Product Guide

Ink Resins

Varnishes and Additives

For Europe, Middle East and Africa

LAWTER™


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.


250
200
150
APPROX. VOL.

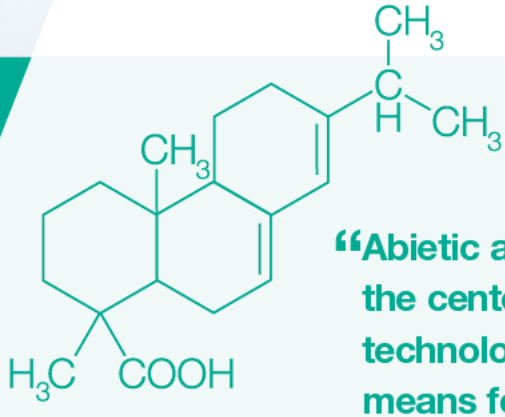
Research and development

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.

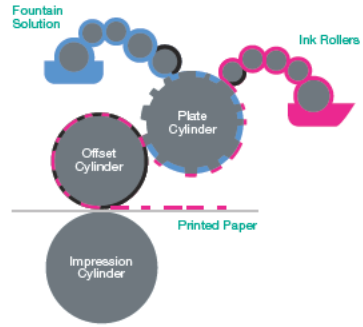
Lawter™ is a leading global supplier of quality raw materials for the printing ink industry.

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

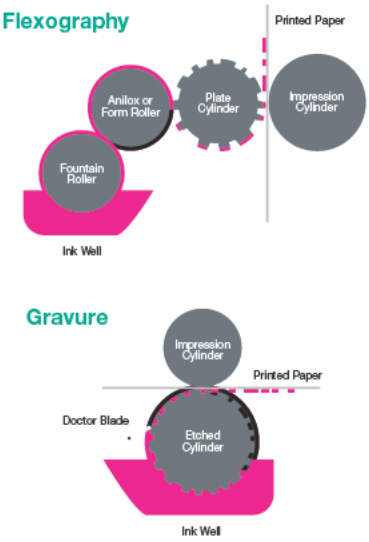


"Abietic acid is at the center of our technology and the means for creating valuable products."

The offset printing process



The liquid inks printing process



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

Ink resins, varnishes, and additives

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.

Tg

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

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.

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.

Bio Renewable Content

The Bio Renewable Content (BRC) is based on the amount of raw materials derived from plants and other renewable agricultural, marine and forestry materials present in the formulation. It is a calculation based on the mass balance from the starting formula.

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.

pH value

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

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.

Life Cycle Analysis

The carbon footprint of products (PCF) is calculated using a tool developed by CE Delft in line with the ISO 14040 standard. Carbon footprint of all raw materials, energy and waste treatment are included in the calculations up to the point where the product leaves our company gate (cradle to gate). The carbon footprint of the transportation from Lawter to the client is not included. Raw material carbon footprints are taken from databases, suppliers or proxies. The values used in this brochure include biogenic carbon storage.

Resins for Offset

Phenol Formaldehyde Free Rosin Resins

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Life Cycle Analysis (kg CO2-eq./kg pr.)	Rheology, Eurocommit*				Cloudpoint Eurocommit** 10% Solids	
					Solids (%)	Test Oil	Typical Viscosity [Pa.s]	Typical p-Ostwald	Test Oil	Typical Value (°C)
ECO-REZ™ 2575 E	High gloss sheetfed offset inks.	Good soluble, medium/low viscous, good grinding / co-resin. Excellent pigment wetting. The high solubility is ideal for aromatic free inks and varnishes.	83	-1.3	50	6/9	25	0.99	6/9 AFN	103
ECO-REZ™ 3405 E	Sheetfed grinding. Wetting varnishes. Overprint varnishes.	Medium viscous, good soluble. Low odour. Good pigment wetting. Can be used in a single resin system as well.	77	-0.8	47.5	6/9 ARB	50	0.89	6/9 AFN	127
ECO-REZ™ 3610 E	Sheetfed grinding. Wetting varnishes. Overprint varnishes.	High viscous, good soluble. Good pigment wetting. Good gel response. Low tack	78	-1	42.5	6/9 ARB	35	0.89	6/9	75
ECO-REZ™ 5240 E	Sheetfed offset inks.	Very low soluble, high viscous resin ideal for ester solvent systems.	77	-0.9	42.5	6/9 AR	38	0.89	6/9 ARB	80
ECO-REZ™ 9520 E	Sheetfed letdown resin. Let down varnishes. Overprint varnishes.	Medium viscous, structured resin for vegetable oil systems. Low odour. Low tack.	81	-0.7	50	MER FA	28	0.83	6/9	90

BRC >= 70% and a negative LCA

MER FA: Methylester of Rapeseed oil fatty acid

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

Phenolic Modified Rosin Resins

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Life Cycle Analysis (kg CO2-eq./kg pr.)	Rheology, Eurocommit*				Cloudpoint Eurocommit** 10% Solids	
					Solids (%)	Test Oil	Typical Viscosity [Pa.s]	Typical p-Ostwald	Test Oil	Typical Value (°C)
SETAPRINT™ 2376 E	High gloss sheetfed offset inks.	High soluble, medium/low viscous, good grinding / co-resin. Excellent pigment wetting. The high solubility is ideal for aromatic free inks and varnishes.	71	-0.7	50	6/9	37	0.99	6/9 AF	134
SETAPRINT™ 2868 E	Sheetfed offset inks.	Medium/low soluble, medium/high viscous. Very good gelling properties. Fast setting combined with high gloss. Very good water balance, due to low polarity. Low tack.	70	-0.6	40	6/9 ARB	42	0.92	6/9	104
SETAPRINT™ 3450 E	Sheetfed offset inks.	Medium soluble, medium/low viscous. Combination of high gloss with fast setting. Good gellability.	61	-0.2	40	6/9 ARB	17	0.93	6/9 AFN	120
SETAPRINT™ 5815 E	Sheetfed offset inks.	Nonylphenol free. High viscous, structured letdown resin. Excellent water balance properties. Low misting.	70	-0.3	35	6/9 ARB	25	0.84	6/9	90
SETAPRINT™ 6720 E	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks. Waterless. Letterpress.	Medium soluble, medium/high viscous high structured. High gloss and excellent setting. Improved water balance. Low misting. Low tack. Less gelling.	56	0.2	40	6/9 ARB	55	0.84	6/9 AFN	130
SETAPRINT™ 7060 E	Sheetfed offset inks. Mineral oil free HS inks.	Nonylphenol free. Very low soluble, high viscous resin, high structured. Ideal resin for ester solvent systems.	63	0.0	45	MER FA	30	0.85	6/9 ARB	115
SETAPRINT™ 8758 E	Webfed (Heatset and Coldset) offset Inks. Sheetfed offset inks.	High soluble, medium viscous structured. Very high gloss and fast setting. Good press stability. The high solubility is ideal for aromatic free inks and varnishes.	48	0.7	42.5	6/9 ARB	45	0.86	6/9 AF	132

BRC >= 70% and a negative LCA

MER FA: Methylester of Rapeseed oil fatty acid

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

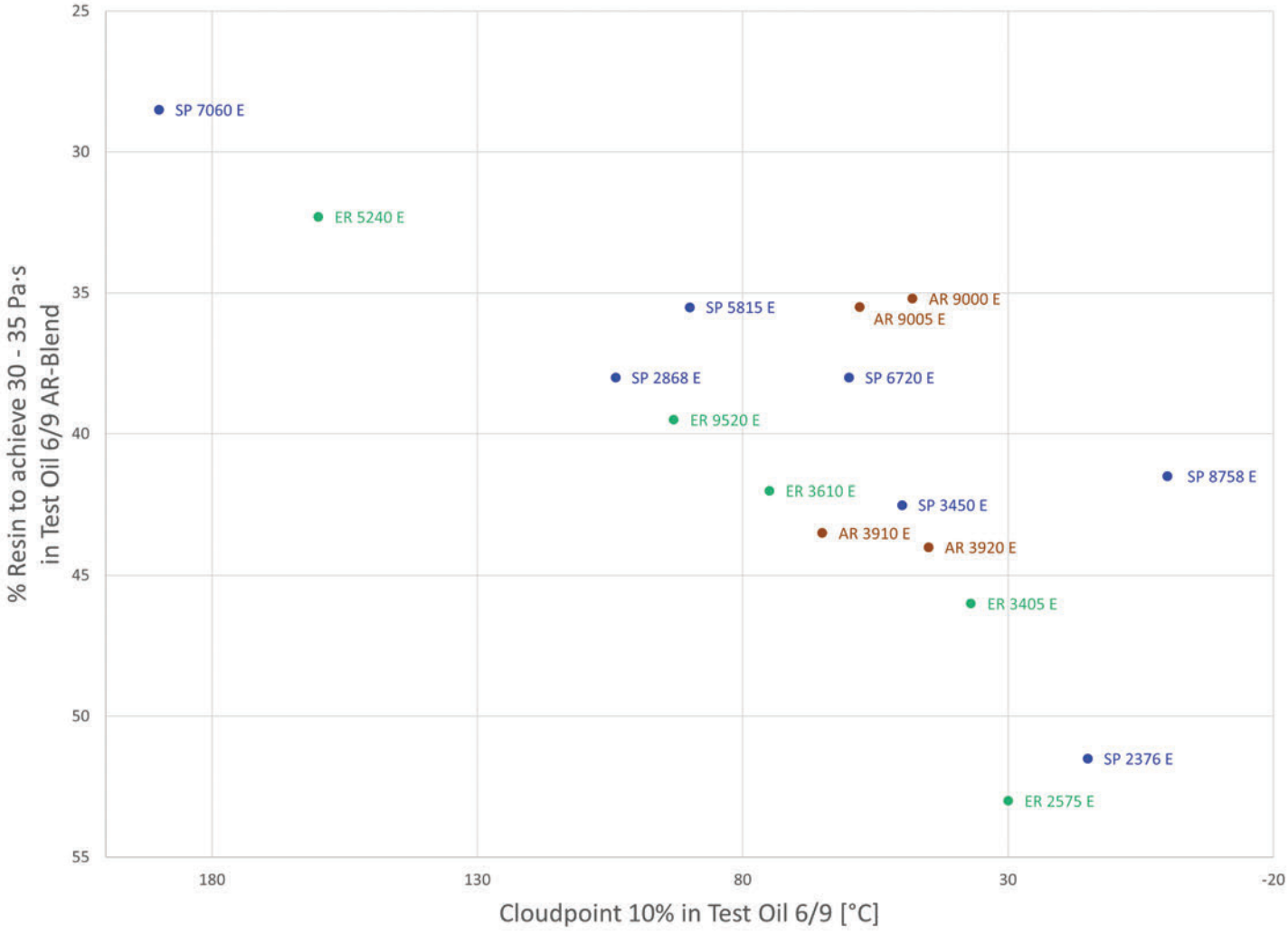
Resins for Offset (continued)

Hybrid Resins and Functional Hydrocarbon Resins

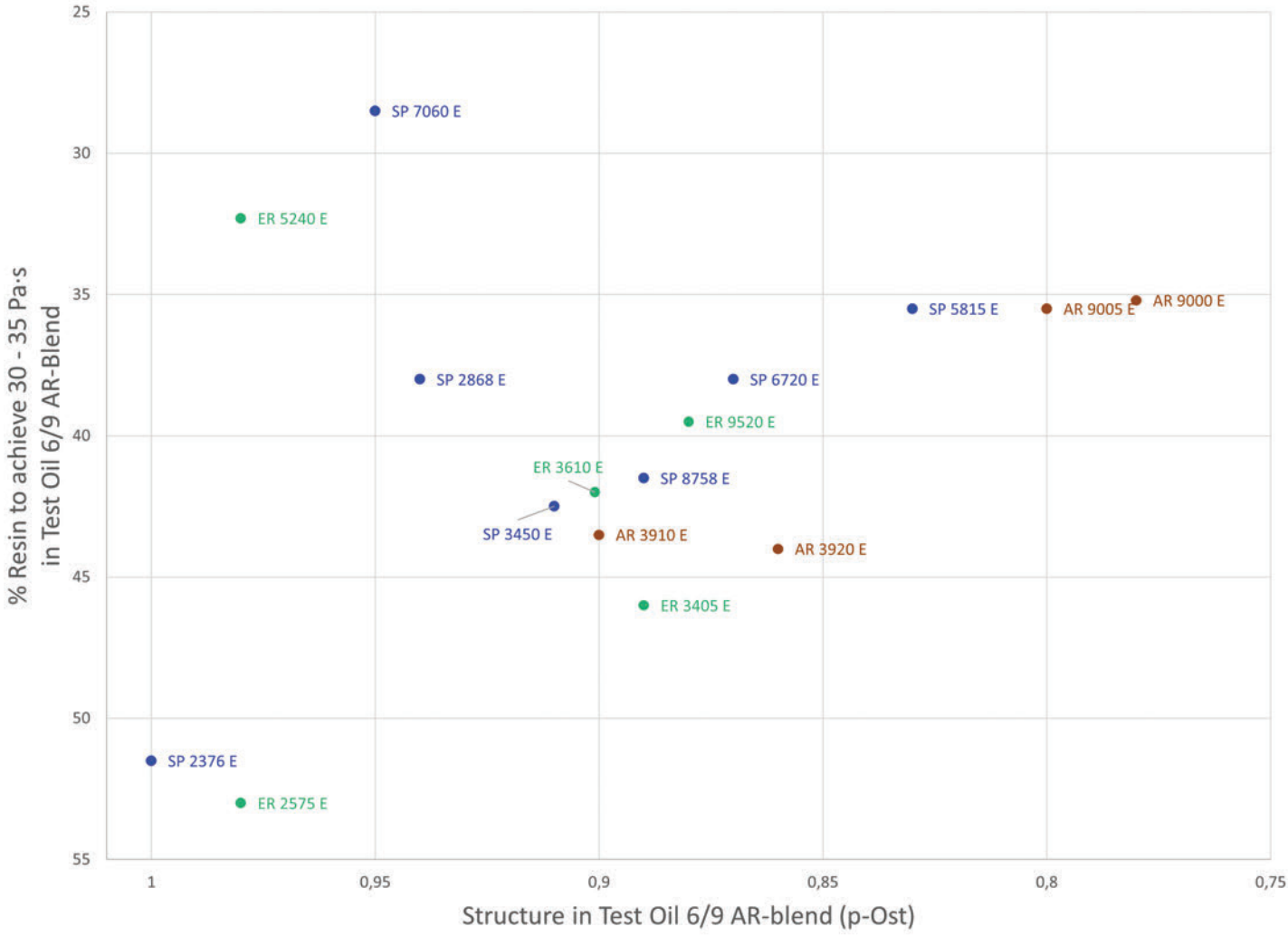
Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Life Cycle Analysis (kg CO2-eq./kg pr.)	Rheology, Eurocommit*				Cloudpoint Eurocommit** 10% Solids	
					Solids (%)	Test Oil	Typical Viscosity [Pa.s]	Typical p-Ostwald	Test Oil	Typical Value (°C)
ALPHA-REZ™ 3910 E	Offset Inks.	Medium soluble, medium/high viscous. Low polarity. High gloss and fast setting, excellent water balance. Phenol formaldehyde free.	43	0.5	45	6/9 ARB	50	0.87	6/9	65
ALPHA-REZ™ 3920 E	Offset Inks.	Medium soluble, medium/high viscous. Low polarity. High gloss and fast setting, excellent water balance. Good wetting properties. Phenol formaldehyde free.	48	0.4	45	6/9 ARB	35	0.85	6/9 AFN	165
ALPHA-REZ™ 9000 E	Offset Inks.	High structured, high viscous, medium soluble. Low polarity. Excellent water balance. High gloss.	30	1	35	6/9 ARB	28	0.80	6/9 AFN	130
ALPHA-REZ™ 9005 E	Offset Inks.	High structured, high viscous, medium soluble. Low polarity. Excellent water balance. High gloss.	42	0.7	35	6/9 ARB	27	0.80	6/9 AFN	125

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

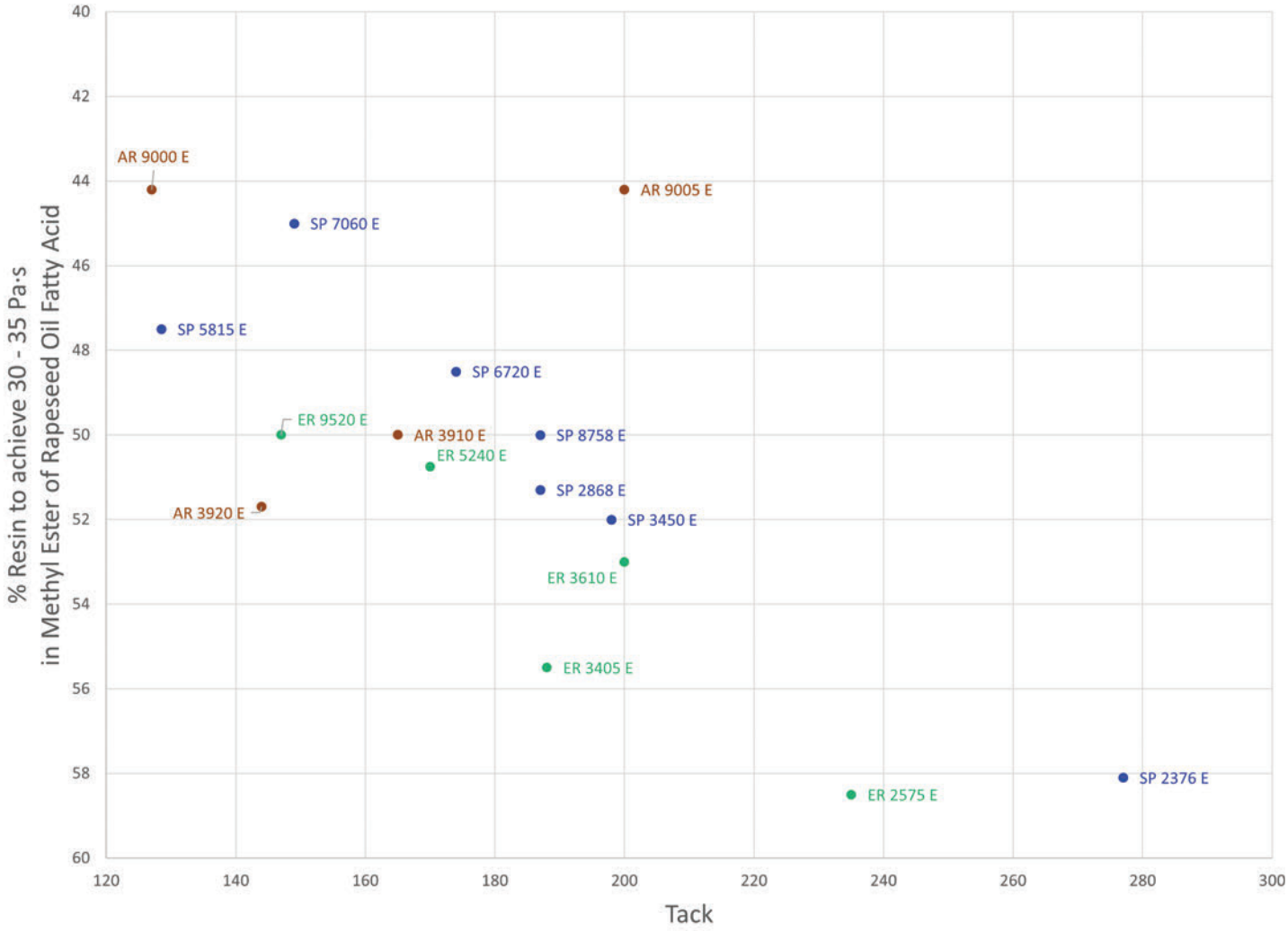
Resins for Offset tested in Mineral Oil



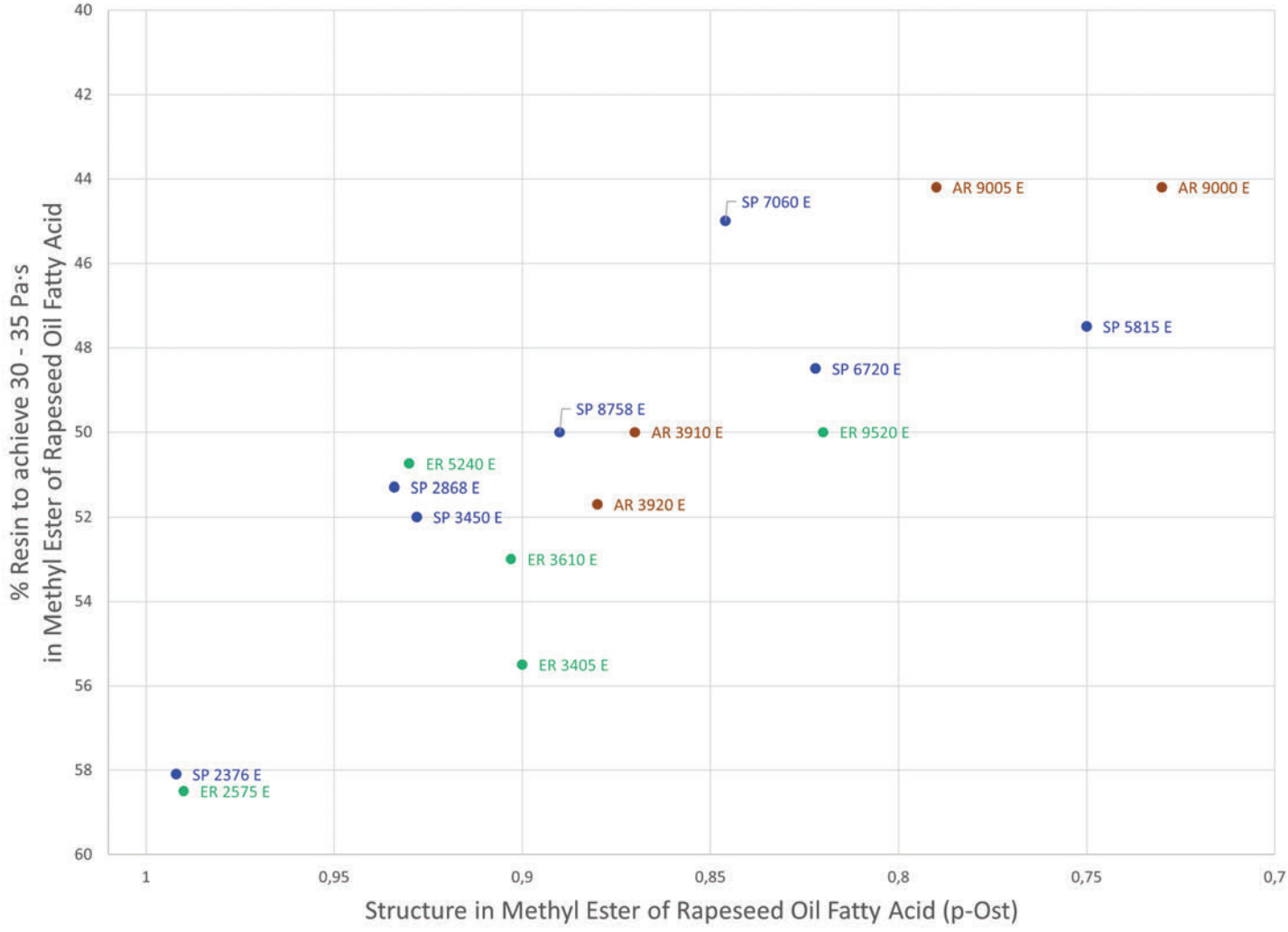
Resins for Offset tested in Mineral Oil



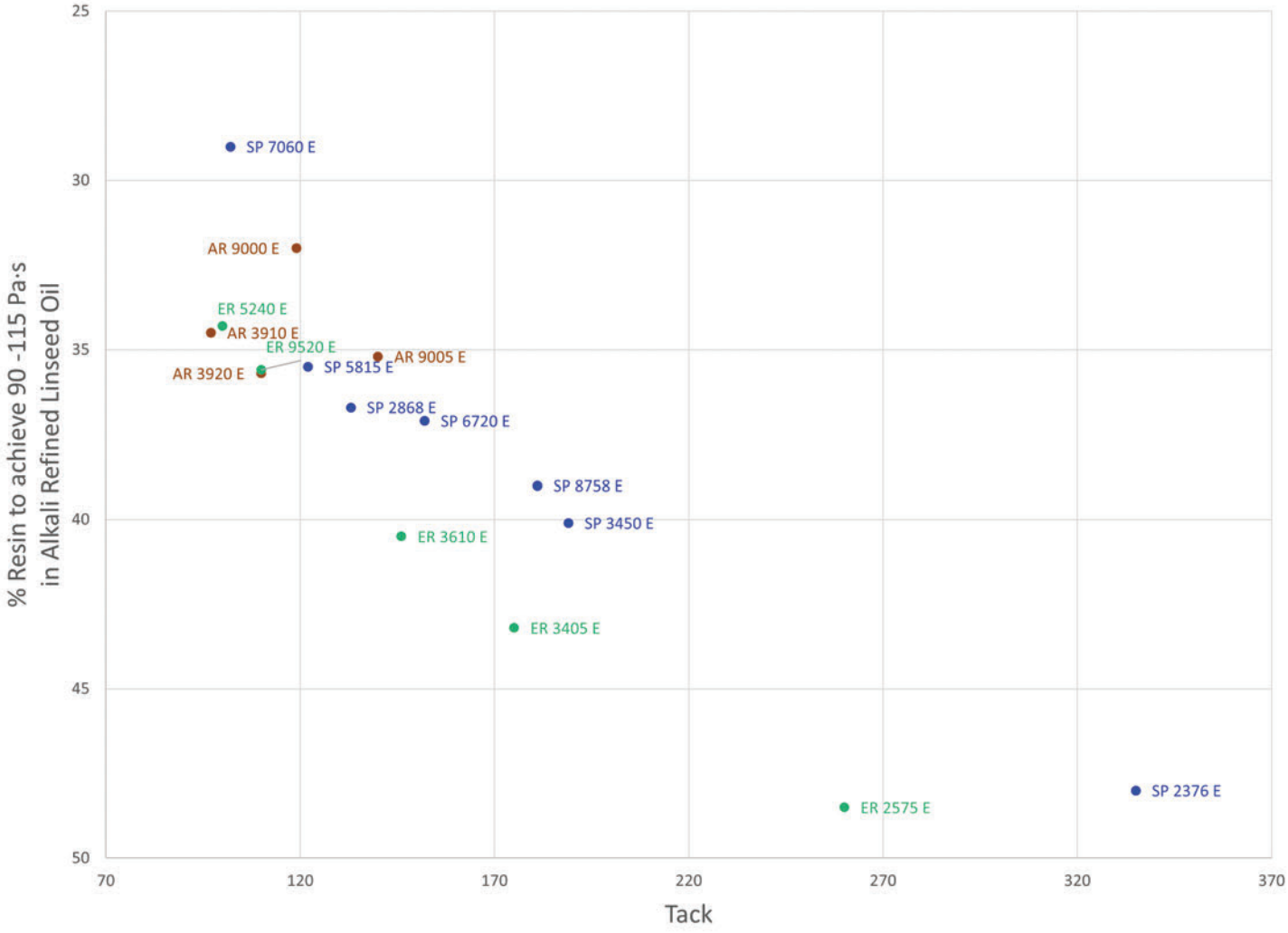
Resins for Offset tested in MER FA



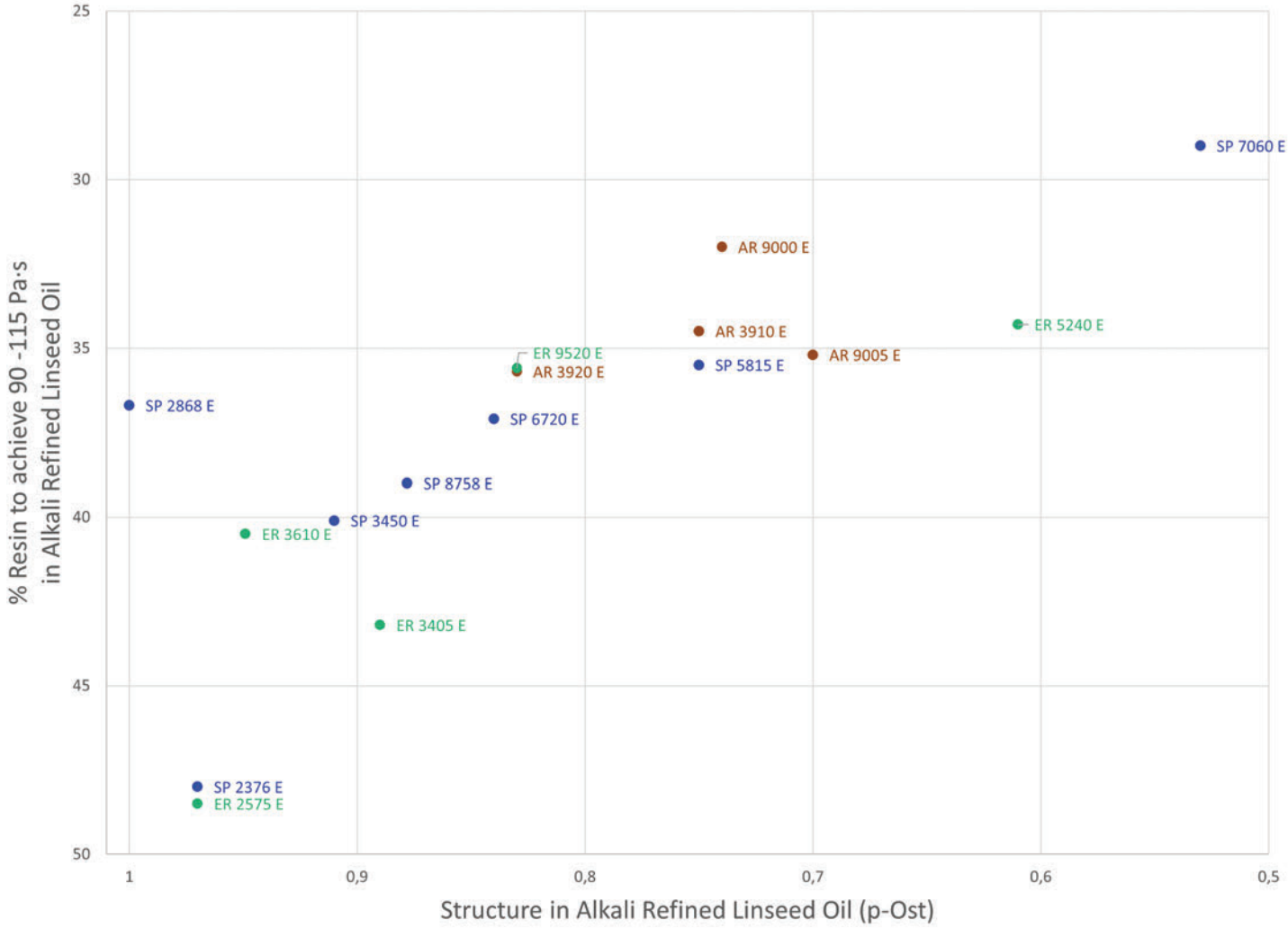
Resins for Offset tested in MER FA



Resins for Offset tested in Linseed Oil



Resins for Offset tested in Linseed Oil



Alkyd Resins

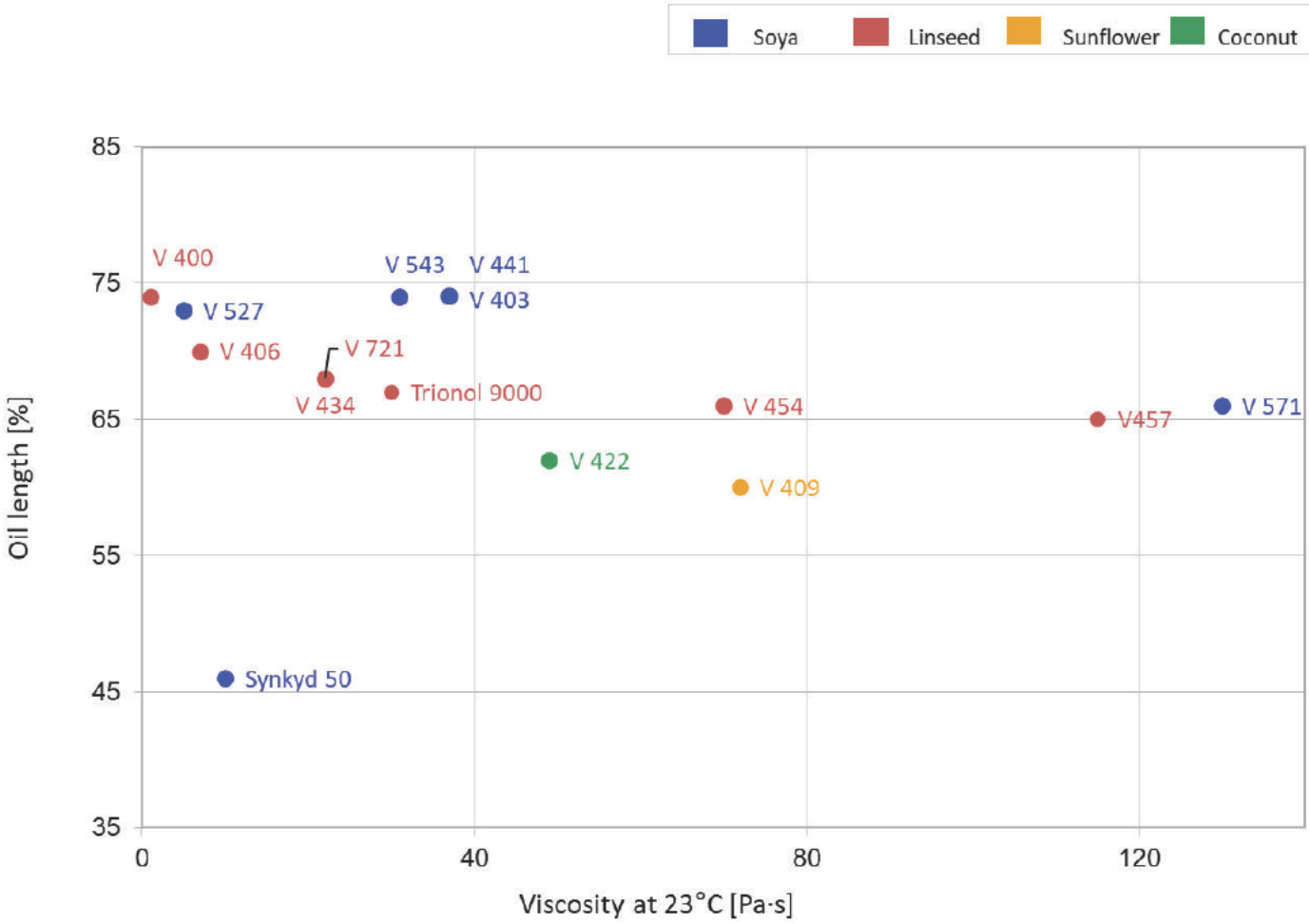
Alkyd Resins

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Oil Type	Typical Value			
					Oil length [%]	Acid value [mg KOH/g substance]	Viscosity at 23 °C at 25 s^{-1} [Pa.s]	Methanol number [ml MeOH/5g substance]
Low Viscous Alkyds								
SETALIN™ V 400 E	Wetting Varnishes. Flow additive.	Improves flow. Increased water pick-up. Good pigment wetting. High gloss.	72	Linseed	74	9	1	55
SETALIN™ V 406 E	Sheetfed- and webfed offset inks.	Low bronzing. Good flow, very good pigment wetting. Gloss.	68	Linseed	70	8	7	45
SETALIN™ V 527 E	Sheetfed- and webfed offset inks. Wetting and letdown.	Low viscous soya oil based alkyd. Good overall properties: gloss, flow, water balance.	77	Soya Bean	73	7	5	45
Medium/High Viscous Alkyds								
SETALIN™ V 403 E	Sheetfed- and webfed offset inks. Metal deco inks. Low odour inks. Wetting and letdown.	Low polarity. Good overall properties: gloss, flow, water balance.	73	Soya Bean	74	9	37	28
SETALIN™ V 434 E	Sheetfed- and webfed offset inks.	Fast setting. Good pigment wetting. High gloss.	66	Linseed	66	8	22	40
SETALIN™ V 441 E	Sheetfed- and webfed offset inks. Wetting and letdown.	Cost -effective alkyd. Low polarity. Good overall properties: gloss, flow, water balance.	79	Soya Bean	74	10	37	30
SETALIN™ V 457 E	Sheetfed- and webfed offset inks.	Very good pigment wetting. High gloss. Good oxidative drying.	64	Linseed	65	13	117	30
SETALIN™ V 543 E	Sheetfed- and webfed offset inks.	Cost -effective alkyd. Good overall properties: gloss, flow, water balance. Excellent wetting for high pigmented ink systems.	77	Soya Bean	74	8	31	35

Alkyd Resins (continued)

Alkyd Resins (continued)

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Oil Type	Typical Value			
					Oil length [%]	Acid value [mg KOH/g substance]	Viscosity at 23 °C at 25 s^{-1} [Pa.s]	Methanol number [ml MeOH/5g substance]
Medium/High Viscous Alkyds (continued)								
SETALIN™ V 571 E	Sheetfed- and webfed offset inks.	Very good pigment wetting. High gloss. Low tack, fast setting.	74	Soya Bean	66	14	130	30
SETALIN™ V 721 E	Sheetfed- and webfed offset inks.	Cost -effective alkyd. Fast setting. Good pigment wetting. High gloss.	77	Linseed	68	8	22	40
Low Odour Alkyds								
SETALIN™ V 409 E	Low odour sheetfed inks.	Good pigment wetting. Low odour. Appropriate for LM.	58	Sunflower	60	8	72	45
SETALIN™ V 422 E	Wetting Varnishes. Sheetfed- and webfed offset inks. Low odour sheetfed inks.	Low bronzing. Good flow, very good pigment wetting. Gloss. Due to character an improved hold out. Lower tack. Easy de-inking. Appropriate for LM.	58	Coconut	62	8	49	70
Special Alkyds								
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. Fast setting. Improved transfer.	55	Soya Bean	46	20	10	26
TRIONOL™ 9000 E	Intaglio (water-wipe) inks.	Good through drying. Water dilutable. Additive to increase water pick-up.	64	Linseed	67	44	30	>80


Soya
Linseed
Sunflower
Coconut
85
75
65
55
45
35
Oil length [%]
0
40
80
120
Viscosity at 23°C [Pa·s]
V 400
V 543
V 441
V 403
V 527
V 406
V 721
V 434
Trionol 9000
V 454
V457
V 571
V 422
V 409
Synkyd 50

Varnishes

Varnishes

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Drying oil/ alkyd type	Mineral distillate type	Typical Value			
						Non-volatiles [%]	Viscosity at 23 °C at 25 s^{-1} [Pa.s]	p-Ostwald	Tack
Sheetfed Wetting Varnishes									
UROSET™ 110S E	Pigment concentrates. Flushes. Offset, metal deco and letterpress inks. Mineral distillate free inks.	Best grinding properties. Excellent pigment wetting. High pigment loading.	74	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.	54	Linseed	260 - 290	70	77	0.92	210
Sheetfed Varnishes Specialties									
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.	86	Linseed	N/A	100	400	0.90	240
CINERGI™ 7600 E	High gloss inks. Mineral distillate free inks.	Very high gloss. Alkyd replacement. Fast setting.	88	Tung Oil + Linseed	N/A	100	65	0.92	210

BRC >= 70% and a negative LCA

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

Varnishes (continued)

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Drying oil/ alkyd type	Mineral distillate type	Typical Value			
						Non-volatiles [%]	Viscosity at 23 °C at 25 s^{-1} [Pa.s]	p-Ostwald	Tack
Sheetfed Varnishes Letdown									
ECO-SET™ 4335 E	Sheetfed. Mineral distillate free inks.	Phenol formaldehyde free system. Low tack and low misting, very good lithographic properties. High Bio-Renewable content.	89	Linseed/ Ester Solvent	N/A	100	90	0.84	185
CINERGI™ 7105 E	Sheetfed. Mineral distillate free inks.	Low misting. Good gloss. Good water behaviour.	81	Blend + Ester Solvents	N/A	100	75	0.80	260
CINERGI™ 8310 E	Sheetfed. Mineral distillate free inks.	Cost effective sheetfed varnish. Phenol formaldehyde free system. Good press stability (on high speed presses). Good litho properties resulting in good anti-misting behavior.	74	Soya Bean / Ester Solvent	N/A	100	95	0.86	175
CINERGI™ 8500 E	Sheetfed. Mineral distillate free inks.	Phenol formaldehyde free system. Good press stability (on high speed presses). Good litho properties resulting in good anti-misting behavior. Good oxidative drying.	73	Linseed/ Ester Solvent	N/A	100	95	0.84	180
Webfed Varnishes									
WEBVAR™ 1100 E	Heatset Letdown.	Highly structured letdown varnish. High gloss and good dot sharpness. Good tack and press stability.	43	Soya Bean	240 - 290	60	88	0.84	110
WEBVAR™ 1200 E	Pigment dispersions. High gloss offset. Mineral distillate free inks.	Replace alkyds in varnishes and inks. Fast setting compared to alkyds. High gloss. Low water sensitivity.	91	Soya Bean	N/A	100	5.5	0.99	75

BRC >= 70% and a negative LCA

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

Varnishes (continued)

Varnishes (continued)

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Drying oil/ alkyd type	Mineral distillate type	Typical Value			
						Non-volatiles [%]	Viscosity at 23 °C at 25 s^{-1} [Pa.s]	p-Ostwald	Tack
Low migration Varnishes for Non-DFC									
PACK-SET™ 5305 E	Low migration varnish. Sheetfed packaging Non-DFC. Mineral distillate free inks.	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. Production according to GMP EuPIA guidelines.	74	Sunflower / Ester Solvent	N/A	100	95	0.84	180
PACK-SET™ 5605 E	Low migration & low odour varnish. Sheetfed packaging Non-DFC. Mineral distillate free inks.	Structured, visco-elastic letdown varnish. Good litho properties. High gloss. Low color and very low odour. Production according to GMP EuPIA guidelines.	69	Low Odour Ester Solvent	N/A	100	110	0.85	190

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

Overprint Base Varnishes

Overprint Base Varnishes (no driers)

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Typical Value			
				Drying oil - type	Non-volatiles in mineral distillate* [%]	Viscosity at 23°C at 25 s^{-1} [Pa.s]	Tack
Low migration Varnishes for Non-DFC							
MIRAGLAZE™ 1810 BASE E	Gelled overprint varnish base. Wet-on-wet and wet-on-dry.	Good gloss, fast setting.	65	Blend	75 in 260 - 290	90	130
MIRAGLAZE™ 8834 BASE E	Overprint varnish base. Wet-on-wet and wet-on-dry.	Combines very high gloss with fast setting and high rub resistance. Good tack stability. Good slip (contains wax).	52	Tung	60 in 260 - 290	12	90

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

Metal Decorating

Metal Decorating

Product	Applications	Product Description	Features & Benefits	Bio-Renewable Content (+/- 2%)	Typical Value		
					Solvent type	Acid value [mg KOH/g substance]	Viscosity at 23°C at 25 s^{-1} [Pa.s]
Two Piece Can							
DECOTHERM™ 220 E	Dry offset / spindle printing.	Polyester resin in Tridecanol / Dobanol 23.	Gloss, printability MEK resistance.	0	TDA / Dobanol 23	50	200
DECOTHERM™ 256 E	Dry offset / spindle printing.	Catalyst (blocked).	Curing agent for polyester / melamine systems.	-	Propylene Glycol Ester	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.	25	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.	29	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.	31	TDA / TPG	35	105
Three Piece Can							
DECOTHERM™ 100 E	Lithographic / flat sheet printing.	Complete varnish with high gloss and good adhesion on steel, tin and aluminium.	Very fast drying.	65	Mineral Distillate 260 - 290	N/A	50
SETALIN™ V 403 E	Lithographic / flat sheet printing.	Soya bean oil alkyd for colours. Low odour.	Medium viscosity. Good oxidative drying.	73	None	9	37
SETALIN™ V 409 E	Lithographic / flat sheet printing.	Sunflower oil based alkyd for mainly white inks.	Low yellowing and low odour. Good oxidative drying.	58	None	8	72
SETALIN™ V 422 E	Lithographic / flat sheet printing.	Coconut oil based alkyd.	Lower tack. Low odour. Very low yellowing.	58	None	8	49

Wax SF Micro Additives

PE Wax Compounds Sheetfed

Product	Applications	Features & Benefits	Typical Value			
			Vegetable oil (alkyd) type	PE content [%]	Average particle size [µm]	Average Melting point PE wax [°C]
ULTRAPOLY™ 310 E	Sheetfed offset inks.	100% non-volatile. Very good rub resistance.	Blend + Alkyd	38	2.5	104
ULTRAPOLY™ 335 E	Sheetfed offset inks.	100% non-volatile. Good rub resistance. Good gloss.	Soya Bean + Alkyd	34	2.2	104
ULTRAPOLY™ 990 E	Sheetfed, Heatset. Mineral distillate free inks.	100% non-volatile. Very good pumpability. High rub resistance and good gloss. Higher temp stability.	Blend	~ 30	2.0	120
ULTRAPOLY™ 995 E	Sheetfed. Mineral distillate free inks.	100% non-volatile. Very good pumpability GMO free. Very high rub resistance and good gloss.	GMO Free Vegetable Oil	~ 36	2.3	108

Micronized Waxes

Product	Applications	Product Description	Features & Benefits	Typical Value	
				Melt Point [°C]	Average particle size [µm]
POLYSPERSE™ E	Sheetfed, Heatset and liquid inks.	Micronized FT wax.	Good rub resistance and good slip.	98	3

Ink and Press Additives

Product	Applications	Product Description	Features & Benefits	Bio-Renewable Content (+/- 2%)
OPTILITH™ 3001 E	Offset inks. Flushes.	Varnish	Water balance regulator. Mineral oil free. Regulates the water balance without influencing other ink properties. Gives a fast water break during flush production.	47

Resins Solvent Based Liquid Ink

Resins for Solvent Based Liquid Inks

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Life Cycle Analysis (kg CO2-eq./kg product)	Typical Value		
					Acid value [mg KOH/g substance]	Hydroxyl number [mg KOH/g substance]	Melt Point R&B [°C]
Polyketones							
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	215	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	215	120
Co Solvent Soluble Polyamides							
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.	90	-	<6	<1	110
FLEX-REZ™ 3370 CS C	Flexo and gravure inks and lacquers for polyolefin films.	Improved gel resistance.	90	-	<6	<1	100
Alcohol Dilutable Polyamides							
FLEX-REZ™ 2433 AD C	Flexo and gravure inks and lacquers for polyolefin films.	Very high gloss.	79	-	<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.	77	-	<4	<1	100

Resins for Solvent Based Liquid Inks (continued)

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Life Cycle Analysis (kg CO2-eq./kg product)	Typical Value		
					Acid value [mg KOH/g substance]	Hydroxyl number [mg KOH/g substance]	Melt Point R&B [°C]
Alcohol Soluble Polyamides							
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.	60	**- 0,1** (+/- 0,3)	<15	<1	185 (200°C MDSP)
FLEX-REZ™ 1255 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.	**79**	-	<6	<1	125
Fumaric Modified Rosin Resins. Polyesters and Phenolics.							
HYDRO-REZ™ 5539 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.	**83**	**-0.7**	195	<15	170 (185 °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.	**80**	-	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.	66	-	130	130	120

BRC >= 70% and a negative LCA

Solvent & Water Wax Dispersions

Solvent Borne Wax Dispersions

Product	Applications	Product Description	Features & Benefits	Typical Value		
				Solvent	Solids [%]	Average particle size [µm]
POLYSLIP™ FA 06 E	Gravure and flexo inks.	Synthetic wax compound.	Combines good rub and scratch resistance with high gloss.	Iso-propanol	40	15
POLYSLIP™ FA 09 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

Water Borne Wax Emulsions

Product	Applications	Product Description	Features & Benefits	Typical Value		
				Solvent	Solids [%]	Average particle size [µm]
FLEXONIC™ EN 41 E	WB inks and overprint varnishes.	PE wax dispersion.	Good rub and scratch resistance with gloss retention.	Water	33	50 nm
FLEXONIC™ W 378 E	WB inks and overprint varnishes.	PE wax dispersion.	Excellent compatibility with good rub and scratch resistance with gloss retention.	Water	55	6 micron

Resins Water Based Liquid Inks

Resins for Water Based Liquid Inks

Product	Applications	Features & Benefits	Bio-Renewable Content (+/- 2%)	Life Cycle Analysis (kg CO2-eq./kg product)	Typical Value				
					Solids [%]	Viscosity [mPa.s]	pH	Tg [°C]	Acid value [mg KOH/g substance]
Self Crosslinking Acrylic Emulsions									
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									
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
Fumaric Modified Rosin Resins									
HYDRO-REZ™ 5539 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.	83	-0.7	100	-	-	N/A	195
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.	80	-	100	-	-	N/A	305

BRC >= 70% and a negative LCA

Resins for Publication Gravure Inks

Resins for Solvent Based Liquid Inks

Product	Product Description	Features & Benefits	Bio-Renewable Content (+/- 2%)	Life Cycle Analysis (kg CO2-eq./kg product)	Typical Value							
					Flow Time				Dilutability			
					Solids Content [%]	Type of Cup	Temp [°C]	Value [s]	Solids Content [%]	Type of Cup	Final Time [s]	Value [%]
ERKAZIT™ 7880 E	Phenolic modified rosin resin.	Letdown resin with very good dilutability. Fast drying. Good block resistance.	51	0,8 (+/- 0,1)	31.5	DIN #4	20	50	31.5	GS #3	32.5	165

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