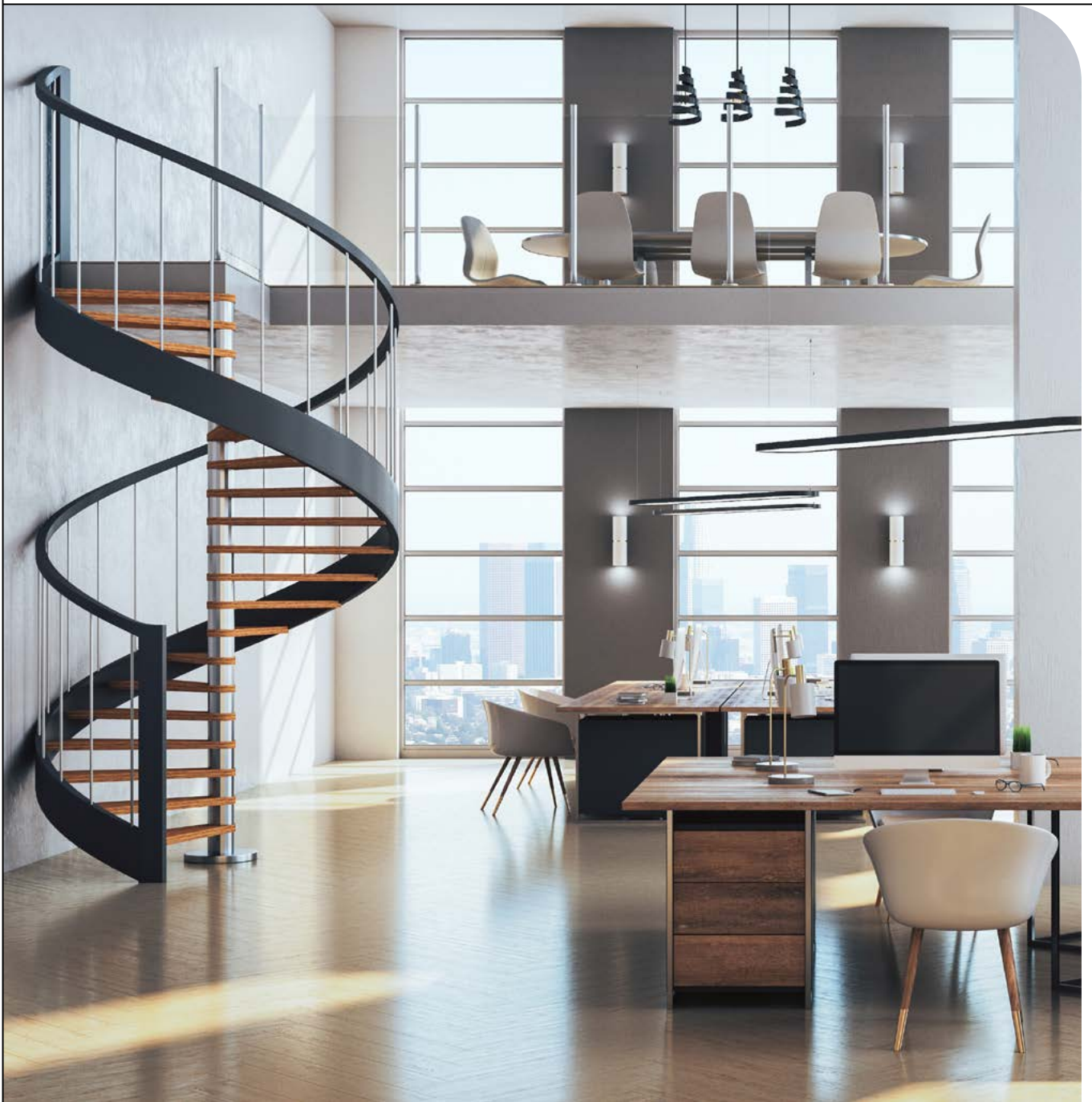


# ARKEMA

REAFREE® CRAYVALLAC®

## POWDER COATINGS: Resins and Additives



## Arkema, a world leader in Specialty Materials

**Building on unique set of expertise in materials science, Arkema designs specialty products that address ever-growing demand for innovation and sustainability.** We are continually looking for new ways to empower customers and industry leaders to address key challenges such as new energies, advanced technologies, dwindling natural resources, mobility innovation and urbanization trends.

### Unique expertise & solutions of **specialty resins and additives** for the key **low VOC curing technologies**



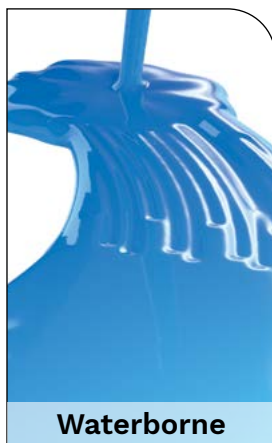
**Powder**



**UV LED**



**High Solids**

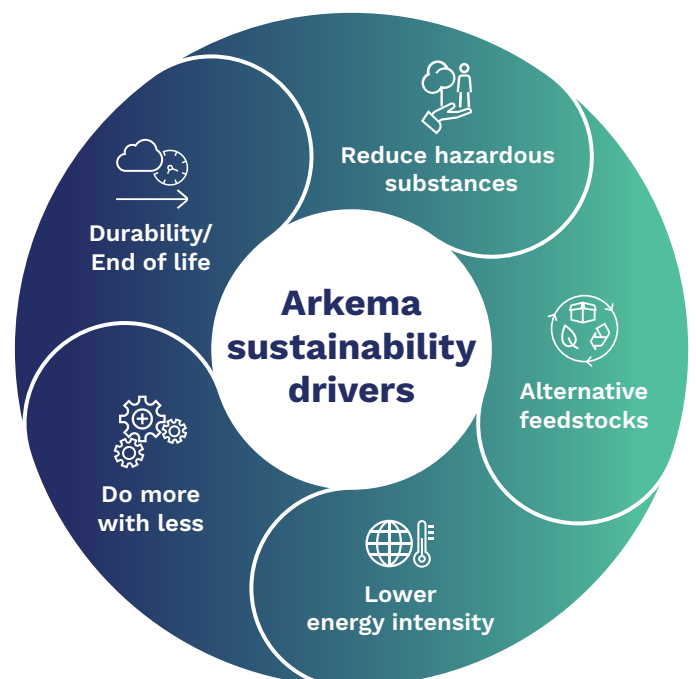


**Waterborne**

Arkema is a trusted partner, offering a wide range of specialty resins and additives. With decades of formulation expertise, Arkema helps customers produce performance-driven, sustainable coatings, adhesives, and inks that can meet the most stringent industry regulations.

### Make your powder coatings more sustainable!

**For the world to change, we must change the materials we use.** Thus, with our partners, we are continuously innovating to offer to our customer a wide variety of options to advance sustainability and performances. To move toward a more circular and lower carbon economy we look at both how the **product is designed** and how it **enables the downstream performances**. Hence, in addition of improving our product safety, our experts are committed to developing solutions using more renewable resources and lowering energy consumption across the value chain, while ensuring sustainable performances such as longer durability.



# Performance, Versatility and Value in Powder Coating Resins and Additives

The REAFREE® line of powder coating resins offers you a wide range of choices to meet your needs in a formulated powder coating. Our focus is on delivering performance, versatility and value to the powder coating formulator.

## • Performance

REAFREE® powder resin characteristics are adapted to fit the strict needs of powder coating production.

## • Versatility

REAFREE® powder resins cover all kind of curing and functional technologies for the formulator of powder coatings.

## • Value

Our combination of innovative technology, global support and a broad product line helps you to achieve the highest quality paint manufacture.



Our extensive line of CRAYVALLAC® additives enables you to add value to your powder coating formulations. You can choose from flow and surface modifiers or specific performance-enhancing additives.

## Fine-tune your formulations with specialized additives for powder coatings to achieve:

- Flow and leveling
- Degassing
- Matting
- Slip and mar resistance
- Scratch resistance
- Texturing
- Flexibility
- Rheology control

## Table of Contents

b-Hydroxyalkylamide (HAA)	4
TGIC	5
Glycidyl Ester	5
Superdurable	6
Polyurethane	6
Hybrid	7-8
UV Resins	9
Masterbatch Additives	9
CRAYVALLAC® Additives	10

## REAFREE® Polyesters for β-Hydroxyalkylamide (HAA) Cure

Product	Ratio Resin / HAA <sup>1</sup>	Curing Time (min.) / Object Temp. (°C)	Gardner Color ASTM D-1544	Glass Transition Temp. (Tg), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid Value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® 8301	97 / 3	10 / 190 15 / 180	2 max.	approx. 52	15 - 35	14 - 18	Low HAA demand for low gloss matte powder coatings by dry blending in combination with REAFREE® 8184.
REAFREE® 8304-T	97 / 3	10 / 190 15 / 180	2 max.	approx. 61	20 - 40	18 - 22	Low HAA demand for matte powder coatings by dry blending. Different glosses depending on combination with REAFREE® 8784-T or 8184-T. Tribochargeable. Architectural coatings.
REAFREE® 8300-T	96.5 / 3.5	15 / 180	2 max.	approx. 58	10 - 30	24 - 28	Low HAA demand industrial resin. Also suitable for matte powder coatings by dry blending with REAFREE® 8180-T, 8188 or 8780-T.
REAFREE® 8308-T	96.5 / 3.5	10 / 180 15 / 170	2 max.	approx. 57	18 - 32	24 - 29	Low HAA demand. Excellent flow and degassing properties. Tribochargeable.
REAFREE® 8400-T	96 / 4	10 / 180	2 max.	approx. 58	18 - 30	26 - 30	Low HAA demand. Good degassing properties. Tribochargeable. Industrial coatings.
REAFREE® 8483	96 / 4	10 / 180 12 / 160	2 max.	approx. 63	25 - 60	26 - 30	Low HAA demand with excellent corrosion properties. Alternative to PE/E primers. Suitable for low temperature cure. Industrial coatings.
REAFREE® 8501-T	95 / 5	10 / 190 15 / 180	2 max.	approx. 66	16 - 32	32 - 37	Excellent out-gassing properties, outdoor durability and storage stability. Smooth and fine texture colored finishes. Architectural coatings. Tribochargeable.
REAFREE® 8506	95 / 5	15 / 180	2 max.	approx. 56	10 - 22	28 - 34	Outstanding flow and degassing properties, especially at high pigment loading or lower thickness. Tribochargeable. Good yellowing resistance.
REAFREE® 8561	95 / 5	10 / 160 20 / 150	2 max.	approx. 58	15 - 30	34 - 38	Low temperature cure resin for architectural coatings with excellent blanching, outdoor resistance, and good flow. Non-blooming.
REAFREE® 8563-T	95 / 5	10 / 160 20 / 150	2 max.	approx. 57	14 - 28	33 - 38	Low temperature cure with good mechanical properties, flow, degassing properties and blooming resistance. Architectural and industrial coatings. Tribochargeable.
REAFREE® 8564-T	95 / 5	10 / 160 20 / 150	2 max.	approx. 58	15 - 25	31 - 36	Fast and low temperature cure for industrial coatings. Good flow, non-blooming, good degassing and corrosion properties. Tribochargeable.
REAFREE® 8580 REAFREE® 8580-T	95 / 5	12 / 160	2 max.	approx. 61	15 - 25	30 - 36	General purpose for standard and low temperature cure from 12 minutes at 160°C. Industrial applications. High Tg.
REAFREE® 8582-T	95 / 5	12 / 180	2 max.	approx. 63	29 - 34	20 - 40	Architectural quality, blanching resistance, high storage stability, Smooth and textured color formulations.
REAFREE® 8585 REAFREE® 8585-T	95 / 5	12 / 180 20 / 160	2 max.	approx. 58	14 - 24	28 - 34	Improved flow version of REAFREE® 8580 with better degassing properties. Curing from 20 minutes at 160°C.
REAFREE® 8589-T	95 / 5	15 / 180	2 max.	approx. 58	14 - 26	28 - 34	Improved outdoor durability versus REAFREE® 8585-T. Excellent degassing and flow. Architectural coatings. Tribochargeable.
REAFREE® 8597-T	95 / 5	15 / 180	2 max.	approx. 60	12 - 24	29 - 34	Excellent flow and out-gassing properties. Architectural coatings. Tribochargeable.
REAFREE® 8598-T	95 / 5	15 / 180	2 max.	approx. 58	16 - 26	28 - 34	Excellent out-gassing properties. Low reactivity. Tribochargeable. Architectural high gloss coatings.
REAFREE® 8709	94 / 6	10 / 160 20 / 150	2 max.	approx. 73	16 - 36	40 - 45	High Tg polyester resin with excellent anti-scratch and anti-abrasion properties. Industrial applications.
REAFREE® 8780-T	93 / 7	10 / 180 20 / 160	2 max.	approx. 59	7.5 - 20	50 - 56	Low temperature cure, high crosslinking industrial coatings. Matte dry blend with REAFREE® 8300-T. Lower gloss if mixed with REAFREE® 8180-T or REAFREE® 8188.
REAFREE® 8784 REAFREE® 8784-T	93 / 7	10 / 180 20 / 160	2 max.	approx. 68	18 - 38	47 - 52	Low temperature cure high Tg architectural grade. Can be used for matte dry blending with REAFREE® 8304-T.
REAFREE® 8184 REAFREE® 8184-T	90 / 10	10 / 180 20 / 160	2 max.	approx. 62	12 - 26	62 - 70	High HAA demand. For matte powder coatings by dry blending with REAFREE® 8304-T. Industrial and architectural coatings.
REAFREE® 8180-T	90 / 10	10 / 180 20 / 160	2 max.	approx. 52	7 - 15	70 - 78	Low temperature cure high HAA demand for matte dry blend with REAFREE® 8300. Different glosses depending on REAFREE® 8780-T/8180-T mixing ratios.
REAFREE® 8188	90 / 10	10 / 180 20 / 160	2 max.	approx. 60	9 - 18	70 - 78	High Tg version of REAFREE® 8180. For matte powder coatings by dry blending. Different glosses depending on REAFREE® 8780-T/8188 mixing ratios.

<sup>1</sup>Primid® XL-552 All polyesters for β-Hydroxyalkylamide curing agents are gas oven stabilized.

## REAFREE® Polyesters for TGIC Cure

Product	Ratio Resin / TGIC	Curing Time (min.) / Object Temp. (°C)	Gardner Color ASTM D-1544	Glass Transition Temp. (Tg), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® 8304-T	96 / 4	15 / 200	2 max.	approx. 61	20 - 40	18 - 22	Low crosslinking demand for matte powder coatings by dry blending in combination with REAFREE® 8784-T. Architectural coatings.
REAFREE® 4401-S	96 / 4	15 / 200	2 max.	approx. 59	50 - 80	20 - 26	Low TGIC ratio. Can be used for matte dry blend with REAFREE® 8784. Gas oven stabilized.
REAFREE® 4703 REAFREE® 4703-T	93 / 7	12 / 200	2 max.	approx. 61	15 - 25	30 - 36	Excellent flow and outdoor resistance. Clear coats. Excellent flexibility.
REAFREE® 4704	93 / 7	10 / 200	2 max.	approx. 72	40 - 65	33 - 38	Excellent texturing properties and outdoor resistance. Architectural coatings. High binding power.
REAFREE® 4705	93 / 7	10 / 200	2 max.	approx. 70	25 - 35	35 - 40	Good flow, mechanical properties and outdoor resistance. Higher Tg than REAFREE® 4703.
REAFREE® 4762 REAFREE® 4762-S	93 / 7	10 / 160	2 max.	approx. 62	25 - 45	30 - 36	Good balance between high reactivity and mechanical properties. Gas oven stabilized.
REAFREE® 4763-S	93 / 7	15 / 160 1 / 290	2 max.	approx. 61	15 - 25	30 - 36	Low temperature cure, excellent flexibility for PCM and coil coating enamels. Possible to cure 1 min./290°C.
REAFREE® 4773	93 / 7	17 / 160	2 max.	approx. 61	15 - 25	30 - 36	Low temperature cure, high flow powders with excellent flow and mechanical properties.
REAFREE® 4781	93 / 7	15 / 180	2 max.	approx. 68	20 - 35	33 - 38	Good balance between flow, reactivity and outdoor durability.
REAFREE® 4783	93 / 7	10 / 180	2 max.	approx. 61	15 - 25	30 - 35	Excellent balance of high flow and flexibility with reactivity and outdoor durability.
REAFREE® 4786	93 / 7	10 / 180	2 max.	approx. 68	25 - 40	30 - 36	Medium cure, high gloss architectural coatings. Excellent outdoor durability, mechanical properties and flow.
REAFREE® 4796	93 / 7	10 / 200	2 max.	approx. 68	25 - 40	30 - 36	Excellent flow and outdoor durability. Good mechanical properties. High gloss industrial and architectural coatings.
REAFREE® 4797-S	93 / 7	10 / 200	2 max.	approx. 68	25 - 40	30 - 36	Excellent flow, mechanical properties, outdoor durability and storage stability. High gloss architectural coatings.
REAFREE® 4798V	93 / 7	10 / 180	2 max.	approx. 68	35 - 50	28 - 34	Medium cure, high gloss architectural coatings. Excellent outdoor durability, mechanical properties and flow.
REAFREE® 9700	93 / 7	10 / 200	2 max.	approx. 60	11 - 17	35 - 40	Smooth finishes at lower film thicknesses. Non-blooming resin.
REAFREE® 8784 REAFREE® 8784-T	90 / 10	10 / 200	2 max.	approx. 68	18 - 38	47 - 52	Stable matte dry blend with REAFREE® 4401-S or 8304-T. Architectural grade.

## REAFREE® Polyesters for Glycidyl Ester Cure

Product	Ratio Resin / Glycidyl Ester <sup>2</sup>	Curing Time (min.) / Object Temp. (°C)	Gardner Color ASTM D-1544	Glass Transition Temp. (Tg), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® 2707-TS	93 / 7	10 / 200	2 max.	approx. 69	50 - 90	24 - 29	Low ratio of glycidyl ester. High flow pigmented and clear coats. Gas oven stabilized. Tribochargeable.
REAFREE® 2717-TS	93 / 7	15 / 200	2 max.	approx. 69	50 - 90	24 - 29	Low ratio of glycidyl ester. Slow cure for pigmented and clear coats with very high flow. Gas oven stabilized. Tribochargeable.
REAFREE® 2776-TS	93 / 7	20 / 170	2 max.	approx. 67	50 - 90	23 - 28	Low temperature cure and low glycidyl ester ratio polyester for pigmented and clear coats. Gas oven stabilized. Tribochargeable.
REAFREE® 2872-T	92 / 8	10 / 180	2 max.	approx. 71	60 - 90	30 - 35	Catalyzed version of REAFREE® 2892-T.
REAFREE® 2892-T	92 / 8	15 / 190	2 max.	approx. 71	60 - 90	30 - 35	For pigmented and clear coats. Good boiling water resistance. Medium reactivity. Tribochargeable.

<sup>2</sup> Araldite® PT 910

## REAFREE® Polyesters for HAA or TGIC Cure: Superdurable Coatings

Product	Ratio Resin / HAA <sup>3</sup> or TGIC	Curing Time (min.) / Object Temp. (°C) HAA <sup>3</sup> or TGIC	Gardner Color ASTM D-1544	Glass Transition Temp. (T <sub>g</sub> ), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid Value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® 5401	97 / 3 96 / 4	12 / 180 15 / 200	2 max.	approx. 64	20 - 40	20 - 25	Low acid value for matte dry blend superdurable finishes combined with REAFREE® 5002.
REAFREE® 5406	97 / 3 96 / 4	20 / 160 15 / 200	2 max.	approx. 57	18 - 32	18 - 22	Low acid value for lower gloss dry blend superdurable finishes combined with REAFREE® 5002. Low temperature cure.
REAFREE® 5488	96 / 4 95 / 5	15 / 170 10 / 200	2 max.	approx. 61	25 - 40	23 - 27	Lower crosslinker demand for versatile superdurable finishes. Good flow, degassing properties and improved flexibility.
REAFREE® 5700	95 / 5 93 / 7	20 / 160 10 / 200	2 max.	approx. 61	9 - 15	32 - 38	Excellent outdoor durability. Superdurable finishes.
REAFREE® 5701	95 / 5 93 / 7	15 / 160 10 / 200	2 max.	approx. 63	9 - 20	32 - 38	Excellent flow and degassing properties. Superdurable finishes.
REAFREE® 5703 REAFREE® 5703-T	95 / 5 93 / 7	15 / 160 10 / 200	2 max.	approx. 50	12 - 32	31 - 37	Excellent flexibility, outdoor durability and flow. Superdurable finishes. Tribochargeable.
REAFREE® 5706	95 / 5 93 / 7	10 / 160 10 / 200	2 max.	approx. 57	20 - 32	30 - 35	Low cure, good flow, improved flexibility and storage stability. Superdurable finishes.
REAFREE® 5707	95 / 5 93 / 7	15 / 160 10 / 200	2 max.	approx. 66	30 - 42	28 - 33	Excellent outdoor durability. Superdurable finishes.
REAFREE® 5709	95 / 5 93 / 7	10 / 160 10 / 200	2 max.	approx. 67	20 - 50	32 - 38	Low cure, excellent corrosion resistance and overbake. Superdurable finishes.
REAFREE® 5002	93 / 7 90 / 10	20 / 160 10 / 180 15 / 200	2 max.	approx. 66	30 - 60	45 - 50	High acid value for matte dry blend superdurable finishes combined with REAFREE® 5401.
REAFREE® 5080	92 / 8 88 / 12	20 / 160 10 / 180 15 / 200	2 max.	approx. 64	14 - 22	58 - 63	Lower gloss superdurable finishes by dry blend with REAFREE® 5401 or 5406. Excellent blanching. High crosslinking density. Suitable for low temperature cure.

<sup>3</sup> Primid® XL-552

## REAFREE® Hydroxylated Polyesters for Isocyanate (NCO) Cure: Polyurethane Coatings

Product	Gardner Color ASTM D-1544	Glass Transition Temp. (T <sub>g</sub> ), DSC (°C)	Melt Viscosity, @ 165°C (Pa.s)	Acid Value ASTM D-1639 (mg KOH/g)	Hydroxyl Value G/07-1 (mg KOH/g)	Benefits
REAFREE® 17009	3 max.	approx. 55	20 - 50	7 max.	25 - 33	High gloss exterior coatings. Wrinkle finishes when combined with a Tetrakis (methoxymethyl) glycoluril crosslinking agent.
REAFREE® 17013	2 max.	approx. 62	10 - 30	7 max.	37 - 47	Polyurethane coatings with excellent mechanical properties.
REAFREE® 17014	2 max.	approx. 60	20 - 40	2 max.	38 - 48	Polyurethane coatings with excellent mechanical properties. Robust one shot matte properties with REAFREE® 17091. Excellent heat transfer properties.
REAFREE® 17514	2 max.	approx. 59	10 - 30	5 max.	40 - 50	Superdurable polyurethane matte, glossy and texture finishes. Suitable for one shot matte finishes with REAFREE® 17091. Excellent heat transfer properties and improved outdoor durability.
REAFREE® 17019	2 max.	approx. 60	13 - 20	10 max.	55 - 65	High gloss polyurethane coatings with excellent flow, mechanical properties and improved exterior durability and chemical resistance.
REAFREE® 17030	2 max.	approx. 57	20 - 40	10 max.	90 - 110	Surface hardness improvement. Anti-graffiti paints.
REAFREE® 17091	2 max.	approx. 50	10 - 30	10 max.	280 - 320	Modifier polyester to increase crosslinking density. Anti-graffiti paints. Heat transfer matte coatings.

## REAFREE® Polyesters for Epoxy Resin Cure: Hybrid Coatings

Ratio Polyester/Epoxy: 80/20

Product	Curing Time (min.) / Object Temp. (°C)	Gardner Color ASTM D-1544	Glass Transition Temp. (T <sub>g</sub> ), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid Value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® 6200-T	15 / 200	2 max.	approx. 55	30 - 70	23 - 26	Low epoxy ratio for gloss coatings. For hybrid matte dry blend systems with REAFREE® 6877. Tribochargeable.

## REAFREE® Polyesters for Epoxy Resin Cure: Hybrid Coatings

Ratio Polyester/Epoxy: 70/30

Product	Curing Time (min.) / Object Temp. (°C)	Gardner Color ASTM D-1544	Glass Transition Temp. (T <sub>g</sub> ), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid Value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® 6402-T	10 / 200	3 max.	approx. 59	20 - 38	35 - 40	Low reactivity. Very good flow and mechanical properties. Good chemical resistance. Tribochargeable.
REAFREE® 6419 REAFREE® 6419-T	10 / 180	3 max.	approx. 59	17 - 40	30 - 37	Medium reactivity. Very good flow and mechanical properties. Good chemical resistance.
REAFREE® 6460-T	10 / 160	2 max.	approx. 54	10 - 20	30 - 36	High reactivity, low cure resin for very good flow and glossy finishes. Tribochargeable.
REAFREE® 6464-S	10 / 160	2 max.	approx. 58	20 - 40	30 - 36	Low cure and fast cure resin for high gloss finishes with very good flow. Good yellowing resistance and mechanical properties.
REAFREE® 6480-T	10 / 170	2 max.	approx. 54	9 - 14	30 - 36	Excellent flow while maintaining reactivity. Tribochargeable. Low gloss and good mechanical properties with matting agents like VESTAGON® B 68.
REAFREE® 6482-T	10 / 170	3 max.	approx. 59	20 - 38	35 - 40	Medium reactivity. Very good flow and mechanical properties. Good chemical resistance. Tribochargeable.
REAFREE® 6484-T REAFREE® 6484-S	12 / 180 10 / 180	3 max. 3 max.	approx. 58 approx. 58	20 - 30 16 - 26	30 - 36 30 - 36	Excellent flow with good reactivity balance for high flow finishes. Available in tribochargeable and stabilized versions.
REAFREE® 6489-S	10 / 180	3 max.	approx. 60	30 - 50	27 - 33	Medium reactivity. Very good flow and mechanical properties. Excellent overbake resistance. Gas oven stabilized.
REAFREE® 6489-TS	12 / 160	3 max.	approx. 59	24 - 30	32 - 37	Versatile resin with excellent mechanical properties. Robust properties in structured finishes with CAB systems. Matte finishes with CRAYVALLAC® EF-30P. Gas oven stabilized. Tribochargeable.
REAFREE® 6499-TS	10 / 190	2 max.	approx. 59	22 - 30	32 - 37	Excellent balance of flow and reactivity. Texture finishes with CAB systems. Gas oven stabilized. Tribochargeable.



## REAFREE® Polyesters for Epoxy Resin Cure: Hybrid Coatings

Ratio Polyester/Epoxy: 60/40

Product	Curing Time (min.) / Object Temp. (°C)	Gardner Color ASTM D-1544	Glass Transition Temp. (Tg), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid Value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® 6604	15 / 180	3 max.	approx. 54	14 - 20	51 - 56	Good flow and moderate cure rate. Good chemical resistance. Good recoatability.
REAFREE® 6605-TS	10 / 190	3 max.	approx. 51	7 - 12	61 - 65	Excellent flow. Good mechanical properties. Excellent overbake resistance in gas oven applications. Tribochargeable.
REAFREE® 6614	10 / 200	3 max.	approx. 54	14 - 20	51 - 56	Uncatalyzed resin. Excellent flow for anticorrosive primers. Good recoatability.
REAFREE® 6660	10 / 160	2 max.	approx. 52	7.5 - 20	50 - 55	High reactivity without TMA.
REAFREE® 6674-T	12 / 160	3 max.	approx. 54	14 - 20	51 - 56	Reactive type. Very good flow and mechanical properties. Good chemical resistance. Good recoatability. Tribochargeable.
REAFREE® 6679	10 / 170	2 max.	approx. 53	10 - 20	47 - 53	Medium reactivity. Very good flow and mechanical properties. Good chemical resistance. Good recoatability.
REAFREE® 6681-T	15 / 180	2 max.	approx. 60	7.5 - 20	50 - 55	Excellent balance between high flow and high Tg with good cure.
REAFREE® 6687	15 / 160	3 max.	approx. 52	14 - 24	48 - 53	High flexibility with OT bend capability. For PCM interior use.
REAFREE® 6688	12 / 180	2 max.	approx. 62	12 - 25	46 - 52	High Tg and medium reactivity. Very good flow and mechanical properties. Good chemical resistance. Good recoatability.
REAFREE® 6689	12 / 180	2 max.	approx. 53	10 - 20	47 - 53	Good balance between cure and flow.
REAFREE® 6694	10 / 190	3 max.	approx. 55	14 - 20	50 - 56	Very good flow. Good mechanical properties. Good recoatability.
REAFREE® 6695	15 / 180	3 max.	approx. 59	20 - 40	55 - 70	High Tg and medium reactivity. Very good flow and mechanical properties. Good chemical resistance. Good recoatability.

## REAFREE® Polyesters for Epoxy Resin Cure: Hybrid Coatings

Ratio Polyester/Epoxy: 50/50

Product	Curing Time (min.) / Object Temp. (°C)	Gardner Color ASTM D-1544	Glass Transition Temp. (Tg), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid Value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® 6816	15 / 135	3 max.	approx. 59	15 - 25	100 - 110	Bio-sourced content. Designed for MDF, HSS and metal coatings. Uncatalyzed resin for fast curing ultra low bake systems with REAFREE® C4705-10.
REAFREE® 6818	15 / 135	3 max.	approx. 54	5 - 15	90 - 100	Uncatalyzed resin for fast curing ultra low bake systems with REAFREE® C4705-10. Excellent adhesion to MDF.
REAFREE® 6846	15 / 140	3 max.	approx. 60	8 - 17	68 - 77	Ultra low cure coatings with high Tg and good flow. Metal coatings. Suitable for HSS at lower cure with REAFREE® C4705-10.
REAFREE® 6877	10 / 170	3 max.	approx. 55	7 - 16	70 - 80	General purpose. High reactivity. Suitable for thinner film coatings.
REAFREE® 6881	10 / 180	3 max.	approx. 58	10 - 30	75 - 82	High chemical resistance. Standard cure.
REAFREE® 6886	10 / 180	3 max.	approx. 61	8 - 17	68 - 77	Excellent flow and high Tg at standard cure. High chemical resistance.

## REAFREE® Resins for UV Cure Powder Coatings

Product	Type	Gardner Color ASTM D-1544	Unsaturation Value (meqdb/g)	Free NCO value (%)	Glass Transition Temp. (T <sub>g</sub> ), DSC (°C)	T <sub>m</sub> (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid Value ASTM D-1639 (mg KOH/g)	Benefits
REAFREE® UV 2130	Epoxy Acrylate	3 max.	–	–	54	–	2 - 6	3 max.	Designed to formulate clear varnishes and pigmented paints for wood composites (MDF).
REAFREE® UV 2335	Aliphatic Urethane Acrylate Semi-crystalline	2 max.	0.9 - 1.1	0.5 max	–	70 - 80	2 - 10	–	Designed to provide high flexibility and chemical resistance to cured films.

## REAFREE® Masterbatch Additives for Powder Coatings

Product	Type	Gardner Color ASTM D-1544	Glass Transition Temp. (T <sub>g</sub> ), DSC (°C)	Melt Viscosity @ 165°C (Pa.s)	Acid value ASTM D-1639 (mg KOH/g)	Hydroxyl Value G/07-1 (mg KOH/g)	Benefits
REAFREE® F3300-A15	Flow control agent	2 max.	approx. 60	10 - 30	< 5	30 - 40	Masterbatch at 15% of an acrylic polymer in a hydroxylated polyester. Improves leveling of pigmented or clear powder coatings.
REAFREE® F8585-R10	Flow control agent	2 max.	approx. 55	5 - 20	24 - 32	–	Masterbatch at 10% of an acrylic polymer in a carboxylated polyester. Improves leveling of pigmented or clear powder coatings.
REAFREE® T4705-5	Tribo charging	2 max.	approx. 62	10 - 25	30 - 38	–	Masterbatch at 5% of a tribo additive in a carboxylated polyester. Enhances tribochargeability of powder coatings.
REAFREE® 5709-3	Tribo charging	2 max.	approx. 61	18 - 38	31 - 37	–	Masterbatch at 3% of a tribo additive in a low cure superdurable carboxylated polyester. Increases tribochargeability and outdoor durability of exterior powder coatings.
REAFREE® C4705-10	Catalyst	2 max.	approx. 66	10 - 30	30 - 40	–	Masterbatch at 10% of a special catalyst in a carboxylated polyester. Accelerates curing of hybrids, TGIC and glycidyl ester polyester powder coatings and improves mechanical properties.



## CRAYVALLAC® Additives for Powder Coatings

Product	Functionality	Chemistry	MP (°C)	D50 (µM)	Benefits
CRAYVALLAC® PC	Flow, leveling & degassing	Modified Castor Derivative	83 - 88	–	High gloss preserved. Improved flow in extrusion.
CRAYVALLAC® MT	Flow, leveling & degassing	Modified Castor Derivative	130 - 140	–	Better storage stability than CRAYVALLAC® PC.
CRAYVALLAC® WN-1135	Degassing & surface properties	Modified PP	approx. 146	approx. 5.5	Degassing and anti-scratch improvement with small gloss reduction. Versatile wax for all powder systems. Enhanced properties versus PE wax.
CRAYVALLAC® WN-1265	Degassing & surface properties	Modified Amide	approx. 146	approx. 5.5	Degassing additive for HAA cured systems. Especially for galvanized steel. Flow, leveling and slip improvement. Post extrusion is possible.
CRAYVALLAC® WN-1442	Slip, matting & degassing	Modified PE	approx. 112	approx. 5.5	Matting, slip, mar and abrasion resistance. Degassing aid, flow and throughput during extrusion.
CRAYVALLAC® WN-1150	Matting	Modified PE	approx. 113	approx. 6.5	Matting agent especially efficient in TGIC/glycidyl ester cured polyester, epoxy/polyester and pure epoxy systems. Deep matte in dry blend systems.
CRAYVALLAC® EF-30P	Matting	Modified PE	approx. 125 (Tg)	–	Strong reactive matting agent for polyester-epoxy or pure epoxy powder coatings systems in one shot. High yellowing resistance and color stability, especially advised in light colors.
CRAYVALLAC® WN-1875	Anti-abrasion & sagging control	Polymeric Wax	>200	approx. 6.5	Anti-scratch and hardness improvement, especially in glossy finishes. Non-haze surface. Sagging control while maintaining mechanical properties.



# Global Technical and Manufacturing Support



Arkema Coating Resins provides global support for powder coating formulators, enabling us to meet your needs virtually anywhere you operate.

- **Manufacturing**

Powder resin plants are located in Spain, India and the United States.

- **R&D**

Innovation, extensive research and primary development center is located at our center of excellence in Spain.

- **Technical Service**

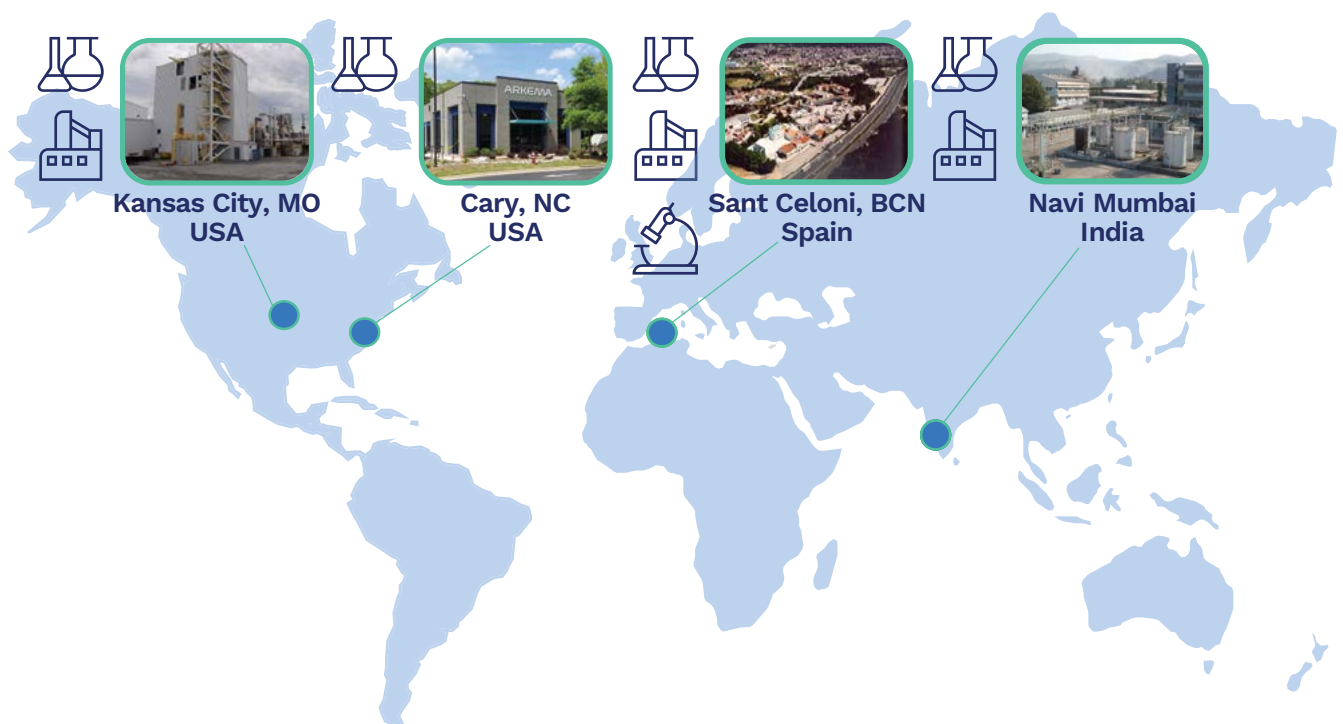
Application and analysis laboratories are located within each manufacturing plant for a better, efficient customer support and service.

## Global resource for your world of coatings

In addition to REAFREE® resins for powder coatings, Arkema Coating Resins is a leading global supplier for the coatings formulator. Our line of innovative products includes waterborne and solventborne binders for use in architectural and industrial coatings, specialty coatings, traffic coatings, graphic arts and inks, floor maintenance products, and adhesives. Arkema Coating Resins also supplies opaque polymers, as well as additives for both aqueous and non-aqueous systems.

## A WORLDWIDE LEADER

Global powder capabilities with local supply and expertise





**Arkema Coating Resins**

410 Gregson Dr.  
Cary, NC 27511 - USA  
T +1 919 469 6700

**Arkema Química, S.A.U.**

Ctra. Olzinelles, s/n  
E-08470 Sant Celoni (BCN)  
Spain  
T +34 938 674 000

**Arkema Chemical India Private Ltd.**

D-43, Trans Thane Creek  
MICD Industrial Area  
400706 Mumbai - India  
T +91 22 67377122

Headquarters: **Arkema France**

420 rue d'Estienne d'Orves  
92705 Colombes Cedex  
France  
T +33 (0)1 49 00 80 80

Please consult Arkema's disclaimer regarding the use of Arkema's products on  
<http://www.arkema.com/en/products/product-safety/disclaimer/index.html>