

TIRE · PAPER · TEXTILE · LAMINATES

RESIMENE® MADURIT®  
MAPRENAL® HYPERSAL®



## ABOUT US

Prefere Melamines is a proven leader in the field of Amino resins. Our roots date back to the melamine resin production facilities founded at the Cassella site in Frankfurt, Germany in 1935 and at the Monsanto site in Springfield, Massachusetts, USA in 1946.

Prefere Melamines produces a comprehensive range of melamine and benzo-guanamine resins, in addition to additives for laminating and paper applications. We have a proven track record of delivering high quality products, innovative solutions and value to our customers. Our amino resins are used in the development of coatings, as well as in other technical and specialty applications. We are positioned as one of the global leaders in the resins marketplace.

Our resins serve many applications, including automotive and industrial coatings, specialty paper, textiles (woven and non-woven), wood finishes, and technical rubber and tire. Prefere Melamines has strategic manufacturing sites in Europe, North America, and Asia. Our primary focus is to create value for our customers, by continually improving product performance, processes, customer service, and most importantly, health, safety, and environmental properties.

For more information, please visit our business on our website [www.prefere.com](http://www.prefere.com)

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## RUBBER AND TIRE

Prefere Melamines produces highly etherified **RESIMENE®** melamine resins of the HMMM type, solidifying us as a global partner in the tire and rubber industry. Our resins are used as crosslinkers for the production of tires and technical rubber articles such as transport or power transmission belts. Our **RESIMENE®** products improve the hardness and stiffness of rubber and its adhesion to steel and textile cord.

Our resins are available as a liquid and in powder form, coated on a silica carrier.



Characteristic	Product name						
	RESIMENE 3520	RESIMENE XT 911 ULF	RESIMENE XT 922 NEU	RESIMENE XT 926	RESIMENE VXT 3924	RESIMENE 3520 S-65	RESIMENE 3520 PJ-72
Primary Manufacturing Source	USA	Germany	Germany	Germany	Germany	USA	USA
Melamine Resin Type	HMMM	HMMM	HMMM	HMMM	HMMM	HMMM	HMMM
Form	Liquid	Liquid	Powder	Powder	Powder	Powder	Powder
Carrier Type			amorphous precipitated silica	amorphous precipitated silica	precipitated silica micropearls	amorphous precipitated silica	amorphous precipitated silica
Crosslinking with Resorcinol & Phenolic Resins	✓	✓	✓	✓	✓	✓	✓
Reinforcing the Rubber Compound	✓	✓	✓	✓	✓	✓	✓
Adhesion to Steel & Textile Cord Belts	✓	✓	✓	✓	✓	✓	✓
Enhanced Flowability, Low Dust	N. A.	N. A.			✓		✓
Low Free Formaldehyde Content	✓	✓	✓	✓	✓	✓	✓
Tire Textile & Steel Belts	✓	✓	✓	✓	✓	✓	✓
Tire Apex & Bead Reinforcement	✓	✓	✓	✓	✓	✓	✓
Rubber Belts and Hoses	✓	✓	✓	✓	✓	✓	✓
Active Resin Content (%)	≥ 98*	≥ 96**	63.5 - 66.5	63.5 - 66.5	63.5 - 66.5	63.5 - 66.5	71.0 - 76.5
Viscosity (mPas, 23 °C)	3000 - 6200	3000 - 6000	N.A.	N.A.	N.A.	N.A.	N.A.
Free formaldehyde content (%)	≤ 0.15	< 0.1	< 0.1	< 0.1	< 0.1	≤ 0.1	≤ 0.12
Storage time (months, 23 °C)	24	24	24	12	24	24	24

\* foil, 45min 45°C \*\* 2g, 1h, 120°C

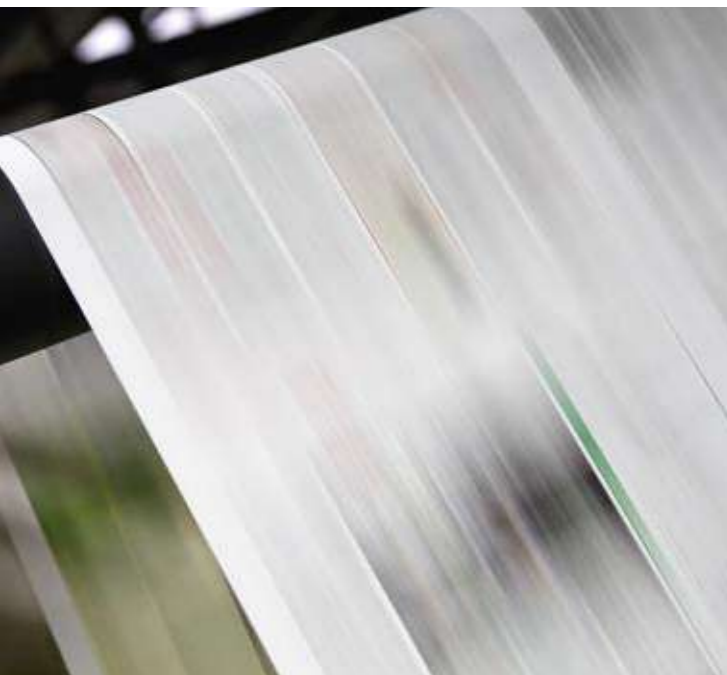
## PULP AND PAPER

Melamine resins of our **MADURIT®** product range give unique properties to specialty papers like magazines, banknotes, filters or furniture papers. Our resins are used to increase the wet strength and whiteness of paper in these and several related applications.

Our **MADURIT®** resins can be added to the fiber pulp or, by means of a size or film press, to the paper surface. Our resins can also be used as crosslinkers for paper coating colours applied by a blade coater or film press. Depending on the paper grade,

the amount of crosslinking agent added to the fiber pulp varies from 0.5 – 4.0% solid resin based on dry fiber. In order to optimize the wet pick properties of coating colours, typically 5 – 15% dry resin based on total binder amount are employed.

With their extremely low emission rates, our melamine resins combine the advantages of melamine resin performance with a maximum of environmental friendliness.



Characteristic	Product name							
	MADURIT MW 169	MADURIT MW 167	MADURIT MW 168	MADURIT MW 112	RESIMENE AQ-7551	MADURIT MW 116	MADURIT MW 113	MADURIT MW 120 ULF
Primary Manufacturing Location	Germany	USA / Germany	Germany	Germany	USA	Germany	Germany	Germany
Charge	Cationic	Cationic	Cationic	Non-ionic	Non-ionic	Non-ionic	Non-ionic	Non-ionic
Paper Processing Application	Pulp	Pulp	Pulp/Surface	Pulp/Surface/Coating	Pulp/Surface/Coating	Pulp/Surface/Coating	Pulp/Surface/Coating	Pulp/Surface/Coating
Wet Strength	✓	✓	✓	✓	✓	✓	✓	✓
Crosslinker for Starch / Polymers				✓	✓	✓	✓	✓
Wet Pick in Coating Colours				✓	✓	✓	✓	✓
Pulp Application after Cationization				✓	✓	✓	✓	✓
Low Formaldehyde Emissions			✓				✓	✓
Banknotes		✓	✓	✓	✓			✓
Overlay Paper		✓	✓	✓	✓			✓
Decorative Paper		✓	✓	✓	✓			✓
Food Packaging	✓	✓	✓	✓	✓	✓	✓	
Filter	✓	✓	✓	✓	✓	✓	✓	✓
Magazines				✓	✓	✓	✓	✓
Abrasives	✓	✓	✓	✓	✓	✓	✓	✓
Encapsulation				✓	✓	✓	✓	✓
Non volatile content (% , 120 °C)	9.5 - 10.5	9.5 - 10.5	8.8 - 9.3	75 - 77	75 - 80*	75 - 77	75 - 77	74 - 76
Viscosity (mPas, 23 °C)	3 - 10	5 - 35	1 - 20	500 - 1000	600 - 1500**	500 - 1000	500 - 1000	350 - 750
Free formaldehyde content (% , ISO 11402)	< 1.5	< 1.0	< 0.1	≤ 0.6	< 0.5	≤ 0.4	< 0.3	< 0.1
Storage time (months, 23 °C)	6	6	6	6	6	2	4	2

\* foil, 45min 45°C \*\* measured at 25°C

## TEXTILE AND NONWOVENS

Partially and highly etherified melamine resins of our **MADURIT®** and **RESIMENE®** range are used in many applications in the textile industry, including both technical textiles and more classical applications such as textile printing and finishing for clothing. Our products can either be used as the sole binder, or as a crosslinker for other polymers to improve properties like wrinkle resistance, stiffness and water resistance of the finished textile. They are typically supplied either solvent-free or as water-borne solutions.

As a binder for the production of glass and organic fiber nonwovens, our resins give unique product properties, including high flame retardancy, moisture resistance and mechanical strength. With their extremely low emission rates, our melamine resins combine the advantages of melamine resin performance with a maximum of environmental friendliness.



Characteristic	Product name							
	MAPRENAL MF 900	RESIMENE 745	MADURIT XT 850	RESIMENE AQ-2611	MADURIT XT 836	RESIMENE AQ-7551	MADURIT XT 804	MADURIT MW 120 ULF
Primary Manufacturing Location	Germany	USA	Germany	Germany	Germany	USA	Germany	Germany
Crosslinker for dispersions	✓	✓	✓	✓	✓	✓	✓	✓
Oil and water resistance	✓	✓	✓	✓	✓	✓	✓	✓
Wrinkle resistance	✓	✓	✓	✓	✓	✓	✓	✓
Stiffening of fabrics and fleeces	✓	✓	✓	✓	✓	✓	✓	✓
Crosslinker for printing pastes	✓	✓	✓					
Low formaldehyde emissions		✓	✓	✓		✓	✓	✓
Diluent	–	–	H <sub>2</sub> O	H <sub>2</sub> O	H <sub>2</sub> O	H <sub>2</sub> O	H <sub>2</sub> O	H <sub>2</sub> O
Level of imino ( -NH )	low	low	low	medium	high	high	high	high
Level of methylolation (-CH <sub>2</sub> OH)	high	high	high	medium	medium	medium	low	low
Level of etherification (-OCH <sub>3</sub> )	high	high	high	high	medium	medium	medium	medium
Modification	no	no	yes	yes	no	no	no	no
Predominate Reaction Partners and order or favored reactivity	-OH > -NH > -COOH	-OH > -NH > -COOH	-OH > -NH > -COOH	-CH <sub>2</sub> OH/-NH > -OH > -COOH	-CH <sub>2</sub> OH/-NH > -OH > -COOH	-CH <sub>2</sub> OH/-NH > -OH > -COOH	-CH <sub>2</sub> OH/-NH > -OH > -COOH	-CH <sub>2</sub> OH/-NH > -OH > -COOH
Non volatile content (% , 120 °C)	93 - 96	≥ 98*	48 - 52	81 - 84	73 - 77	75 - 80*	75 - 77	74 - 76
Viscosity (mPas, 23 °C)	4500 - 7200	2100 - 4350**	20 - 40	1800 - 6500	500 - 1000	600 - 1500**	500 - 1000	350 - 750
Water solubility (ml/g, 20 °C, demin.)	> 25	water dilutable	> 25	> 25	> 25	> 50	> 25	≥ 10
Free formaldehyde content (% , ISO 11402 )	< 0.5	< 0.2	< 0.1	< 0.3	< 0.6	< 0.5	< 0.3	< 0.1
Storage time (months, 23 °C)	24	24	12	9	6	6	4	2

\* foil, 45min 45°C \*\* measured at 25°C

## DECORATIVE LAMINATES

Preferre Melamines is a leading supplier of tailor-made melamine resins and additives for the laminate flooring and for the furniture industry.

Our product offerings of the **MADURIT®**, **HYPERSAL®**, **MAPRENAL®** and **RESIMENE®** range include resins for the impregnation of decor, overlay and balance papers for decorative laminates, along with our wetting agent HYPERSAL® XT 782 to increase production efficiency.

Additionally, we offer resins for the manufacture of decorative finish foils and edge bandings, which can be employed as crosslinkers or main binders in the impregnating, priming or coating step of the production process.

Our resins excel by their low content of free formaldehyde, combined with excellent flexibility and chemical resistance properties. For the manufacture of finish foils and edge bandings, high-solid, water-borne solutions are available to provide maximum production efficiency and environmental friendliness.

Ongoing research projects focus especially on increasing the content of renewable raw materials and thus, biogenic carbon content of our melamine impregnation resins. Feel free to contact us for additional information.



Characteristic	Product name					
	MADURIT MW 480	MADURIT MW 481	MADURIT MW 491	MADURIT MW 501	MADURIT MW 3284/2	MADURIT MW 3498
Primary Manufacturing Location	Germany	Germany	Germany	Germany	Germany	Germany
Melamine Resin Type	Impregnating resin; aqueous solution	Impregnating resin; aqueous solution	Impregnating resin; aqueous solution	Impregnating resin; aqueous solution	Impregnating resin; aqueous solution	Impregnating resin; aqueous solution
Modification	Yes	Yes	Yes	Yes	Yes	No
Decorative Laminates	✓	✓	✓	✓	✓	✓
LPL (short-cycle method)	✓	✓	✓	✓		
HPL (high pressure laminate)			✓		✓	
CPL (continuous pressure laminate)			✓		✓	
Moulded Aminoplasts						✓
Overlay Paper	✓	✓	✓	✓	✓	✓
Decor Paper	✓	✓	✓	✓	✓	
Balance Paper	✓	✓		✓		
Non-volatile content (%; 120 °C, 1h, 1g)	60 - 62	60 - 62	61 - 63	68 - 71	57 - 59	55 - 57
Viscosity (s; EN ISO 2431, 23 °C, 4mm)	30 - 50	30 - 50	40 - 52		26 - 36	17 - 28
Viscosity (mPas; EN ISO 3219-B, cone & plate, 20 °C)				300 - 650		
pH (20 °C)	9.0 - 10.0	9.0 - 10.0	9.0 - 10.0	9.0 - 10.0	9.0 - 9.6	9.0 - 10.0
Cloud time (min; 100 °C, 0.3% MH 836 (or *PAT® MH 837) as supplied, referred to solid resin)	9.0 - 15.0	9.0 - 15.0*	11.0 - 16.0	10.0 - 16.0	8.0 - 14.0	
Cloud time (min; 100 °C, 0.5% MH 836 as supplied, referred to solid resin)						5.0 - 9.0
Storage time (weeks; 23 °C)	approx. 3	approx. 3	approx. 3	approx. 1 - 2	approx. 3	approx. 1 - 2

# DECORATIVE LAMINATES

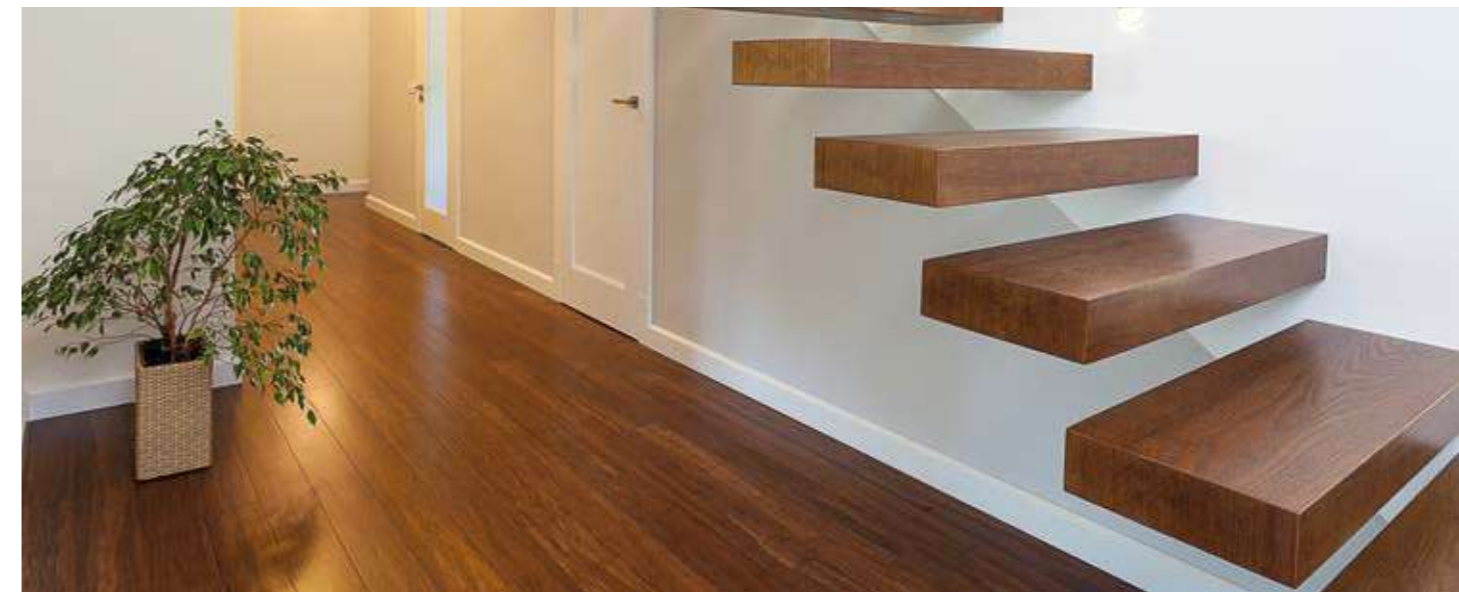


Characteristic	Product name						
	MADURIT MW 834	MADURIT MW 838	MAPRENAL MF 900	RESIMENE 745	RESIMENE 747 ULF	MAPRENAL MF 920	RESIMENE AQ-2611
Primary Manufacturing Source	Germany	Germany	Germany	USA	Germany	Germany	Germany
Melamine Resin Type	Methylated	Methylated	HMMM	HMMM	HMMM	Methylated	Methylated
Modification	Yes	Yes	No	No	No	No	Yes
Remarks	For edge bandings with particularly low formaldehyde emission	For edge bandings with particularly low formaldehyde emission	HMMM with good water compatibility	HMMM with good water compatibility and reduced free formaldehyde content	Ultra low free formaldehyde content, labelling free	Very highly reactive	Highly reactive at low free formaldehyde content
Crosslinker for Acrylic Dispersions	✓	✓	✓	✓	✓	✓	✓
High Flexibility	✓	✓	✓	✓	✓		
Low Water Absorption			✓	✓	✓	✓	✓
High Reactivity	✓	✓				✓	✓
Low Formaldehyde Emission	✓	✓	✓	✓	✓		✓
Finish Foils	✓	✓					
Edge Bandings	✓	✓					
Foil Coatings			✓	✓	✓	✓	✓
Non-volatile Content (%; 1h, 120 °C)	75 - 77	75 - 77	93 - 96	≥ 98*	≥ 98*	75 - 77	81 - 84
Viscosity (mPas; EN ISO 3219-B, 23 °C)	200 - 300	200 - 400	4500 - 7200	2100 - 4350**	3000 - 6200	450 - 950	1800 - 6500
Water Tolerance (ml/g; 20 °C, demin.)	> 25	> 15	> 25	No or small amount of co-solvent required	Co-solvent required	> 25	> 25
Free formaldehyde content (%; ISO 11402)	< 0.1	< 0.1	< 0.5	< 0.2	< 0.1	≤ 0.6	< 0.3
Storage time (months; 23 °C)	3	6 weeks	24	24	24	6	9

\* foil, 45min 45°C \*\* measured at 25°C



[www.formacare.org](http://www.formacare.org)



## CONTACTS

### Europe / Middle East /

#### Africa / Asia

Prefere Melamines GmbH  
Alt Fechenheim 34  
60386 Frankfurt  
Germany

### Customer Support

Fon + 49 69 605 1040 2319  
Fax + 49 69 605 1040 2628  
e-mail [melamines.info@prefere.com](mailto:melamines.info@prefere.com)

### Technical Support

Fon + 49 69 605 1040 2509  
Fon + 49 69 605 1040 2040

### Americas

Prefere Melamines LLC  
730 B Worcester Street  
Springfield, MA 01151  
USA

### Customer Support

Fon + 1 888 723 2873  
Fax + 1 413 730 3817  
e-mail [melamines.info@prefere.com](mailto:melamines.info@prefere.com)

### Technical Support

Fon + 1 413 636 6704

*X-Linking 4you. Worldwide.*

**Americas**  
Springfield, MA, USA

**Europe**  
Frankfurt, Germany

**Asia**  
Surabaya, Indonesia

[www.prefere.com](http://www.prefere.com)

[melamines.info@prefere.com](mailto:melamines.info@prefere.com)

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