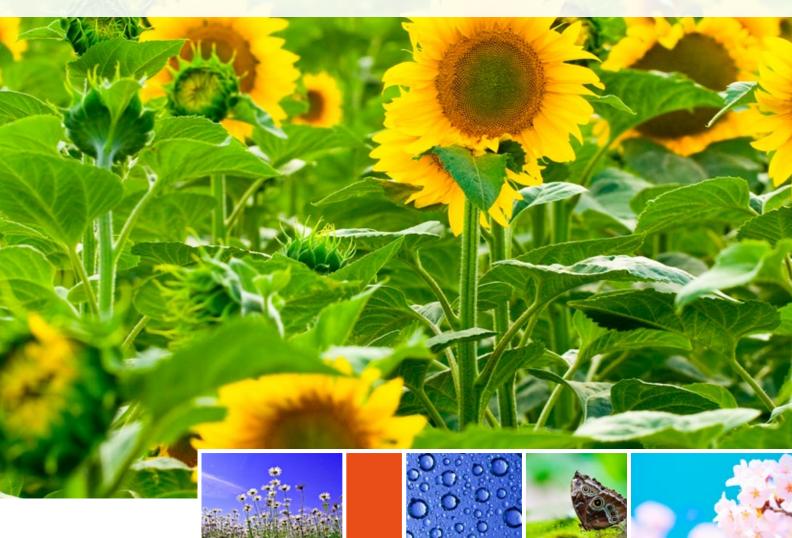
COATING RESINS RENEWABLE RAW MATERIAL

Additives • Energy Curable Resins • Waterborne Resins





FACTS & FIGURES



About us

- Global company with nearly \$1.5 billion in sales
- Resin portfolio comprised of more than 80% solvent-free and water-based products
- Broad Technology portfolio: liquid coating resins, energy curable resins, powder coating resins, crosslinkers and additives.
- Approximately 2000 employees
- More than 2500 customers
- 16 manufacturing facilities
- 13 research and technology centers
- 2 joint ventures
- A myriad of solutions for key coating segments: automotive, industrial, packaging coating and inks, protective, industrial plastics and specialty architectural

Allnex's Contribution to Sustainable Change

Allnex offers a range of resins containing renewable raw materials that allow formulators to make a difference towards a Sustainable Change in the coatings market. Seed oils, starch and cellulose from straw and wood are only some of the renewables used in manufacting chemical building blocks, and products. By employing physical, chemical and biochemical processes these materials can be converted into chemical intermediates, polymers, lubricants, solvents, surfactants and specialty chemicals and thus replace traditionalfossil fuel feedstocks.

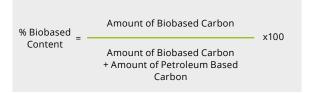
With a Focus on Renewable Raw Materials, Allnex considers sustainability as a pathway of continuous improvement wherein the products and services are developed with progressively less environmental impact.

A cross-functional group of employees has been working to increase and advance the company's use of renewable raw materials (RRM). Existing products and their raw materials have been assessed for their content of renewable feedstock and technical exchange between different business units unveiled opportunities and ideas for new products and processes. Interesting to note is that next to the sustainable aspect, also novel performance characteristics are obtained.

Calculations

The Renewable Raw Material content (RRM %) and the Naturally Derived Carbon content (NDC %) – also called Biobased Carbon content – are calculated accordingly to the formula indicated hereunder.





UV/EB Curable Resins and Additives

EBECRYL® polyester acrylates with medium to low viscosity have fair to high renewable raw material content. Their excellent pigment wetting and good adhesion to various substrates makes this range very suitable for ink formulations. Some of these products are highly recommended for litho application thanks to their ink-water balance performances.

EBECRYL® epoxy acrylates range includes products that are hard, solvent and water resistant, fast curing. In the fatty acid-modification improves the pigment wetting and the ink water balance in litho inks.

Product	Functionality	Viscosity MPA.S @ 25 °c	Renewable Raw Material (w%)	Naturally Derived Carbon (%)	Application	Туре
EBECRYL 450	6	8600	30	35	Flexo inks	Polyester acrylate which gives excellent pigment wetting and high reactivity.
EBECRYL 452	4	600	24	29	Flexo inks	Polyester acrylate with excellent pigment wetting; enables the production of high concentrated pastes, increasing productivity and process flexibility.
EBECRYL 657	4	125000	42	52	Offset inks	Polyester acrylate with good pigment wetting, ink water balance and misting properties.
EBECRYL 1657	4	125000	42	52	Offset inks	Polyester acrylate with good pigment wetting, ink water balance and misting properties.
EBECRYL 820	6	550	20	25	Flexo inks for indirect food contact packaging	Low migration product; exceptional pigment wetting allows preparation of highly concentrated pigment pastes
EBECRYL 846	6	45000	15	17	High speed Offset inks	Polyester acrylate which gives high reactivity and low misting.
EBECRYL 870	6	48000	25	30	Offset inks	Polyester acrylate which gives excellent pigment wetting and high reactivity.
EBECRYL 1870	6	48000	25	30	Offset inks	Polyester acrylate which gives excellent pigment wetting and high reactivity.
EBECRYL LEO 10801	6	45000	24	30	Inks for indirect food contact packaging	Polyester acrylate
RAYLOK® 1621	2+1	520	27	31	Clearcoat for wood	Low viscosity natural oil modified acrylate oligomer. Combining airdrying and UV curing properties, it gives a transparent oil-like natural aspect.
RAYLOK® 1622	3	520	21	23	Clearcoat for wood	Low viscosity natural oil modified oligomeracrylate. It gives a transparent oil-like natural and warm aspect.
EBECRYL 860	3.5	25000	64	74	Overprint varnish	Epoxidized soybean oil for OPV where hot foil stamping is required.
EBECRYL 3608	2	70000	7	16	Inks	Fatty acid modified epoxy acrylate recommended for ink formulations where improved pigment wetting is demanded.
EBECRYL 3702	2	900000	16	16	Litho	Fatty acid modified epoxy acrylate recommended for ink formulations, good litho behavior and very good pigment wetting.
EBECRYL 5848	3	25000	65	74	Litho	Epoxidized Soya Oil Acrylate. BPA-free product. Good for Hot foil stamping.
EBECRYL 5849	2	5000	56	60	Litho	High reactivity and high Tg: can be used for BPA-free development in Graphics and Wood Applications.

Liquid Coating Resins and Additives

Waterborne Alkyd Resins for Air-drying Decorative Coating System

Product	Application	Туре	% RRM in form of delivery	% RRM on solids
RESYDROL® AY 586 w / 45 WA	Wood exterior - Stain	Excellent adhesion and penetration on wood, open time and durability.	77	56
RESYDROL® AY 588 w / 42 WA	Interior - Trim	Long oil alkyd allowing high gloss with good brushability, excellent flexibility and blocking resistance.	78	55
RESYDROL AZ 6191 w / 42 WA	Wood interior and exterior - Trim	For indoor and outdoor application, excellent applicability and high gloss.	72	42
RESYDROL AZ 6190 w / 43 WA	Wood interior and exterior - Trim	For outdoor and indoor application, quick drying with very good hardness. Early water resistance. High gloss and flow. Shear stable.	71	39
RESYDROL VAF 6111 w / 60 WA	Wall interior paint	For primers and wall paints, partner for acrylic systems to improve adhesion and applicability with low yellowing.	61	37
RESYDROL VAL 5547 w / 98 WA	Wood penetration	Excellent penetration on wood, low grain rising and oil feeling application.	62	62
RESYDROL VAS 6110 w / 68 WA	Wood exterior stain	Excellent penetration on wood.	74	62
RESYDROL AY 6705 w / 44 WA	Wood exterior stain	New generation acrylic modified alkyd resin for all types of woods, which combines excellent penetration with quick drying time. It offers extended durability to deck stains with no flaking.	68	33
RESYDROL AZ 6710 w / 45 WA	Wood exterior stain	New generation of urethane and acrylic modified alkyd resin suitable for all types of wood, to provide very long outdoor durability with no flaking with low dirt pick up and traffic resistance.	68	27

Waterborne Alkyd Resins for Air-drying and Forced Dry Industrial Systems

RESYDROL AM 224 w / 40 WA	Monocoat, topcoat oven drying	Drum coatings.	64	21
RESYDROL AX 237 w / 70 BG	Primer, air-drying	Humidity and corrosion resistance.	36	36
RESYDROL AY 241 w / 40 WA	Primer, topcoat, monocoat, air-drying	Fast drying.	60	23
RESYDROL AY 466 w / 38 WA	Topcoat, air-drying	Humidity resistance. High gloss. Fast drying.	71	44
RESYDROL AY 6150 w / 45 WA	Primer, topcoat, monocoat, air-drying	Humidity and corrosion resistance. High gloss. Easy application.	66	61
RESYDROL VAY 6096 w / 39 WA	Topcoat, air-drying	Humidity resistance. Fast drying	66	30

Waterborne Alkyd Resins for Baking Systems

RESYDROL AF 502 w / 35 WA	Monocoat, topcoat Oven drying	Drum coatings.	78	47
RESYDROL AM 410 w / 66 BPWA	Oven drying coatings	Electrical insulation paints.	93	59
RESYDROL AX 246 w / 70 BG	Primer Oven drying	Dipping paints. Combined with CYMEL 303 LF - offers excellent corrosion resistance.	21	21
RESYDROL AX 247 w / 70 BGMP	Oven drying coatings	Electrical insulation paints.	22	22

Waterborne Epoxy Ester Resins for Primer Systems

Product	Application	Туре	form of	% RRM on solids
DUROXYN® VEF 2406 w / 45 WA¹	Tannin / stain blocking	Universal primers for metal, concrete. Mineral board.	60	13
DUROXYN® EF 2107 w / 45 WA¹	Tannin / stain blocking	Universal primers for metal, concrete. Mineral board. Flexible.	58	12
DUROXYN VAX 6127 w / 42 WA	Primer, air-drying	Excellent corrosion resistance.	63	37

Waterborne Epoxy Ester Resins for Industrial Wood Systems

DAOTAN® TW 6440 / 43 WA	Industrial Wood	Aspect like SB system, quick hardness development and excellent chemical resistance.	69	33
DAOTAN® TW 1252 / 42 WA	Topcoat, monocoat, air-drying	NMP free polyurethane dispersion modified with drying fatty acids. Quick drying time, very high gloss, good water and weather resistance. Quick and high hardness development.	69	29

Waterborne Epoxy Dispersions for Concrete and Metal Systems

BECKOPOX® EP 2384 w / 57 WA²	Monocoat (DTM) or primer air-drying	Combined with BECKOPOX EH 659 W / 50 WA, offers excellent hardness development. Early water resistance.	50	6
BECKOPOX® EP 151	Primers, adhesives and casting compounds	Internally plasticized A-liquid resin, helps against crack building.	43	43
BECKOPOX EM 2120 w / 40 WA	Monocoat (DTM) air-drying	1K epoxy with anti-corrosion performance close to 2K epoxy.	58	14

Dispersing Additives

ADDITOL® XL 255 N	Pigment wetting for SB	Electroneutral wetting additive.	41	41
ADDITOL® XL 250	Wetting additive for inorganic pigments, SB and WB	Anionic wetting additive.	83	83
ADDITOL VXL 4992	Dispersing agent	Low MW acidic functional dispersant for inorganic pigments and fillers. The main use is for UP putties.	31	31
ADDITOL XL 6515	Grinding medium for SB	Grinding medium, 100% active.	80	80
ADDITOL XW 6535	Dispersing agent	Universal binder recommended for Architectural applications.	57	9
ADDITOL XL 6538	Pigment wetting for SB and WB	Anionic, ethanol free wetting additive.	37	37
ADDITOL XL 6514 / 80	Pigment wetting and anti-settling for SB and HS	Neutralised polymeric wetting and anti-settling additive.	41	51

Defoamers

ADDITOL XW 393	Defoamer for WB	Silicone free polymer defoamer.	15	15
ADDITOL VXW 4909	Defoamer/Deaerator	Used as air release agent in WB systems.	35	35
ADDITOL VXW 4926	Defoamer/Deaerator	Used as air release agent in WB systems (Recommended for Stoving applications).	100	100

Anti-skinning Additive

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ADDITOL XL 109 / 50 LG	Anti-skinning / anti wrinkling additive	Phenolic anti-skinning additive	26	51	

¹ Unique RRM content compared to competing technologies for tannin blocking.

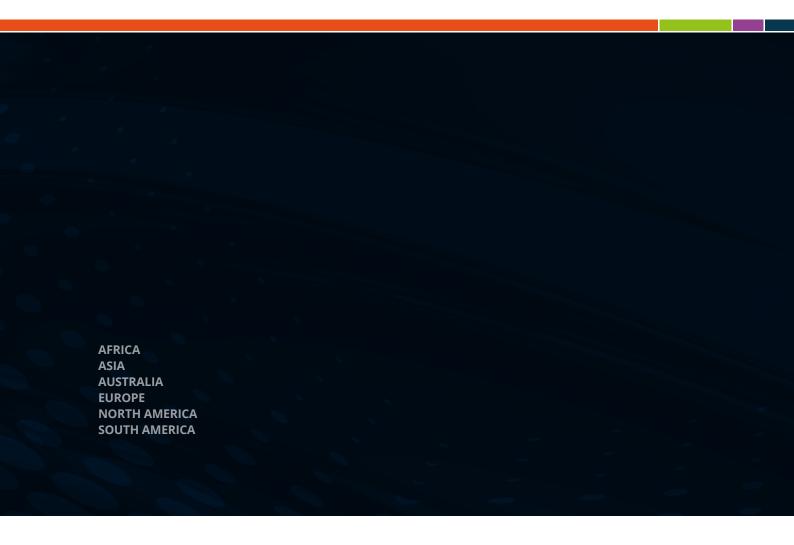
 $^{{\}bf 2} \ {\it Unique RRM content compared to other WB epoxy resins}.$



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