

®Mowiol, Kuraray Poval®

Polyvinyl alcohol grades for improved whiteness

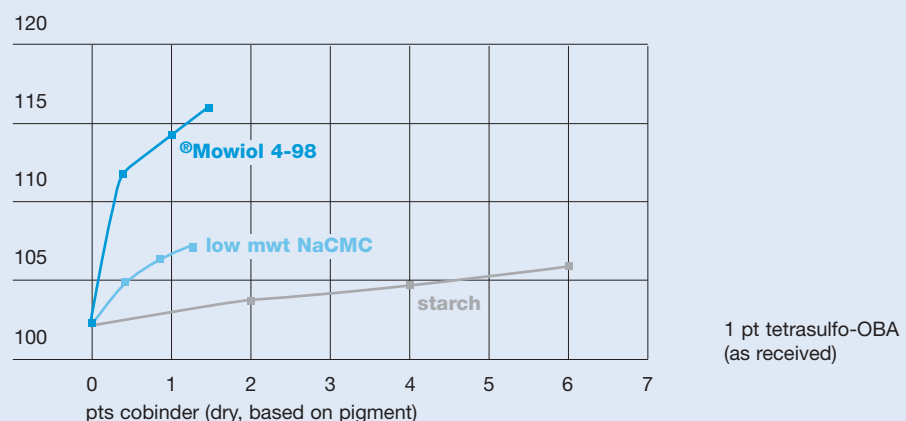
As long as paper has been produced, whiteness has undisputedly been a convincing sales argument. Pulp quality, bleaching efficiency and the smart use of optical brightening agents (OBA) all contribute to superior whiteness – but there is one more way to push whiteness to even higher values.

The ability of polyhydroxylic compounds to enhance the whitening effect of OBA in paper coatings is well known. Polyvinyl alcohol (PVA) is one of the most effective representatives of this class. The addition of only small amounts of PVA to OBA raises the whiteness level considerably. In this respect, PVA outperforms other cobinders such as starch or sodium carboxymethyl cellulose (NaCMC) (fig.1).

PVA also confers a smooth low shear viscosity and good water retention to the paper coating colour; in the dried coating, it imparts porosity and contributes to pick resistance. Optical brighteners are more lightfast with PVA than without. As PVA and OBA take part in the formation of chemical complexes, PVA's strong adhesion to pigments such as clay or calcium carbonate also leads to a fixation of OBA. This means that it migrates less, i.e. on-machine whiteness fluctuations are reduced.

Fig. 1: Whiteness as a function of carrier level

CIE whiteness (D65, with UV)



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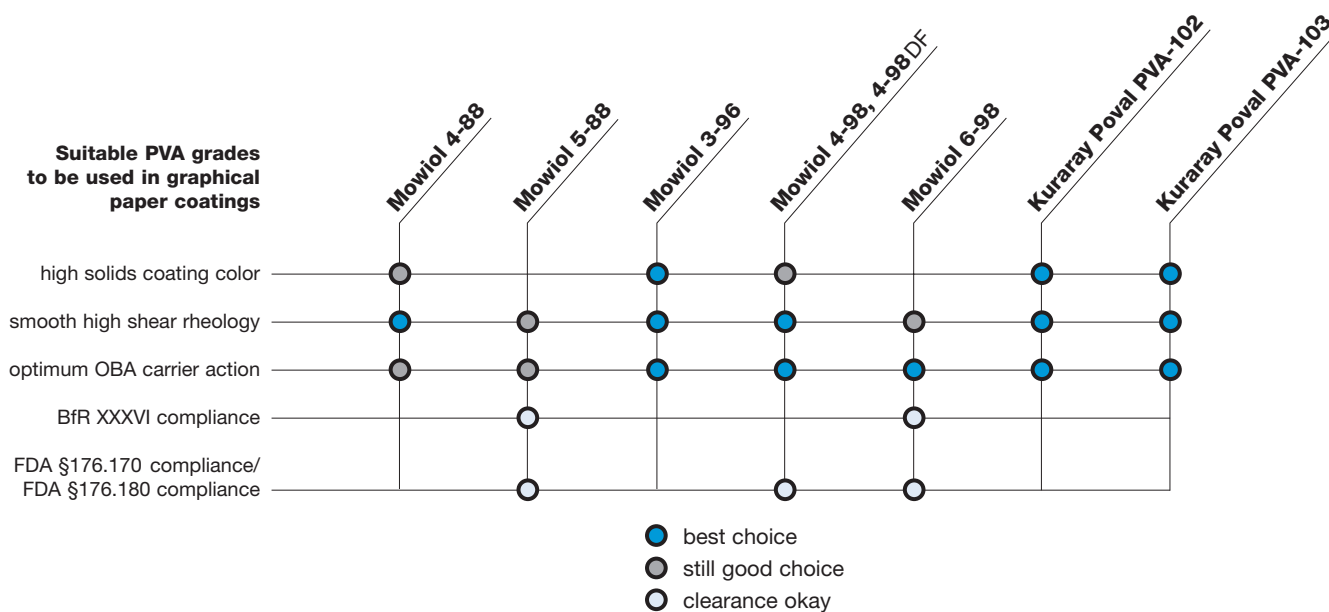
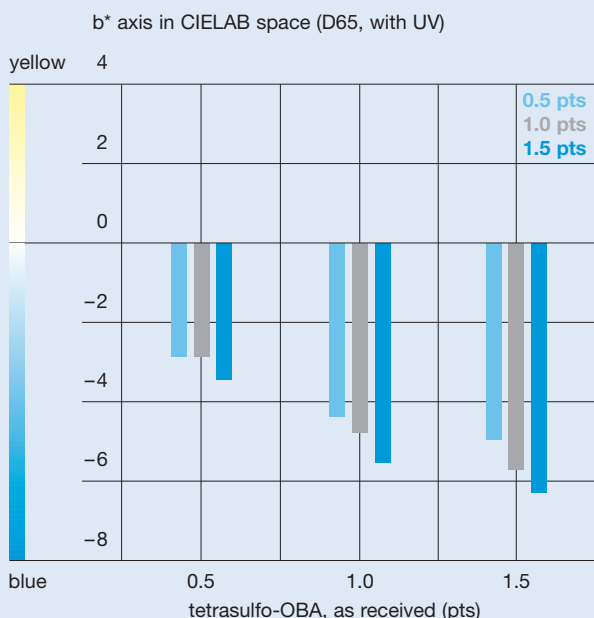


Fig. 2: Chromaticity as a function of OBA and Mowiol 4-98 levels



At increasing OBA concentrations, whiteness is known to increase, level off and even decrease beyond the greying limit. If PVA is used instead of OBA to drive whiteness, this property can be pushed far beyond the greying limit without an undesirable drifting-off of the tint. Fig. 2 shows that the use of PVOH causes the paper to become more blueish, a phenomenon which nicely enhances the perceived whiteness.

The data and the recommendation ratings shown in the above table are based on our own laboratory results and industrial experience.

We are ready to give you our full support. If you have any questions, please do not hesitate to contact us.

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