)
			Typical Value	Typical Value
Hydro-Rez™ 6200 A	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers	Rapid water release, Improves gloss and adhesion in aqueous systems. Good flexibility. Low viscosity.	185	145
Reactol™ 5145 C	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers. Ink jet.	improves gloss and adhesion. Crosslinkable. Excellent compatibility with cellulose resins. Very good heat, product, water, alkali, oil and block resistance when cured. Flexible and fast solvent release.	120	130

Resins for Water based Liquid Ink

Fumaric Modified Rosin Resins

Product Description	Applications	Features	Solid (%)	Characteristics	
				Acid Value (mgKOH/g substance)	Softening point (°C) (R&B)
				Typical Value	Typical Value
Hydro-Rez™ 5614 C	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers	Rapid water release in aqueous systems. Improves gloss and adhesion aqueous systems. Good flexibility. Low viscosity.	100	185	170
Hydro-Rez™ 5626 C	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers	Rapid water release in aqueous systems. Improves gloss and adhesion aqueous systems. Good flexibility. Low viscosity.	100	200	175(mettler)
Hydro-Rez™ 6200 A	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers	Rapid water release in aqueous systems. Improves gloss and adhesion aqueous systems. Good flexibility. Low viscosity.	100	185	145

Self Crosslinking Acrylic Emulsions

Product Description	Applications	Features	Characteristics				
			Solid (%)	Acid Value (mgKOH/g substance)	pH	Tg(°C)	Viscosity (mPa.s)
				Typical Value	Typical Value	Typical Value	Typical Value
Hydro-Rez™ 820 E	Flexo and gravure inks and OPV.	Self crosslinking emulsion with excellent adhesion on Alum, good temperature resistance (>200°C).	40	19	8	15(MFFT)	72

Solid Acrylics

Product Description	Applications	Features	Characteristics				
			Solid (%)	Acid Value (mgKOH/g substance)	Softening point (°C) (R&B)	Tg(°C)	Molecular weight (Daltons)
				Typical Value	Typical Value	Typical Value	Typical Value
Hydro-Rez™ 2007 E	Flexo and gravure inks and OPV. Digital ink	For water based inks. Low molecular weight. Waterwhite colour. To be dissolved in water with the help of a solubilizing agent. Very high gloss	100	240	120	122	2000
Hydro-Rez™ 2710 E	Flexo and gravure inks and OPV. Digital ink	For water based inks. Low molecular weight. Waterwhite colour. To be dissolved in water with the help of a solubilizing agent. Very high gloss	100	210	150	116	8500

resin dispersion

Product Description	Applications	Features	Characteristics				
			Solid (%)	Particle size mean [microns]	pH value	Viscosity (mPa.s)	Bio-Renewable Content*/%
				Typical Value	Typical Value	Typical Value	Theoretical calculation
Snowpack™ 2703 E	Aqueous Inks for corrugated and film; Aqueous coatings for paper, wood and metal etc.	High Bio Renewable Content, enhanced compatibility with acrylic polymers, enhanced gloss and transfer properties.	45	<0.25	8	800	73

*Bio-Renewable Content based on component weight percentage on solid

Resins for Digital Ink

Solvent Based Digital Ink

Product Description	Applications	Features	Characteristics	
			Acid Value (mgKOH/g substance)	Softening Point (R&B) (°C)
			Typical value	Typical value
Reactol™ 1717LS C	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks and coating	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	85
Reactol™ 1717B C	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks and coating	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	92
Reactol™ 1717H C	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks and coating	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. High melt point. Improved heat resistance and block resistance	<1	110
Reactol™ 1719H C	Flexo and gravure inks and lacquers. Screen inks. Ballpoint inks. Jet inks and coating	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 heat resistance and block resistance	<1	150
Reactol™ 5145 C	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers. Ink jet.	improves gloss and adhesion. Crosslinkable. Excellent compatibility with cellulose resins. Very good heat, product, water, alkali, oil and block resistance when cured. Flexible and fast solvent release.	120	130
Flex-Rez™ 4584AD C	Flexo and gravure inks and lacquers for polyolefin films. Ink jet	Good gel resistance and recovery. Very good water and ice crinkle resistance. High gloss and excellent adhesion. Very high flexibility	<6	116

Water Based Digital Ink

Product Description	Applications	Features	Characteristics	
			Acid Value (mgKOH/g substance)	Softening Point (R&B) (°C)
			Typical value	Typical value
Hydro-Rez™ 2007 E	Flexo and gravure inks and OPV. Digital ink	for water based inks. Low molecular weight. Waterwhite colour. To be dissolved in water with the help of a solubilizing agent. Very high gloss	240	120
Hydro-Rez™ 2710 E	Flexo and gravure inks and OPV. Digital ink	for water based inks. Low molecular weight. Waterwhite colour. To be dissolved in water with the help of a solubilizing agent. Very high gloss	210	150
Reactol™ 5145 C	Flexo and gravure inks and lacquers. Water/alcohol soluble inks and lacquers. Ink jet.	improves gloss and adhesion. Crosslinkable. Excellent compatibility with cellulose resins. Very good heat, product, water, alkali, oil and block resistance when cured. Flexible and fast solvent release.	120	130

Additives

Specialty Additives

Product Description	Applications	Features	Form
Optilith™ 4 A	Heatset and Sheetfed, Flushing varnishes.	Reduces water-pick-up with minimal impact on tack and rheology. High solids	Paste
Optilith™ 3 A	Heatset and Sheetfed, Flushing varnishes.	Reduces water-pick-up with minimal impact on tack and rheology.	Solution
Optilith™ 3001 E	offset inks. Flushes	Regulates the water balance without influencing other ink properties. Gives a fast water break during flush production.	Varnish

Wax Products

Wax Powders for Offset and Liquid Ink

Product Description	Applications	Features	Characteristics		
			Type	Softening Point (°C)	Average Particle Size (µm)
Polysperse™	Sheetfed, Heatset and liquid inks.	Good rub resistance and good slip	Micronised FT wax	98	3
UltraFine™ 1WLS	Sheetfed, Heatset and liquid inks.	Ultimate rub resistance and slip. Low particle size	Micronised PTFE wax	320	2.5

Wax Powders for Offset and Liquid Ink

Product Description	Applications	Features	Characteristics		
			Type	Softening Point (°C)	Average Particle Size (µm)
UltraFine™ 1000PE	Sheetfed, Heatset and liquid inks.	Workhorse PE for rub, mar, slip and gloss. UV and AQ coatable	Micronised PE wax	101	7
Polysperse™ W2F	w/b inks	Good rub resistance and good slip	Micronised FT wax	98	3

Wax Compounds for Offset Ink

Product Description	Applications	Features	Characteristics		
			Vegetable oil type	Solid(%)	Average Particle Size (µm)
Ultrapolym™ 990 E	Sheetfed, Mineral distillate free inks.	Excellent rub, abrasion and scratch resistance with good slip and gloss. Best for waterbalance	blend	100	2.1
Ultrapolym™ 335 E	Sheetfed, Quickset	Excellent rub, abrasion and scratch resistance with good slip and low loss of gloss. Good over printability with water- and UV based coatings or OPV's	Soya/ soya based alkyd	100	2.2

Wax Dispersion for Solvent Based Liquid Ink

Product Description	Applications	Features	Characteristics		
			type	Solid(%)	Average Particle Size (µm)
Polyslip™ FA 06 E	Gravure and Flexo inks	Combines good rub and scratch resistance with high gloss.	PE wax dispersion	33	50nm
Polyslip™ FA 09 E	Gravure and Flexo inks	Combines good rub and scratch resistance with high gloss.	PE wax dispersion	55	6

Wax Emulsions for Water Based Liquid Ink

Product Description	Applications	Features	Characteristics		
			Type	Solid(%)	Average Particle Size (µm)
Flexonic™ EN 41 E	w/b inks and overprint varnishes	Good rub and scratch resistance with gloss retention	PE wax dispersion	33	50nm
Flexonic™ W-378 E	w/b inks and overprint varnishes	Excellent compatibility with good rub and scratch resistance with gloss retention	PE wax dispersion	55	6



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