Our Portfolio for the Impregnation Industry

Category	Product type	Product name	Application area
Impregnating resins	Impregnating resins	Kaurit® Impregnating resin 2** liquid	Impregnation of decorative paper
		Kaurit® Impregnating System 820	Impregnation of decorative paper
		Kauramin® Impregnating resin 753 liquid	Impregnation of HPL & CPL
		Kauramin® Impregnating resin 783 liquid	Impregnation of counter balance
		Kauramin® Impregnating resin 79* liquid	Impregnation of overlay, counter balance, and decorative paper
		Kauramin® Impregnating resin 8** liquid	Impregnation of finish foil, HPL, and soft edges
	Hardening agents	Component system for Kaurit® and Kauramin® impregnating resins	Impregnating resins for the acceleration of crosslinking
Additives	Auxiliary material/additives	Kauropal® wetting agents	Improve efficiency of finish foils and overlay impregnation
		Kauropal® 936 liquid	Elasticizing additive for greater flexibility of decorative papers
	Auxiliary material/additives (dosed with impregnating resin)	Kauropal® K	High scratch resistance and gloss retention of impregnated surfaces
		Kauropal® S	Antistatic properties for kraft and decorative paper
Dispersions	Styrene acrylics	Acronal® Power 2477	Production of preimpregnats
		Acronal® S 305 D	Production of preimpregnats
		Acronal® Pure 2728	Production of preimpregnats
Pigments	Pigment preparations (dosage with impregnating resin)	Dispers White 0022 (white pigment preparation, neutral)	Uses less impregnating resin and lower paper weights
		Dispers White 0023 (white pigment preparation, yellowish)	Uses less impregnating resin and lower paper weights
		Dispers White 0010 (white pigment preparation, brilliant white)	Uses less impregnating resin and lower paper weights
		Dispers Black 0079	HPL (coloration of phenolic resins)
		Dispers Brown 3581	HPL (coloration of phenolic resins)
Coating raw materials	Styrene acrylics	Luhydran® S938T/S945T	Styrene acrylics for two-component furniture film finishes combined with Luwipal®/Plastopal® resins
	Hardening agents	Luwipal®	MF hardening agent for two-component furniture film finishes
		Plastopal®	UF hardening agent for two-component furniture film finishes

* ** With these product lines different products are available.

Dispersions

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Acronal®

Decorative finish foils based on pre-impregnation are predominantly used in the finishing of furniture surfaces. Their good printing properties allow them to cover a virtually unlimited number of design variants. By bonding with a carrier material, generally chipboard or fiberboard, it is possible to create furniture with a genuine wood appearance.

The water-based styrene acrylics of the Acronal® brand are used to create the properties necessary for high-quality pre-impregnation. With an excellent price/performance ratio, our Acronal® brands ensure good bond strength and ease of processing as well as optimal printability.

Pre-impregnation Properties

+ Good bond strength
+ Optimal printability
+ Low area-related mass
+ Low system costs

Acronal® Properties

+ Water-based styrene acrylic dispersion (e.g. internal bond)
+ Improves mechanical properties (e.g. internal bond) of decorative finish foil
+ Ease of processing
+ Ensures excellent bonding of decorative finish foil to carrier material
+ Optimal price/performance ratio

Applications

+ Decorative finish foils

BASF Product Overview

	Product characteristics
Acronal® Power 2477	Glass transition temperature 28 °C
	Soft and flexible
	FA-free*
Acronal® S 305 D	Glass transition temperature 25 °C
	Self-crosslinking
	Soft and flexible
	Low formaldehyde content
Acronal® Pure 2728	Glass transition temperature 23 °C
	Soft and flexible
	Low formaldehyde content

* Formaldehyde not intentionally added

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Dispers White 0022 (white pigment preparation, neutral)

Dispers White 0023 (white pigment preparation, yellowish)

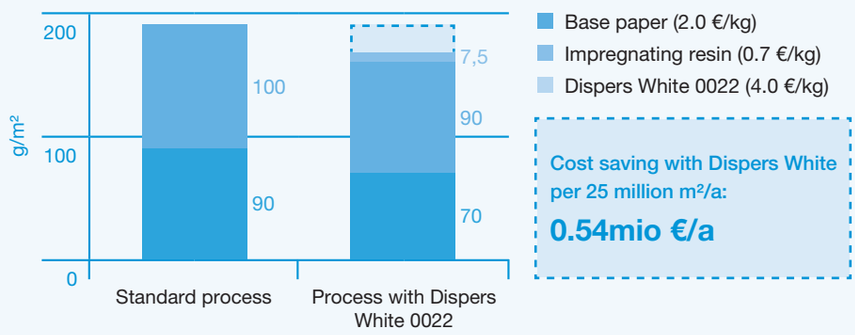
Dispers White 0010 (white pigment preparation, brilliant white)

To achieve the optimal formulation for a pigment preparation, the most appropriate compounds of highly developed additives and other raw materials are combined to reach maximum efficiency for the respective target application. Even small quantities of Dispers White pigment preparations can generate substantial cost advantages.

Key Benefits

+ Dispers pigment preparations selectively dye the surfaces of decorative paper
+ Lighter, lower-cost papers can be used
+ A reduction in weight also means a reduction in resin costs

Example cost saving calculation for Dispers pigment preparations



Cost saving with Dispers White per 25 million m²/a:

0.54mio €/a

Applications

+ Decorative paper

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Kaurit®/Kauramin® Impregnating Resins

Kaurit®/Kauramin® impregnating resins were developed specifically for the impregnation of a wide range of papers, such as overlay, counterbalance, or decorative paper.

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Key Benefits

+ Good adhesiveness
+ High scratch resistance
+ Excellent requirement-specific properties including AC class and transparency
+ Complemented by impregnating resin hardening agents
+ Cost-effectiveness
+ Short delivery times and efficient logistics

Characteristics

Kaurit® Impregnating resins 210 - 220 liquid	Impregnation of decorative paper	Appearance pH value at 20°C Density at 20°C Viscosity bei 20°C	Clear 6.5–8.5 1.205–1.25 g/cm³ 10–30 mPa·s
Kaurit® Impregnating system 820	Impregnation of decorative paper	Appearance pH value at 20°C Density at 20°C Viscosity at 20°C	Clear 7.5–8.6 1.125–1.135 g/cm³ 10–30 mPa·s
Kauramin® Impregnating resin 753 liquid	Impregnation of HPL & CPL	Appearance pH value at 20°C Density at 20°C Viscosity at 20°C	Water-clear, colorless liquid 9.8–10.2 1.235–1.255 g/cm³ 45–70 mPa·s
Kauramin® Impregnating resin 783 liquid	Impregnation of counter-balance	Appearance pH value at 20°C Density at 20°C Viscosity at 20°C	Water-clear, colorless liquid 9.0–10.0 1.255 –1.27 g/cm³ 80–150 mPa·s

Kauramin® Impregnating resins 790 - 799 liquid	Impregnation of overlay, counter-balance, and decorative paper	Appearance pH value at 20°C Density at 20°C Viscosity at 20°C	Clear liquid 9.0–10.0 1.25–1.275 g/cm³ 80–150 mPa·s
Kauramin® Impregnating resins 800 liquid	Impregnation of finish foil, HPL, and soft edges	Appearance pH value at 20°C Density at 20°C Viscosity at 20°C	Clear liquid 9 +- 1 1.18 g/cm³ 150–300 mPa·s

Applications

+ Overlay
+ Counterbalance
+ Decorative paper
+ Finish foil
+ HPL
+ Soft edges

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Hardeners

BASF's Hardeners are used to catalyze the crosslinkage of urea and melamine resins applied for impregnating overlay, counter balance or decorative paper. The hardeners are optimized for BASF's Kaurit® and Kauramin® impregnating resins.

Key Benefits

+ BASF trusted quality and formulation know how
+ High efficiency

Hardener 423	Hardener 527	Hardener 528	Hardener 529
UF resin hardener	MF resin hardener	Latent hardener for MF resins	MF resin hardener
Long pot life of ready to use solution	Versatile product	Optimized for shortcycle lamination	For fast curing, high speed systems
		Long pot life of ready to use solution	

Properties

	Product specification		Test method
Hardener 423 liquid	Appearance	colourless liquid	visual
	pH at 20 °C	6.8 – 7.4	ISO 976
	Density at 20 °C	1.14 – 1.15	ISO 2811-3
Hardener 527 liquid	Appearance	yellowish	visual
	pH at 20 °C	4.5 – 6.0	ISO 976
	Density at 20 °C	1.19 – 1.21	ISO 2811-3
Hardener 528 liquid	Appearance	yellowish	visual
	pH at 20 °C	7.0 – 8.0	ISO 976
	Density at 20 °C g / cm^3	1.27 – 1.29	ISO 2811-3
Hardener 529 liquid	Appearance	yellowish	visual
	pH at 20 °C	6.0 – 7.0	ISO 976
	Density at 20 °C g / cm^3	1.34 – 1.36	ISO 2811-3

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Kauropal® K

Kauropal® K improves the scratch resistance of impregnated paper surfaces. It has a wide range of applications and can be used for urea, melamine, or phenol formaldehyde resins as well as for acrylic ester copolymer dispersions.

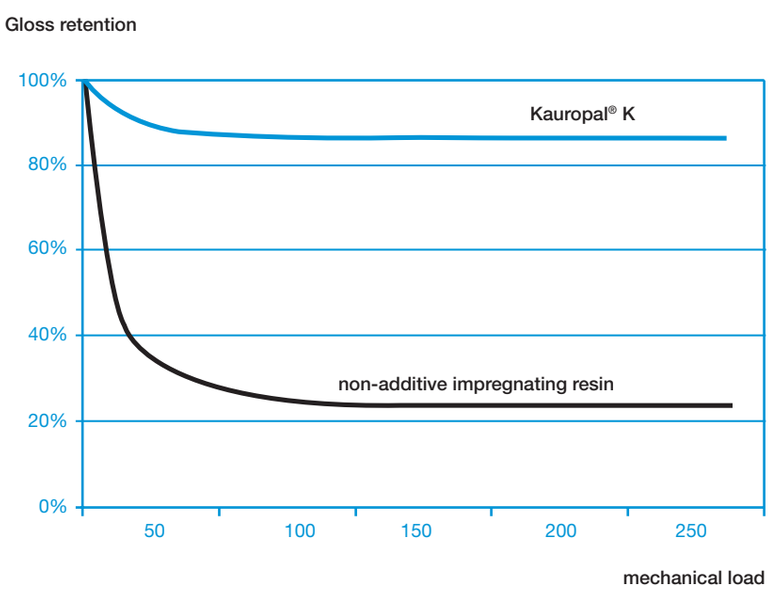
Key Benefits

+ Improved scratch resistance of impregnated decor ative surfaces confirmed by the new norm for micro scratch resistance EN 16094
+ Added beauty—high gloss retention

Characteristics

Kauropal® K is added as 1.0%–3.0% of the total impregnation solution. The result is a higher resistance of the decor surface to micro scratches.This increased scratch resistance in turn leads to an improved retention of gloss properties and less degradation, in accordance with to EN 16094 (procedure A).

Gloss retention with and without use of Kauropal® K



Applications

+ Decor paper impregnation

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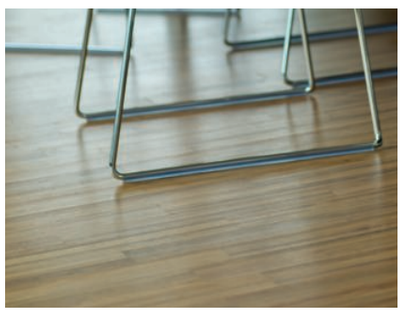

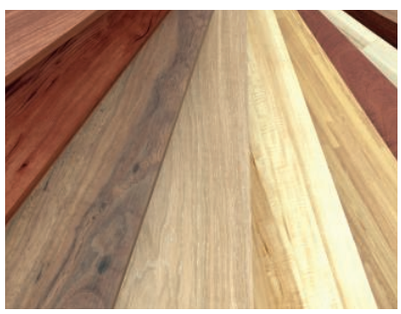

EN 16094 - Procedure A	Gloss reduction
MSR-A1	≤ 10%
MSR-A2	> 10% to ≤ 30%
MSR-A3	> 30% to ≤ 50%
MSR-A4	> 50% to ≤ 70%
MSR-A5	> 70%

Classification of the mean values of the gloss reduction

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Kauropal® 936

Mixed with urea-formaldehyde impregnating resins, Kauropal® 936 is used to produce decorative films. The decorative paper impregnated with a mixture of this kind is considerably more flexible and can be coated more effectively than one treated with a pure urea resin.

Key benefits

+ Added functionality:
  + Greater flexibility
  + Greater efficiency
  + Greater hiding power for white decors

Properties

Product specification (Values measured during filling in the plant)	Appearance	opaque liquid	
	Solids content	50 ± 1%	ISO 1625
	pH at 20°C	4.5–5.0	ISO 1148
	Density at 20°C	approx. 1.04 g/cm³	
	Viscosity measured at 20°C	20–75 mPa·s	ISO 3219 B
Other properties	Emulsifier system	anionic	
	Dilutability with water	unlimited	
	Compatibility with Kaurit® impregnating resins	very good	

Applications

Kauropal® 936 is especially suitable as an elasticizing additive for Kaurit® impregnating resins. For crosslinking, hardeners such as ammonium chloride, magnesium chloride, paratoluene sulphonic acid, or, preferably, hardener 529 or hardener 423 are added to the impregnating solution.

Kauropal® 936 can be added to the Kaurit® impregnating resin in any quantity—generally between 30 and 100 parts by weight. The paper webs impregnated with a solution of this kind are normally covered with a film top-coat in an operation that follows on immediately.

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Kauropal® S

Kauropal® S is applied as an antistatic additive for impregnating Kraft or decorative paper with melamine resins.

Key Benefits

+ Added functionality: antistatic properties
+ Added value to market to end customer
+ Increased efficiency

Kauropal® S is used to improve the electrical surface conductivity of wood-based materials laminated with melamine films. Melamine films manufactured according to this formulation can be applied in low-pressure lamination processes. Alternatively, with an impregnating solution cloud time of 3–13 minutes, they are suitable for the production of high-pressure laminates.

Characteristics

Product specification (Values measured during filling in the plant)	Appearance	aqueous solution
	Solids content	75%
	pH at 20°C	5–6
	Density at 20°C	approx. 1.10 g/cm³
	Viscosity measured at 20°C	15 mPa·s
Other properties	Emulsifier system	anionic
	Dilutability with water	unlimited
	Compatibility with Kaurit® and Kauramin® impregnating resins	very good

Applications

+ Decorative surfaces (furniture, flooring)
+ High-pressure laminates

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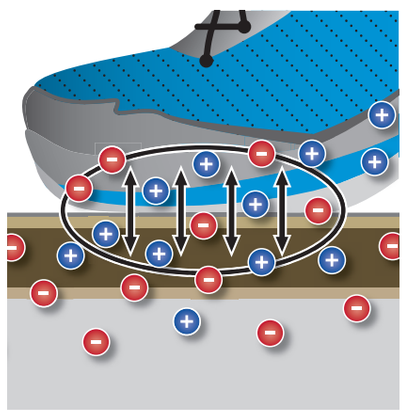

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Kauropal® Wetting Agents

Kauropal® 931 is used to improve the soaking procedure in the impregnation of decorative paper with aqueous impregnating resins, especially melamine and urea-formaldehyde resins.

Kauropal® 933 is a wetting agent used for controlling the surface tension of aqueous impregnating resin baths. It can be applied, for example, in urea, melamine, and phenol formaldehyde resins, as well as in acrylic ester copolymer dispersions.

Key Benefits

+ High efficiency
+ Well established product

Properties

	Product specification		Test method
Kauropal® 931	Appearance	almost colorless, clear liquid	
	Concentration	approx. 90%	
	Color value (APHA, 50°C)	max. 50	
	pH (5% in dist. water)	5.0–8.0	
Kauropal® 933	Appearance	milky white	
	Concentration	100%	
	pH at 20°C	approx. 7.0	
	Viscosity at 23°C	approx. 160 mPa·s	
	Density at 23°C	approx. 0.99 g/cm³	

Applications

Kauropal® 931 ensures the even flow of Kauramin® and Kaurit® impregnating resins on the paper web. For this reason, the product is normally used in combination with the wetting agent Kauropal® 933 liquid.

Kauropal® 933 is added to Kauramin® and Kaurit® impregnating resins to reduce the surface tension of the impregnating solution. This improves fiber wetting and resin penetration.

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Luhydran® / Luwipal® / Plastopal®

Coatings on furniture foils require high mechanical and chemical resistances as well as temperature stability during pressing. On the basis of OH-functional Luhydran® dispersions combined with Luwipal®/Plastopal® amino resins, an acid-hardening film coating has been formulated for the most demanding conditions.

Key Benefits

+ High chemical and mechanical resistances
+ Excellent price/performance ratio
+ Alternatively, Luhydran® dispersions are also suitable for two-component PU coatings that can be crosslinked with isocyanates such as the Basonat® HW brands

Properties

Luhydran®
OH-functional styrene acrylic dispersions with high chemical and scratch resistance for two-component furniture film finishes for crosslinking with amino resins or isocyanates , e.g., Luhydran® S938T

Luwipal®
Melamine-formaldehyde resins as crosslinking components for OH-functional dispersions with maximum resistance to chemicals and reactivity, e.g., Luwipal® 069

Plastopal®
Urea-formaldehyde resins as crosslinking components for OH-functional dispersions or as a sole binder with high flexibility and efficiency, e.g., Plastopal® BTW

Overview

Technology	Properties	Recommended products
OH-functional Styrene acrylics	Can be crosslinked with melamine resins	Luhydran® S 938 T + Luwipal® 069
	High resistance to chemicals	
	Excellent adhesion	Luhydran® S 938 T + Basonat® HW1000/ Basonat® HW2000
	Broad pH processing window	Luhydran® S 945 T
	High resistance to yellowing	
	Chalk resistance	

Applications

+ Furniture foils for furniture surfaces, doors, and flooring

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