



Accelerated aging in the Weatherometer (WoM)

**Summary of the results after 1,000 and 2,000 hours' exposure in the Weatherometer
Tester performed from 2015-01 to 2015-04**

Falu Rödfärg engaged SP Technical Research Institute of Sweden, an independent test institute, to test and compare the quality of 15 different wood stains. They examined colour stability and how well they resisted crackling and flaking.



ASSIGNMENT:

Falu Rödfärg Falu Rödfärg engaged SP Technical Research Institute of Sweden, an independent test institute, to test and compare the quality of 15 different wood stains. The assignment involved comparing their colour stability and how well they resisted physical wear and tear, i.e. crackling, flaking and finally erosion.

The test is a stability test of painted spruce panels in accordance with SS-EN ISO 11341, which is one of the Paint Industry's approved test procedures for testing colour. The stain has been exposed for 2,000 hours in a Weatherometer, which corresponds to up to 3-years' exposure to UV light, heat and moisture.

The test starts at 0 hours (T=0t) and is read off after 1,000 (T=1,000t) and 2,000 hours (T=2,000t). 1,000 hours corresponds to 1-1.5 years and 2,000 hours corresponds to 2-3 years on an exterior wall.

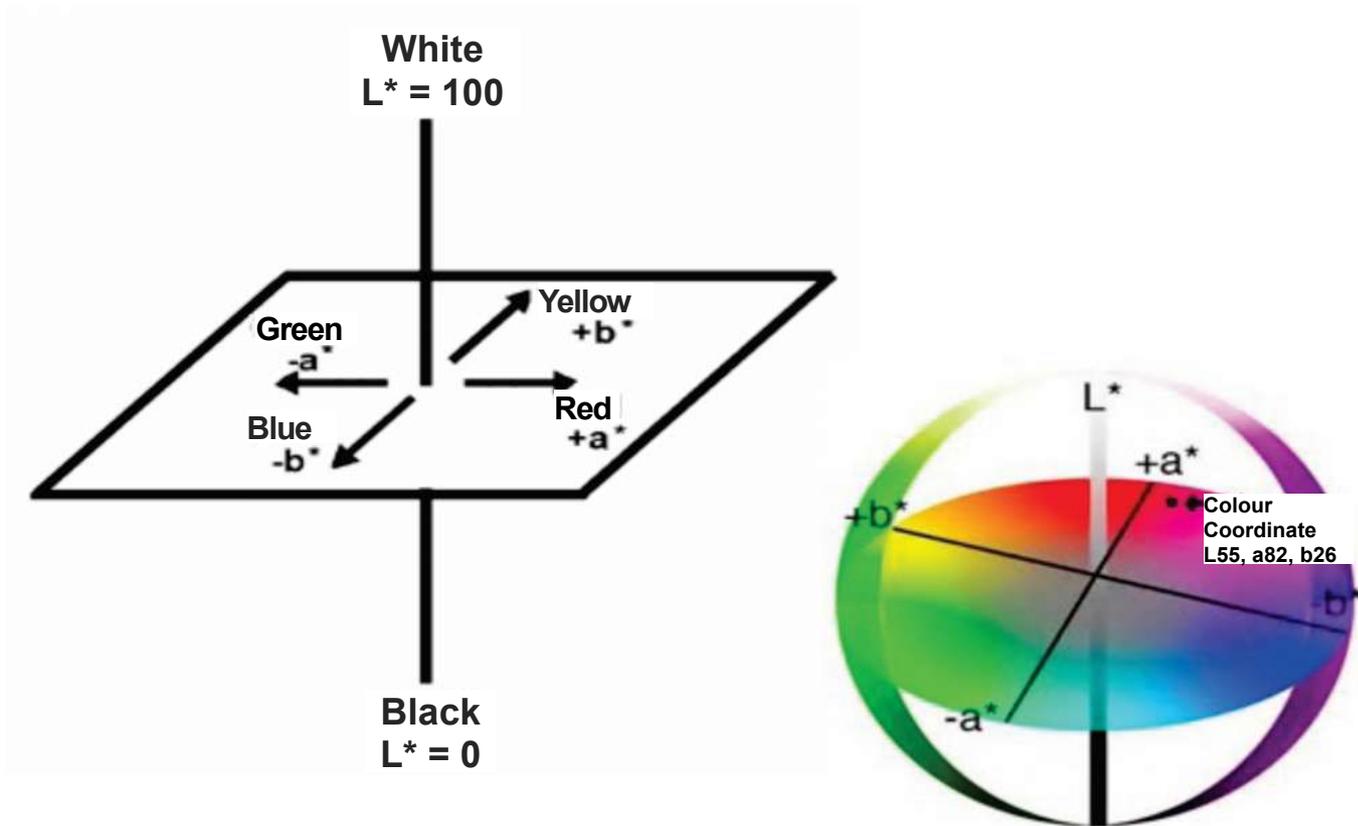
SELECTION:

The test was performed using 15 commonly-available wood stains from various manufacturers, and are all available on the Swedish market at prices ranging from SEK 99 to SEK 549. Falu Rödfärg has chosen to highlight four manufacturers who represent the end result on a decreasing scale from best to worst.

In regard to this, Falu Rödfärg has chosen to name the other tested stains as Copy 1, Copy 2, Copy 3.

This is a summary of the test results obtained by SP Technical Research Institute of Sweden. The complete results can be downloaded on request: info@falurodfarg.com.

Colour measurement in CIE L*a*b* colour scale



Colour measurements were made using a
Konica Minolta CM-2600ci spectrophotometer

Appearance at T=0t



Falu Rödfärg

Copy 1

Copy 2

Copy 3



Appearance at T=1,000 hours (Corresponds to 1-1.5 years)

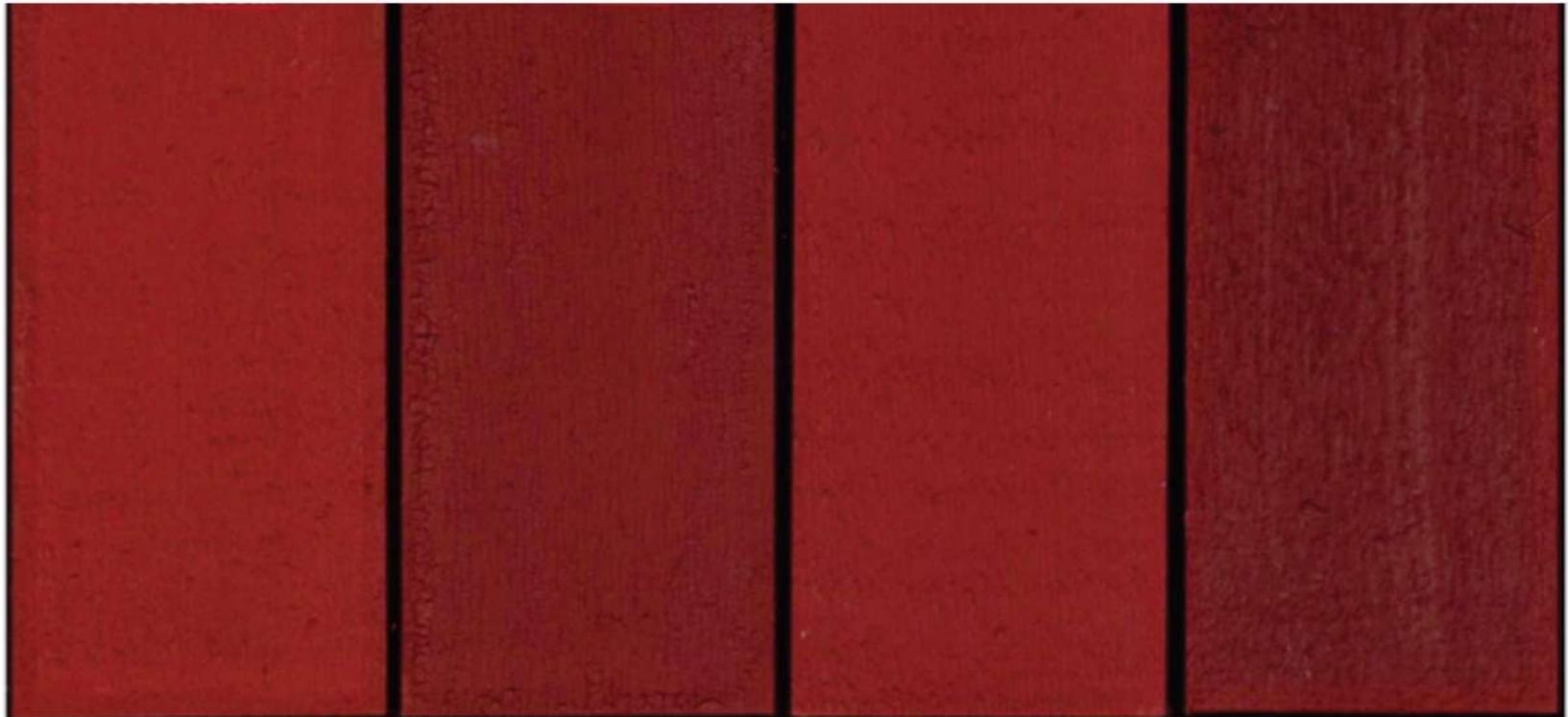


Falu Rödfärg

Copy 1

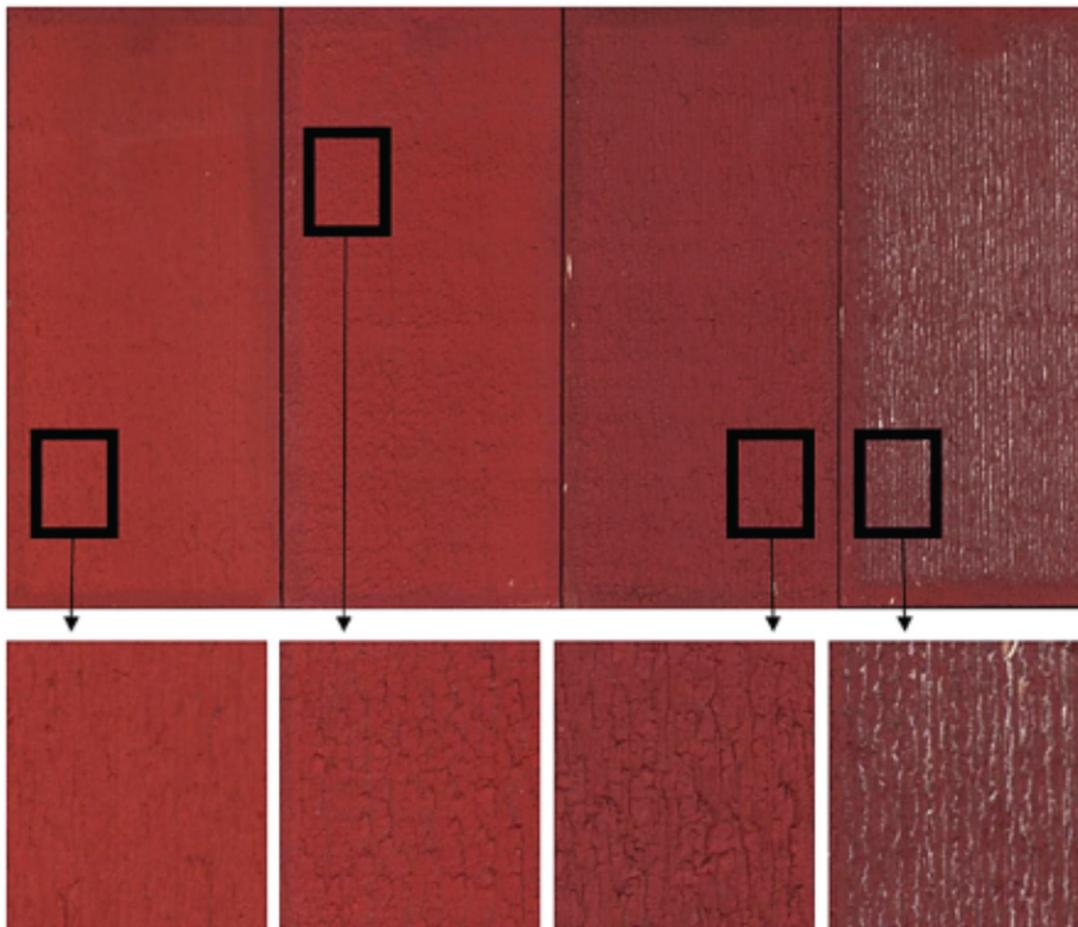
Copy 2

Copy 3



After 1,000 hours in WoM, crackling was observed in Copy 1's colour layer, and signs of erosion were observed in the colour layer in Copy 2. In addition, both Copy 1 and Copy 3 demonstrated a distinctly darker colour tone compared with the original colour.

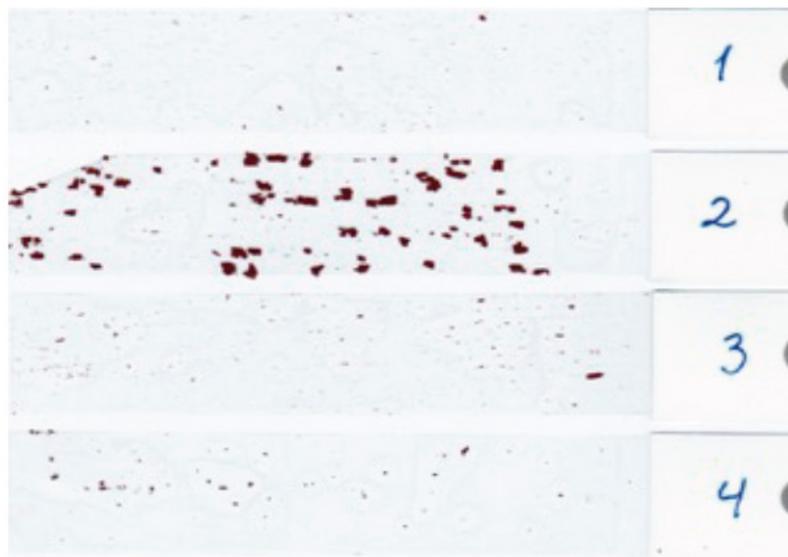
Appearance at T=2,000t (Corresponds to 2-3 years)



Appearance after 2,000 hours in WoM, corresponding to up to three years' exposure to the outdoor environment. The small images above are enlargements of the marked areas. Faluröd-färg has an even surface. Copy 1 and, in particular, Copy 2 demonstrate cracking of the colour layer. The colour layer in Copy 3 is strongly eroded with exposure of the underlying wood, which also affected the colour measurement.

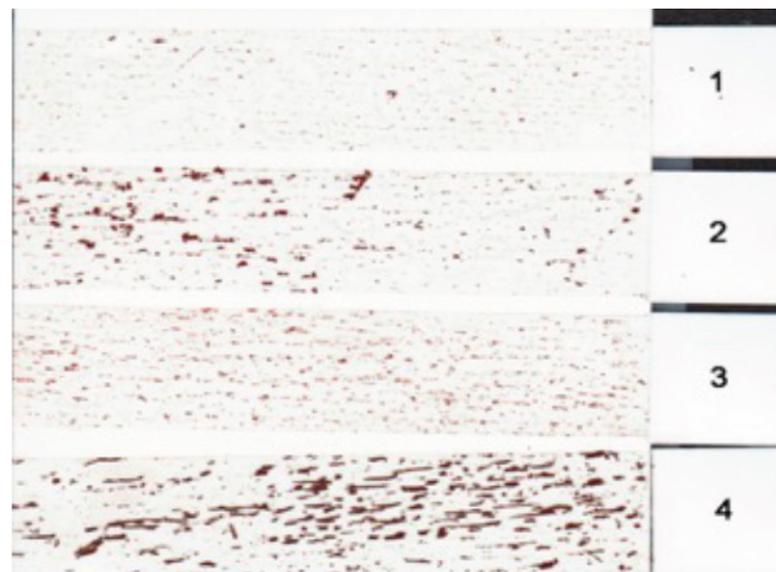
Flaking

Tape test at T=1,000t



- 1: Falu Rödfärg Original
- 2: Copy 1
- 3: Copy 2
- 4: Copy 3

Tape test at T=2,000t

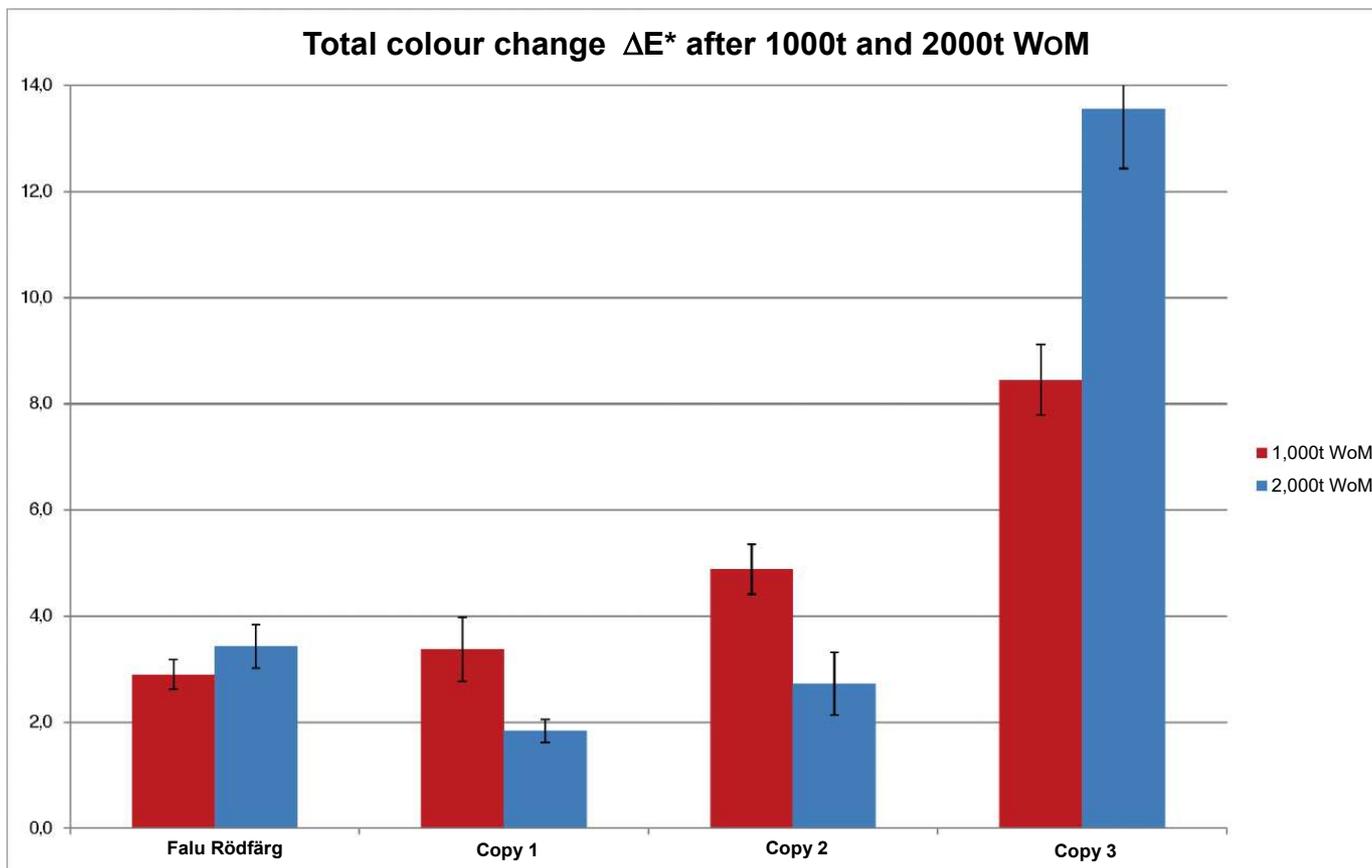


It is quite natural for a wood stain to start crackling after a short time. However, there is a large difference in the degree of crackling already after 1 year. This becomes more obvious after 2-3 years when several of the makes have also started to flake.

At 1,000 hours' exposure in WoM, Copy 1 demonstrates the presence of loose-sitting colour flakes.

At 2,000 hours' exposure in WoM all colour layers have in general more loose particles; nonetheless the original Falu Rödfärg has least. Copy 1 and Copy 3 continue to demonstrate the presence of loose-sitting colour flakes. Copy 2 demonstrates larger amounts of loose-sitting particles than Falu Rödfärg. The fact that the colour layer of Copy 2 was strongly eroded at the end of the test indicates that loose-sitting particle and any colour flakes have been washed away during the test.

Colour stability



In this graph we look at the change in colour between 1,000t WoM and 2,000t WoM, where we want as small a difference as possible between the bars. Overall, Falu Rödfärg has demonstrated the most stable colour change.