



Stain-blocking paints and -impregnations with NECOWEL™ alkyd emulsions



Excellent **performance**,
first-class **application** and
environmental compatibility.
Tailor-made for you.



As a **specialist** in very **effective alkyd emulsions** for **water-based paints and -impregnations** with **high stain-blocking properties**, ASK Chemicals offers a wide range of solutions for this area. In addition to excellent performance, highly efficient binding agents from ASK Chemicals also feature very good environmental compatibility and top-class application properties. This makes them ideal for switching from solvent-based to water-based systems without having any compromise on performance.

Your benefits at a glance:

- Good product quality thanks to high performance resin systems
- Top-class customer service, tailor-made modifications and refinement
- Our alkyd emulsions are based on natural oils and feature a high percentage of renewable raw materials.
- NECOWEL™ products are VOC-free and meet all environmental-friendliness and occupational health and safety requirements.

NECOWEL™ 4300 and NECOWEL™ 4400 – stain-blocking paints and -impregnations

The appearance, easy handling and health friendliness are the decisive criteria in the production of interior wall paints. A particular challenge is posed by bleeding substances; these water-soluble coloring agents can even be transported to the paint surface through several layers of paint. While conventional resin dispersions do not exhibit any stain-blocking properties against these substances, cationic resins can fix this contamination in the paint surface and prevent bleeding. However, usage of these resins normally results in reduced paint formulation quality.

ASK Chemicals has succeeded in integrating cationic groups into a more or less anionic alkyd resin system. The result is a stable paint system with outstanding stain-blocking properties against anionic contamination like water spots, markers and also wood ingredients like tannin and phenol. Alkaline contamination such as nicotine are also neutralized and fixed by the acidic groups in the resin system.

Stain-blocking paints and primers

In order to demonstrate the influence of the binder on bleed through, a surface painted with water-based markers was over coated with an acrylate-based paint and a paint based on NECOWEL™ 4400. Apart from the binder, the paint formulation was identical. The paint based on NECOWEL™ 4400 delivers a much better result after one layer than the acrylate-based paint after two layers.

Alkyd emulsions based on drying fatty acids tend to exhibit yellowing and odor formation whereas NECOWEL™ 4300 based on dehydrated castor oil (DCO) is known for its very low yellowing tendency.

Nevertheless, during oxidatively drying process SVOC in form of hexanal and other aldehydes is split off. NECOWEL™ 4400 is based on saturated fatty acids having non-yellowing performance and less odor formation.

NECOWEL™ 4300 is used in the formulation of stain-blocking wall paints as well and it is highly applicable to be used in stain-blocking primers. The stain-blocking primer has good drying properties and can be coated with a common wall paint afterwards. No bleeding of water-soluble substances will occur into the wall paint.

NECOWEL™ 4300 and NECOWEL™ 4400 are known for their easy and secure handling as well as their good compatibility with coating raw materials, filling materials and tinting pastes.



Wall paint
based on
acrylates:
1st layer

Wall paint
based on
acrylates:
2nd layer

NECOWEL™
4300:
Primer

NECOWEL™
4400:
Wall paint

Figure 1: Application of NECOWEL™ 4300 and NECOWEL™ 4400

Tannin-blocking impregnation for wood surfaces

It is a well-known problem that dark spots can appear on the coating surface after a wooden surface has been painted. On white wooden surfaces these stains are especially noticeable. Bleed-through of water-soluble wood constituents, such as dyes or tannins, can normally be prevented if the wood substrate is pre-treated with a coating based on a cationic dispersion or cationic additives.

In addition to an excellent stain-blocking effect against water-soluble impurities, NECOWEL™ 4300 also exhibits very good wetting and penetration properties, with the result that it is able to penetrate into the wood fibers well and take effect there. Tannins and other wood constituents are fixed directly in the wood layer and do not emerge at all from the wood substrate to the surface. Bleed-through to the painted coating surface is thus prevented, even after cracking of the wood or after damage to the coating surface.

The waterborne impregnation is non-film-forming and can be sanded and overpainted after a drying time of approx. 4 hours.

In Figure 2, three Merbau panels from the ASK Chemicals laboratory can be seen. Half of each panel is treated with the stain-blocking impregnation to prevent a bleed-through. The middle sample (B) has been sanded 4 hours after impregnation and painted with a white topcoat. The right-hand sample (C) has been subjected to a condensation water test for 72 hours after being painted. The color difference between the treated part (top) and untreated

part (bottom) of the wooden panel can be clearly seen on all panels.

The stain-blocking impregnation based on NECOWEL™ 4300 prevents the bleed-through of the wood constituents even under extreme weather conditions.

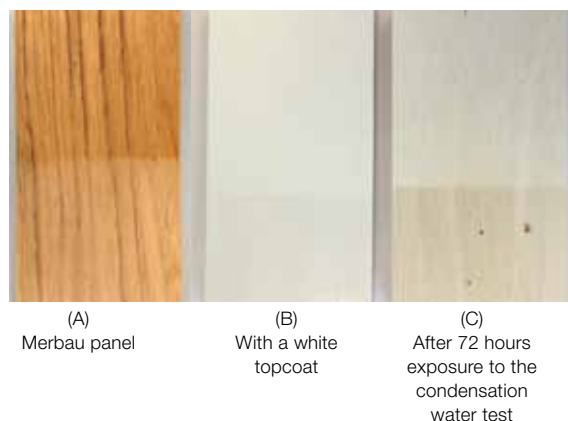


Figure 2: Application of NECOWEL™ 4300 as tannin-blocking impregnation

NECOWEL™ Properties and technical data:

NECOWEL™ – **Stain-blocking paints and -impregnations**

Product	Type of oil	Properties and special features
NECOWEL™ 4300	DCO	Good stain-blocking effect, good application properties, can be used as a stain-blocking primer and paint
NECOWEL™ 4400	Saturated fatty acids	Stain-blocking effect, very low smell, no yellowing potential

NECOWEL™ 4300 und 4400 – **Benefits**

- Unique stain-blocking properties
- Compability with carbonates
- Easy-to-formulate
- Good wetting behavior
- VOC-free

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