

MICHELIN

RESICARE

Beyond resin, innovation for life.



Resi4 WOOD

A unique, non-toxic¹ & renewable-carbon-based araminolic resin engineered for MDF and process panels, offering high moisture resistance.

Furniture

Flooring

Laminate corelayer

Doors

Sandwich panels


BUILDING &
FURNITURE



Resi4 WOOD

Araminolic resins provide a sustainable alternative to conventional thermosetting phenolics, formulated with unique, bio-based monomers that replace **formaldehyde** with **aromatic aldehydes** and **polyphenols**.

Resi4 WOOD is a unique, araminolic resin for **generic process panels** aligned with **EN 622-5 MDF HLS** guidelines (moisture resistance). It is a new alternative to historical **Phenolic** and **Melamine Urea Formaldehyde** resins, developed according to REACH legislation for worker safety.

Benefits and characteristics



High moisture resistance³ and optimized formulation for furniture and building

Meets requirements according to **EN 622-5 MDF HLS standard**

Moisture resistance:
> 0,25 N/mm² after cyclic conditions according to EN 317 standard for 12 mm board

Curing time: 17s / mm

Odorless board: 8/10 on a panel list⁴



Solving toxicity issues in PF / MUF resins for your workers & offering regulatory peace of mind

REACH compliant

Monomers **free of formaldehyde** on the final product (7 µg/ m³ after 24H, 8 µg/m³ after 48H)⁵

Free of CMR 1 & 2 and endocrine disruptors

Water-based resin



Supports your company's sustainable development strategy

Approaching >85% bio-based formulation²

Bio-based raw materials:
5HMF monomer

Low CO₂ emissions²

Advantages



No serious health hazard pictograms VS Formaldehyde, Phenol and Melamine.



Serious health hazard



Resi4 WOOD CO₂ emissions² (CO₂kg / kg)



(1) Formulated without chemicals meeting SVHC criteria (Substance of Very High Concern) as defined by European Chemicals Agency in date of 01/01/2026.

(2) Upon availability of our sugar-based monomers industrial demonstrators in 2027. Two of our first main industrial monomers demonstrators are based in France. The bio-based content is based on ISO 16620 guidelines based on internal data. CO₂ emission's preliminary figures are based on internal data, compliant with ISO 14044 guidelines. The variability of high and low values is depending of sugar sourcing.

(3) Moisture resistance: Meets Class 3 requirements according to EN 314 standard.

(4) Odor evaluation according to DIN ISO 16000-28.

(5) Chamber emission measures realized according to ISO 16000-3:2023-12.

Technical Data Sheet

Product: Resi4 WOOD. **Description:** Aqueous araminolic resin. **Presentation form:** Red - brown liquid.

Benefits: Formol-free, phenol-free, melamine-free. Resistance to humidity.

Main application: MDF & HDF from 1 to 22 mm thick. From 650 to 1100 kg/m³.

Main processing method: Spraying. **Main cross-linking method:** Thermocompression.

Duration of use and storage: Up to 20 days at 20°C. Up to 60 days at 5°C.

Handling precautions: This product must be used in accordance with the instructions in the Safety Data Sheet. This product may stain the skin.

Characteristics of liquid resin:

Property	Method	Unit	Measure
Viscosity at 20°C	Brookfield Viscometer	mPa.s	100 - 500
Dry matter	Thermobalance	Mass %	58 - 61
pH	pH meter	-	7 - 9
Cross-linking temperature	DSC	°C	148
Duration of use at 20°C	Viscosity monitoring	Days	20
Density	Gas pycnometry	g/cm ³	1,24
Use temperature	Thermometer	°C	20 - 40

Catalyst:

Nature	Quantity	Effect
Ammonium salts in water solution	0,5 - 3 % of resin weight	Up 3-time-shorter curing time, increase water resistance

Characteristics of 0,8 g/cm³, MDF 12 mm panel:

Property	Method	Unit	Measure
Pressing time	Hot press	s/mm	17
Pressing temperature	Press temperature control	°C	160 - 220
IB	EN 622-5	MPa	Up to 1,0
Swelling	EN 622-5	Thickness %	< 8
MOE	EN 622-5	MPa	Up to 4000
MOR	EN 622-5	MPa	Up to 55
Cycling test	EN 622-5	MPa	Up to 0,3

Recommendations and precautions: It is not recommended to mix with acids. Shake before use. Dephase below 20 °C pre-heat \geq 20 °C and stir before use.

Destruction and disposal: Disposal with water-based solutions.

Additional information: For further information, please reach out to us through the contact form on our website (<https://resicare.michelin.com/contact/>).

Did you know? REACH regulation focus

I've heard about the REACH regulation...
Should I really worry about it? Does it impact my business?

Yes! Regarding the European directive 2004/37/EC, employers must reduce the use of CMR substances in the workplace. This must be done by replacing the hazardous substance with a safer alternative, if technically feasible!

Got it... Time to improve our chemistry
for a safer future!

Sent by Pioneer customer

MICHELIN RESICARE

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