

MICHELIN

RESICARE

Beyond resin, innovation for life.



BUILDING,
TRANSPORTATION
& FURNITURE

Resi4 PLYWOOD

A unique, **non-toxic**¹ & **renewable-carbon-based** araminolic resin engineered for Class 3 EN 314 plywood applications.

Plywood interior panel

Construction panel

Exterior panel

Boating structure

Technical structure

Furniture

Flooring

and more...



Resi4 PLYWOOD

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

Switch to **Resi4 PLYWOOD**: a formaldehyde-free araminolic resin that is safe¹, biobased² and high-performing for Class 3 EN314 plywood. Compatible with your current production processes, favored by your workers, and made of renewable carbon, let it become your contribution to the European Green Deal, while keeping plywood performance.

Benefits and characteristics

Class 3 EN 314



100% renewable carbon and low CO₂

100% bio-based formulation²

Towards low **CO₂ emissions**

Contributing to **European Green Deal** and **RE2020**

Building European Sourcing²



No SVHC¹ by design for long term safety

REACH compliance

Monomers **free of Formaldehyde, Phenol & Melamine** by design¹

Ahead of **air quality** performance

No more **CMR pictograms** nor **endocrine disruptors**

No **regrettable** substitution

Water-based technology



High adhesive performance - Class 3

Meets **Class 3** requirements according to **EN 314 standard**

Engineered for existing production process

Longer **shelf life**

Compatible with **water-based** cleaning systems

Favored by **your operators** and a point of pride for the whole team

Advantages

✓ **No molecule with acute toxicity & serious health hazard. Formaldehyde, phenol and melamine free.**



Acute toxicity



Serious health hazard



Resi4 PLYWOOD
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.

Technical Data Sheet

Product: Resi4 PLYWOOD. **Description:** A two-component aqueous araminolic resin.

Presentation form: A liquid resin in amber color, non-crosslinked – dark brown crosslinked, and a bio-based hardener in white powder form.

Benefits: Formulation free of formaldehyde, phenol, and melamine; compatible with most fillers used by manufacturers in the sector. Physicochemical properties essential for EN314-3 Class 3 classification. Easy to clean with water.

Main application: Hardwood plywood (eg. birch, poplar), tropical wood (eg. okoume), veneers from 1 to 3 mm thick.

Main processing method: Roller gluing. **Main cross-linking:** Thermocompression.

Duration of use and storage: Up to 150 days at 20°C. Store between 1 and 25°C.

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

Characteristics of liquid resin

Property	Method	Unit	Measure
Viscosity at 20°C	Brookfield Viscometer	mPa.s	200 - 500
Solid content	Moisture analyzer	%	40 - 45
pH	pH meter	-	8 - 11
Curing temperature	-	°C	100 -150 at core
Shelf life of resin alone at 20°C	Viscosity monitoring	Days	Up to 150
Shelf life of hardener at 20°C	-	-	< 1 year when stored in a dry place

Features of the fillers kit: Formulation compatible with mineral fillers such as “chalk” type and vegetable fillers such as “olive pomace” type at a level of 10 to 35% in the glue mix. A “ready-to-use” ResiCare fillers kit is available for purchase if required.

Adhesive characteristics (Resin + Hardener + Filler)

Property	Method	Unit	Measure
Viscosity at 20°C	Brookfield viscometer	mPa.s	1000 – 5000
pH	pH meter	-	7 - 9
Pot life of glue (resin + hardener + fillers) at 23°C	Viscosity monitoring	Hour	1
Process setpoint temperature	-	°C	115 – 130
Curing time (9-15mm 7-ply)	-	Minutes	10 - 20

Recommendations and precautions: compatible with industrial panel curing conditions. The following characteristics are adjustable: viscosity, pH, reactivity. Mixing with acidic compounds, oxidizing compounds, or reducing compounds is not recommended. Shake before use.

Destruction and disposal of liquid resin: Clean and rinse liquid resin mixture with water; hot water will help. Disposal with aqueous basic wastes.

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

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