Sustainable Innovation & Performance:

Advancing Wood Coatings through Camelina Chemistry and Rheology Control

Paint & Coatings Italy 2026



WORLÉE seit 1851

CHEMICAL RAW MATERIALS

A modern wood stain is exposed to demanding requirements.

Weather Conditions

- Rain
- Sunlight / UV exposure
- Temperature (Changes in geometric dimensions)
- Water exposure

Product Features

- Sustainability / Carbon footprint
- Rheological profile
- Drying Properties
- Wide application windows
- Penetration
- Application properties
- Aesthetics

An Important Feature is Sustainability.

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Focus on Sustainability:
The Camelina Advantage

Sustainability Challenges in Coatings

- Longevity & Durability
- Environmental & Health Hazards
- Regionality
- Raw Material Origin
- Land & Resource Use
- Process Emissions (PCF)

The Solution: Using Camelina-Oil in high performance binders



Camelina oil:
Sustainability begins in the supply chain.

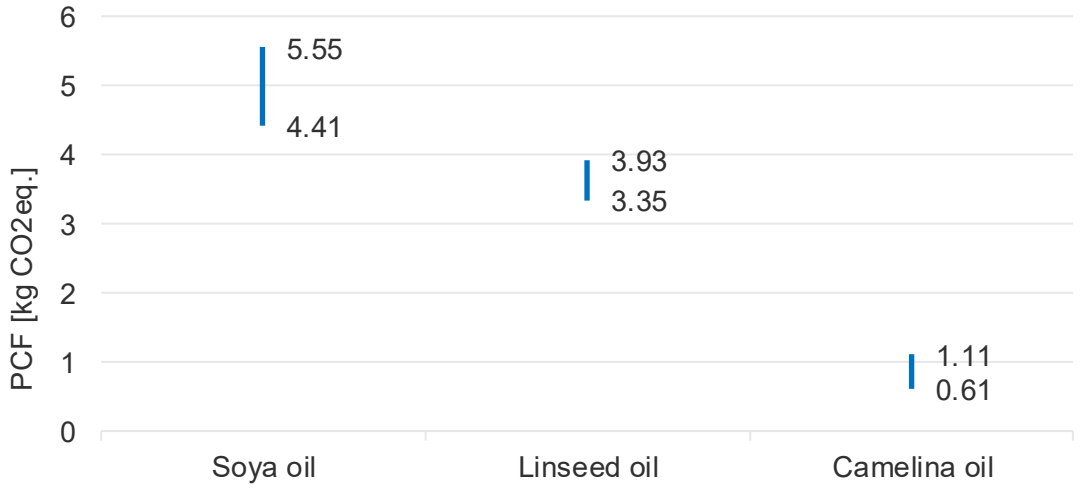


- **Regional availability**
- **Low-input crop**
- **Sustainable supply chain**
- **Economic and agricultural advantages**
- **Circular economy and by-products**
- **Reliable supply**

Camelina is known as a “low-input” plant, which explains its very low carbon footprint.

Plant-related factors

- low water requirements
- low fertiliser requirements
- short growing season
- soil-friendly
- low use of pesticides









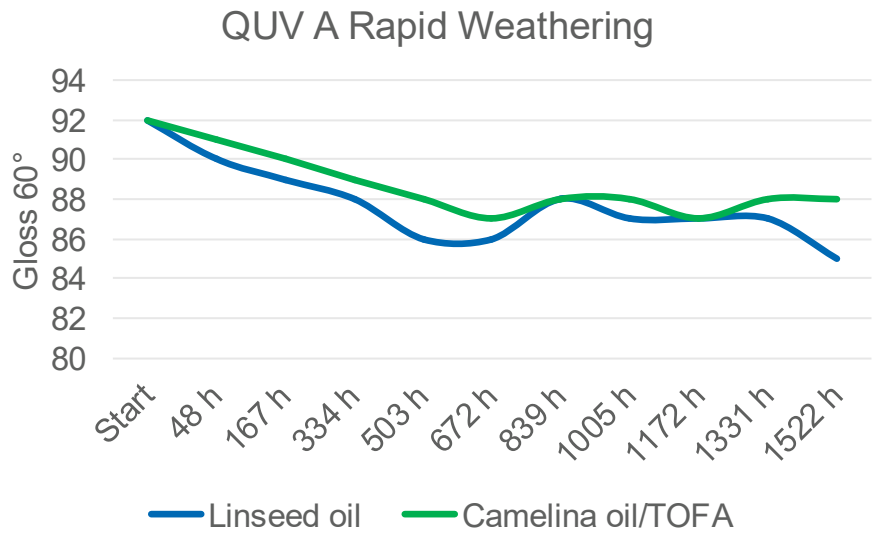
A solvent-free solution: WorléeKyd VP CA 8004

Modified camelina alkyd resin

A long-oil alkyd resin with a narrow molecular weight distribution, specially developed for high-solid wood coatings, impregnations and glazes.

- Very low application viscosity: Guarantees extremely deep penetration into the timber substrate.
- Accelerated drying: The carefully selected combination with tall oil fatty acids (TOFA) noticeably optimises the oxidative drying profile.

Product profile: WorléeKyd VP CA 8004	
Solid content	100% (solvent-free)
Oil length	79%
Oil type	Camelina oil/TOFA
Viscosity (20°C)	Max. 12.000 mPas
Bio-Based Content	86% (on solid content)
UV-stability	Very good



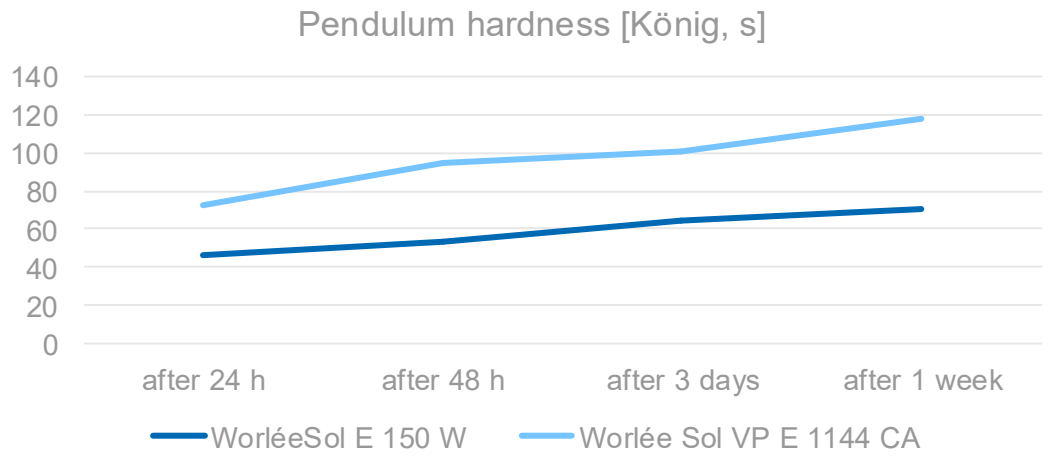
A water-based solution: WorléeSol VP E 1144 CA

A direct comparison of the modified camelina-based PU alkyd emulsion with the established standard, WorléeSol E 150 W:

Parameter	WorléeSol E 150 W	WorléeSol VP E 1144 CA
Delivery form	40% in water	40% in water
Oil type	Soy oil	Soy oil / Camelina oil
Viscosity (20°C)	Max. 1500 mPas	Max. 1500 mPas
pH-value	6.8-7.8	6.8-7.8
Weather resistance	Very good	Very good

The leap in performance

- **Faster hardening:** Higher König pendulum hardness after just 24 hours and 48 hours.
- **Accelerated drying:** Dust-dry and tack-free in a significantly shorter time with a wet film thickness of 100 µm.
- **Reduced yellowing:** Optimised performance in the rapid ammonia test compared with standard systems.



The Rheology profile plays a big role.

Weather Conditions

- Rain
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Product Features

- Sustainability / Carbon footprint
- **Rheological profile**
- Drying Properties
- Wide application windows
- Penetration
- Application properties
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A balanced rheological profile is essential for high-performance exterior wood coatings.

Easy application – reliable sag resistance

Balance between leveling and film build

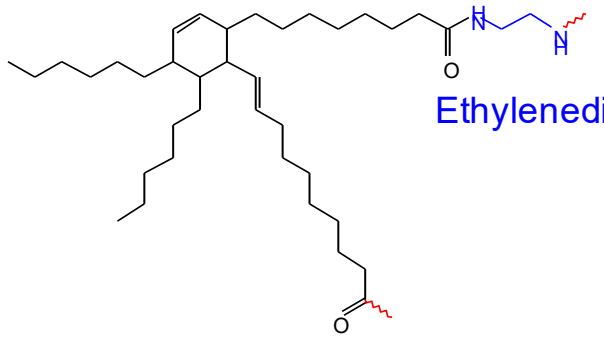
Control penetration and surface build

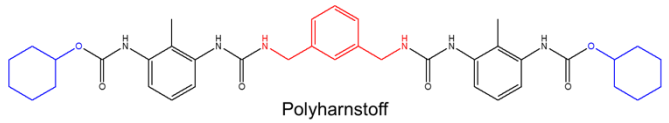
Stability from the can to the final film

The ideal rheological profile combines application, leveling, sag resistance, penetration and film build – properties that often compete with each other.

Polyamide and polyurea thixotropic resins provide two distinct approaches to rheology control in solvent-based systems.

Aspect	Polyamide thixotropic resins	Polyurea thixotropic resins
Main functional group	Amide groups with H-bonds to carbonyl/OH	Urea groups with H-bonds between urea groups
Behavior at higher temperature	Thix resin softens and becomes liquid; structure melts	Thix resin becomes firmer; structure increases
Behavior with polar substances	Thixotropy decreases; network is disturbed	Thixotropy increases or remains stable; robust network
Strength range of thixotropy	Low to high thixotropic strength possible	Low to high thixotropic strength possible
Speed of structure reconstruction	Rather slow	Rather fast
Typical formulation advantages	Better flow and leveling, good handling at higher Temperature	Very good sag control, stable in polar / hot systems





The choice of technology determines the balance between flow, leveling, sag resistance and formulation robustness.

Solvent-based rheology control: WorléeThix

A comprehensive range of modified thixotropic resins is available for the precise control of structural formation and to prevent sagging:

Product	Modification / Technology	Oil length	Thix profile
WorléeThix SD 6051	Polyamide-modified	60%	High-strength gel: Provides a robust structural framework for drip-free systems.
WorléeThix V 800	Polyurea-modified	62%	Strong gel: Temperature-independent, rapid reconstruction.
WorléeThix V 747	Polyamide-modified	64%	Medium-viscosity gel: The perfect balance between stability and flow.
WorléeThix L 8050	Polyamide-modified (linseed oil-based)	80%	Soft gel: Ideal for high-solid glazes.

Combination of WorléeKyd VP CA 8004 and WorléeThix SD 6051

Starting Point Formulation 1.10232-01

1K Thick Layer Wood Stain

Colourless, binder with high content of bio-based raw materials

Item	Product	Delivery	%	Function
1	**WorléeKyd VP CA 8004**	approx. 100%	40.65	Binder
2	**WorléeThix SD 6051**	55% in dearomat. HC 180-220	25.00	Binder
3	Acematt TS 100		1.50	Matting agent
4	Ceretan MX 9815		1.00	Surface modification
5	**WorléeAdd 373 N**		1.00	Multifunction
6	Borchi Dragon		1.00	Siccative
7	OS-Calcium 10		0.80	Siccative
8	Deca Zirconium 15		0.60	Siccative
9	Dearomat HC 180-220		28.05	
10	Skin Blocker 100%		0.40	Anti-skin agent
Total			100.00	

Technical Specifications	
Viscosity Rheometer, 20 ° C, at approx. 400 1/s	approx. 400 mPas
Non-volatile part	approx. 57%
Density, 20° C	approx. 0.91 g/cm^3
VOC-content	approx. 391 g/l
Drying Recorder 38 µm wet film, 12h duration	
Transition phase	-
Starting track	-
Survey phase	3h 25min
Drying trail	6h 35min

Water-based rheology control: WorléeThix E

To specifically address the drainage problem on vertical surfaces and to prevent phase separation within the container:

Product	Solid Content	Degree of thixotropy	Main application & function
WorléeThix VP E 165 W	40%	Highly thixotropic (strong)	Non-drip wood preservative glazes; maximum film thickness on vertical surfaces.
WorléeThix VP E 166 W	40%	Moderate	An optimal balance between flow and edge stability.
WorléeThix VP E 167 E	27%	Slightly thixotropic	As a co-binder to improve storage and settling stability.

Shear stability
All three aqueous thixotropic alkyd emulsions are completely shear-stable and can be combined with WorléeSol VP E 1144 CA and WorléeSol E 150 W in any application.







WorléeThix E: Long-term stability & weather resistance

Results from the long-term systemic tests (1 year and 3.5 years of outdoor weathering) show that:

Formulations containing WorléeThix VP E 165 W and VP E 166 W demonstrate excellent gloss retention and minimal cracking when the wood is subject to dynamic movement.



1 year

WorléeThix VP E 165 W | WorléeThix VP E 166 W



3,5 years

WorléeThix VP E 165 W | WorléeThix VP E 165 W



Conclusion & Outlook:
High Performance meets True Sustainability

- **Sustainable Raw Materials:** Camelina oil chemistry provides a high bio-based content and an exceptionally low carbon footprint (PCF) through regional, low-input cultivation.

- **Advanced Rheology Control:** Tailored polyamide and polyurea thixotropic technologies (Worlée Thix) ensure perfect anti-sagging, optimal layer build-up, and storage stability.

- **High-Performance Synergy:** Combining innovative bio-based binders (solvent- and water-based) with precise rheology delivers superior wood protection without compromise.

Meet us at booth 205!

STAND 205

Dolder massara ,means value

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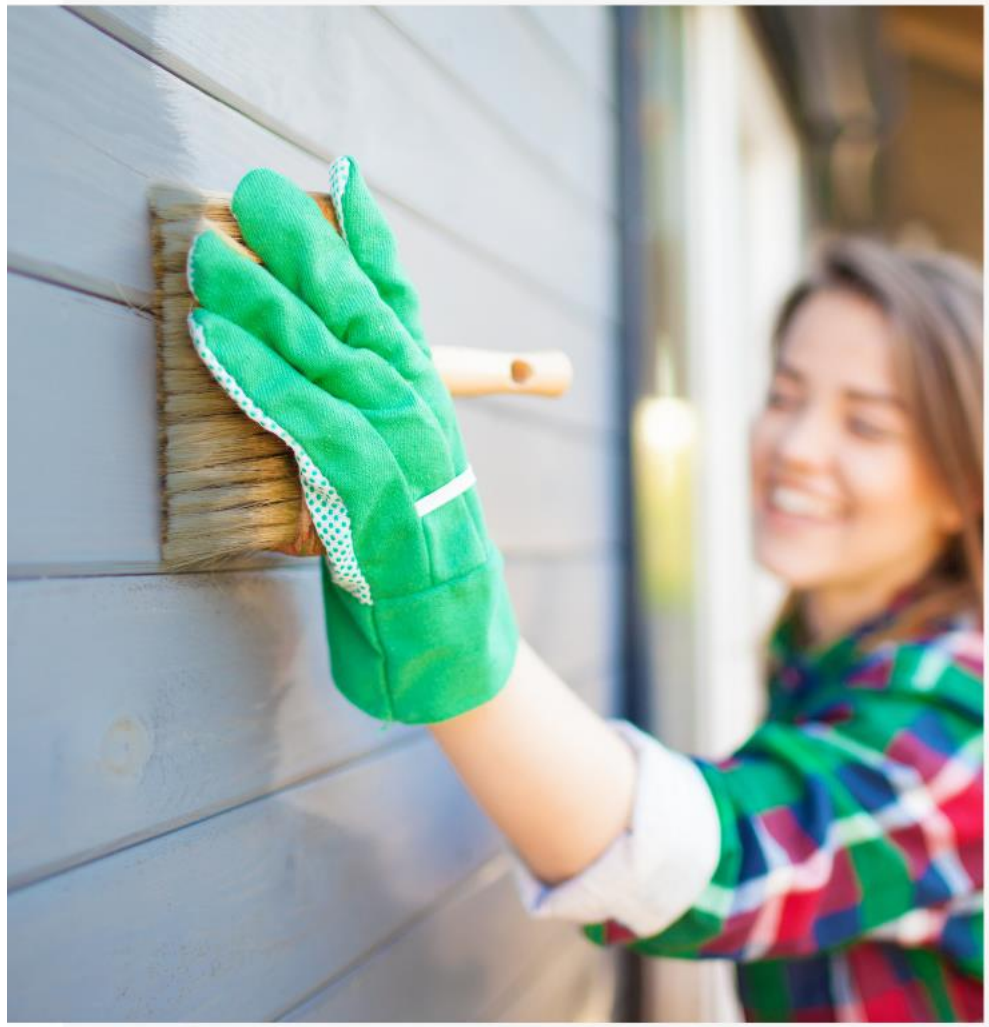

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