

Technical Brief on Minimisation of Colour Change of Reconstructed and Re-toned Veneers

Based on the outcome of a research project carried out under auspices of FWPRDC (now FWPA) the following recommendations are offered relating to maximising the effectiveness of the protection of wood veneers against UV-driven discolouration:

- It is essential that Australian suppliers of reconstructed and re-toned veneers request that the veneers are always produced using effective UV blockers to reduce possible discolouration due to UV-light exposure of veneer-finished products. It is evident that the veneers with UV blockers exhibit superior performance over the veneers without UV blockers.
- The adverse effects of exposure to UV light of many items made of natural fibres, wood and plastics, such as: fabrics, carpets, curtains, timber products and coatings is well recognized. The fundamental fact is that all articles subjected to UV light change colour and appearance in some way as they age. The only difference being the amount of change and the time period over which it happens.
- As with all other natural or synthetic materials, the veneers (as well as a solid wood) will change colour with time when exposed to sunlight. The degree of colour change varies with the amount of light to which the coating and wood is exposed. Generally, the surface closest to the UV light source is affected more rapidly than that area further away.
- Generally, the application of protective clear coatings containing UV-absorbing additives significantly reduces the detrimental colour change of veneers caused by UV radiation originating from the sunlight exposure.

The test results achieved within the scope of the research project revealed that the high quality solvent-based acrylic-polyurethane coatings systems with the UV blockers are the most effective protective systems which should be used to protect the veneers against sunlight discolouration.

- The test results revealed that generally, the colour change depends on the following factors: intensity and duration of the exposure of veneer to the UV light, the species of timber, and the initial colour (and probably the type) of the dyes used for veneer colouring. Based on the test results the following trends can be observed:
 - Light colour veneer become darker,
 - Grey veneers change colour, normally to shades of green,
 - Dark veneers (dark brown) become lighter in colour.

- It is important to highlight that, as stated above, the veneer's colour change can be significantly reduced (but not totally eliminated) if the dyes used for the production of a particular colour are used in conjunction with UV blockers, and a high quality solvent-based acrylic-polyurethane coating system with UV blockers is used on the veneer at the same time.
- Veneered products, as is the case for furnishings and curtains, carpets. etc. can be best protected in various service conditions, by ensuring glass windows have UV protection in areas where veneer is to be used.
- There are standard procedures which are recommended to be used to assess the performance of various dyed and reconstituted veneers as well as coating systems against UV light discolouration. The test involves the accelerated UV weathering exposure according to the "*Recommended Test Protocol for Colour Change of Recon & Dyed Veneers*" outlined in a separate document, which can be obtained from the TVAA Technical Representative:
 - Ph:1300 303 982
 - Email: info@woodveneer.asn.au

This protocol allows rapid screening of candidate products (veneers and coatings) and facilitates elimination of under-performing coatings and veneers.

- Coatings that do not contain the above UV-absorbing additives will most likely not offer optimal protection of veneers against UV-driven colour change. It is also likely that yellowing and degradation of a sub-standard coating itself may occur, resulting in even higher discolouration compared to the uncoated veneer.

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