TEST REPORT

ETH HEIMU timber coated with Intergrain Industrial Uni Timber Oil Clear

Prepared by : Keith Chu
Intergrain R&D Australia

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BACKGROUND

ETH have a timber called HEIMU, and have asked what the performance benefits are of applying Intergrain Industrial Uni Timber Oil Clear on it.

SUMMARY OF RESULTS

Application of Intergrain Industrial Uni Timber Oil Clear onto HEIMU provided improved colour fade resistance over uncoated HEIMU, up to about 6 months weathering. After 6 months, all samples showed similar colour change.

TEST DETAILS AND RESULTS

The following panels were prepared for testing; each system was prepared in triplicate.

- Uncoated HEIMU
- HEIMU coated with 1 coat of Intergrain Industrial Uni Timber Oil Clear
- HEIMU coated with 2 coats of Intergrain Industrial Uni Timber Oil Clear

The Intergrain Industrial Uni Timber Oil Clear coating was allowed to dry for 3 weeks before the colour of each panel was measured and the results recorded.

The panels were placed into a QSun xenon arc accelerated weathering chamber, manufactured by Q-Lab.

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The panels were removed from the accelerated testing chamber after set time frames; the colour of each panel was measured and photo taken at these times. The panels were then placed back into the accelerated testing chamber to continue testing.

The time frames for testing were after:

- 250 hours accelerated exposure (roughly equivalent to 3 months natural weather exposure)
- 500 hours accelerated exposure (roughly equivalent to 6 months natural weather exposure)
- 750 hours accelerated exposure (roughly equivalent to 9 months natural weather exposure)
- 1000 hours accelerated exposure (roughly equivalent to 12 months natural weather exposure)

<u>Colour change of timber after application of Intergrain Industrial Uni Timber Oil Clear</u>
HEIMU showed a distinct darkening after Intergrain Industrial Uni Timber Oil Clear was applied. The photos below show the colour of the timbers. These were before accelerated exposure testing.

Uncoated

1 coat Uni Oil

2 coat Uni Oil

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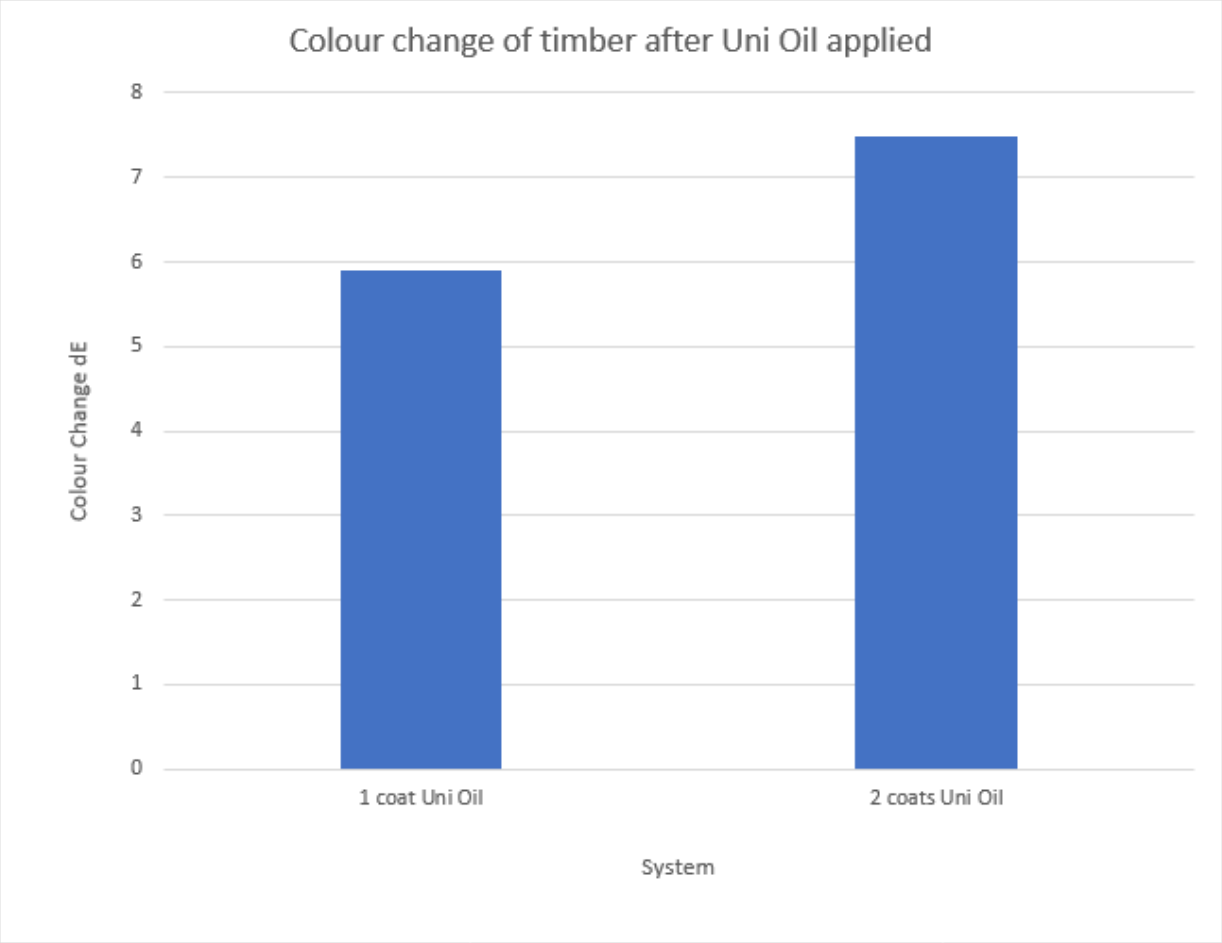
Graph 1 shows the colour change as a chart.

Graph 1



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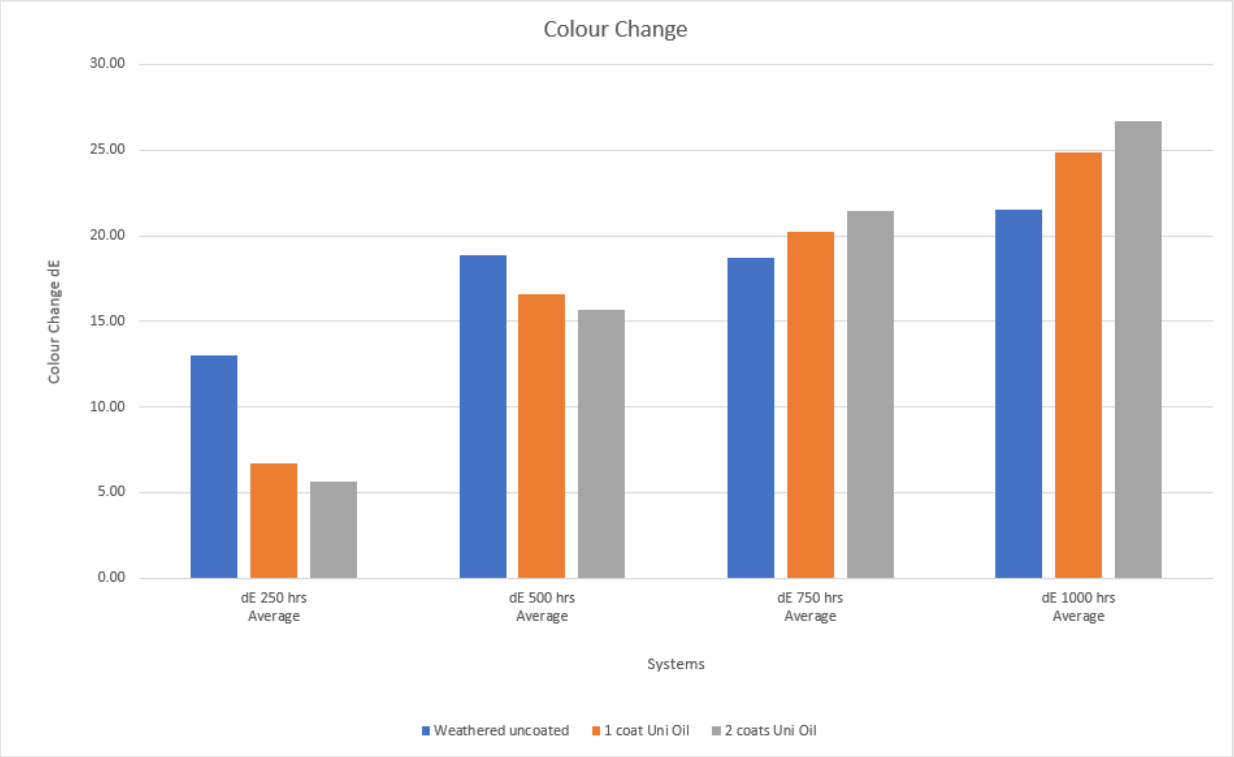
Colour change after accelerated exposure

With colour change, the lower the number the better the performance (less colour change).

Graph 2 shows the averaged colour change (dE) of the panels after accelerated exposure testing.

Graph 2



The results showed that up to about 500 hours of accelerated exposure, the Intergrain Industrial Uni Timber Oil Clear coated HEIMU gave better colour fade resistance compared to the uncoated HEIMU. 2 coats of Intergrain Industrial Uni Timber Oil Clear gave the best performance. After 500 hours, the colour change between the panels started to become similar.

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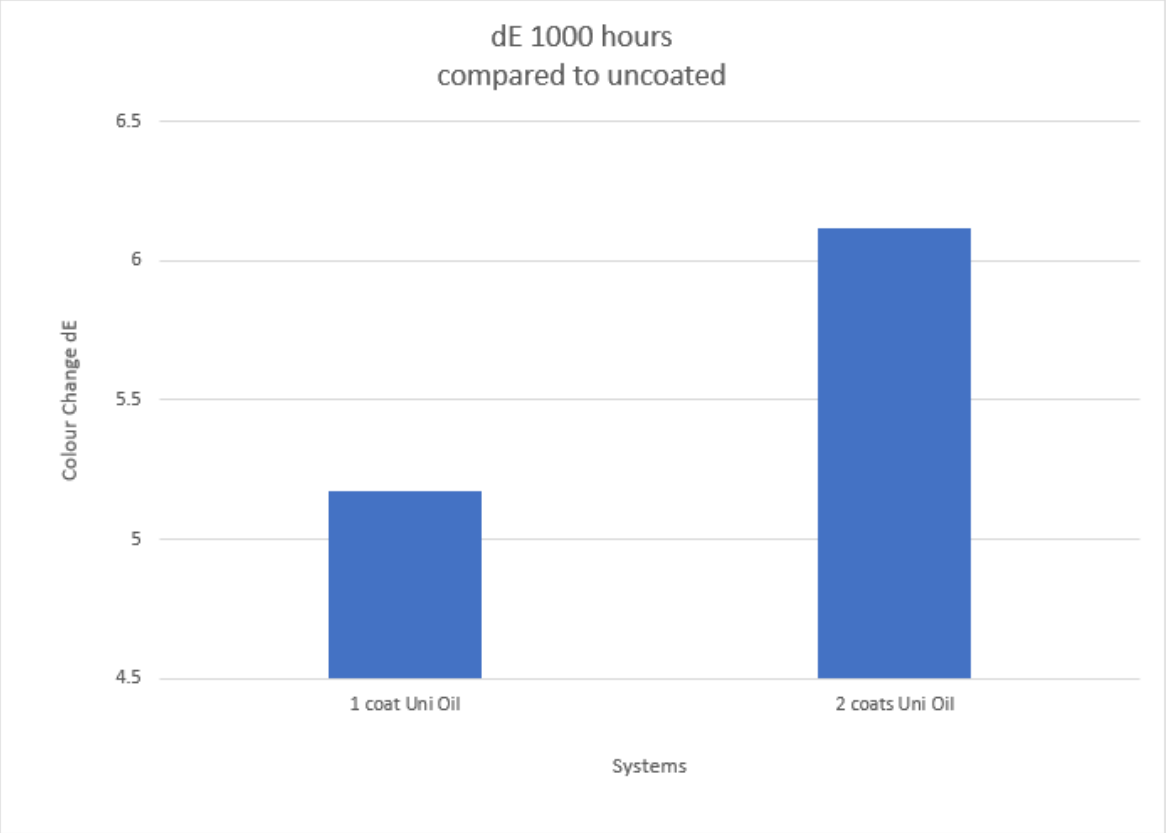
Interestingly, if after 1000 hours of accelerated exposure we compared the 1 coat Intergrain Industrial Uni Timber Oil Clear and 2 coats Intergrain Industrial Uni Timber Oil Clear panels to the uncoated panel, the colour difference dE were similar to what they were when they were initially coated (see Graph 1).

Graph 3



Throughout the test timeframe – 250 hours, 500 hours, 750 hours, 1000 hours – the colour difference dE between the uncoated panel and the 1 coat Intergrain Industrial Uni Timber Oil Clear panel was between 4.0 and 7.0. The colour difference between the uncoated panel and 2 coats Intergrain Industrial Uni Timber Oil Clear panel was between 5.0 and 8.0 These ranges bracketed the original colour difference of the unexposed panels. This meant that while the colour of the panels changed over time, the relative difference between the panels appeared to remain fairly constant.

Note that Intergrain Industrial Uni Timber Oil Clear was designed to allow the timber to naturally grey or silver over time while providing very good water protection.

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Photos of the HEIMU panels after each stage of accelerated exposure testing are shown in the Appendix.

CONCLUSION

Based on the results detailed above, applying Intergrain Industrial Uni Timber Oil Clear onto HEIMU from ETH gave good colour fade resistance compared to uncoated HEIMU. 2 coats of Intergrain Industrial Uni Timber Oil Clear gave better performance than 1 coat.

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APPENDIX

Photos showing the colour change of the panels after accelerated exposure testing.

Panels prior to testing

Uncoated

1 coat Uni Oil

2 coat Uni Oil

Panels after 250 hours of accelerated exposure testing

Uncoated

1 coat Uni Oil

2 coat Uni Oil

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Panels after 500 hours of accelerated exposure testing

Uncoated

1 coat Uni Oil

2 coat Uni Oil

Panels after 750 hours of accelerated exposure testing

Uncoated

1 coat Uni Oil

2 coat Uni Oil

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Panels after 1000 hours of accelerated exposure testing

Uncoated

1 coat Uni Oil

2 coat Uni Oil