CondenStop®

Corrosion Resistance Sheet

What is CONDENSTOP®

CONDENSTOP is a nonwoven based membrane with microspheres, applied at the point of manufacture to prevent problems caused by condensation. CONDENSTOP is most often applied in non-insulated metal buildings and roof systems. For more than 15 years CONDENSTOP prevents sweating, dripping and keeps your valuable building contents dry. Independent testing by BRANZ (Building Research Association New Zealand), proves that CONDENSTOP helps to fight corrosion and does not increase acceleration of corrosion on the surface and edge of your metal sheet.

Test Method

The effect of corrosion on steel panels covered with CONDENSTOP was evaluated by completing cyclic condensation tests; three different steel sheets were used for testing; bare mild steel, hot dip galvanised steel and zincalume. These sheets were directly exposed to a lab atmosphere that mimicked a highly salt laden exterior environment. CONDENSTOP was tested by adhering, as would be done in practice, to the three different steel sheet types.

By cycle changing temperature, and accelerated cooling and drying in an environmental chamber, condensation was created at the surface of the samples. After 250 and 500 condensation/drying cycles, the surfaces of the steel sheets were inspected visually and with an optical microscope.

A second set of specimens were added to the test, to simulate a marine environment. This was done by adding a salt coating on the metal sheet before applying the CONDENSTOP membrane.

Samples

The CONDENSTOP membrane was applied on the steel sheets using a roller to achieve uniform and strong adhesion. The cut edges of the sheets were not sealed to test also the effect of condensation and salt, also on the edges of the steel sheets.

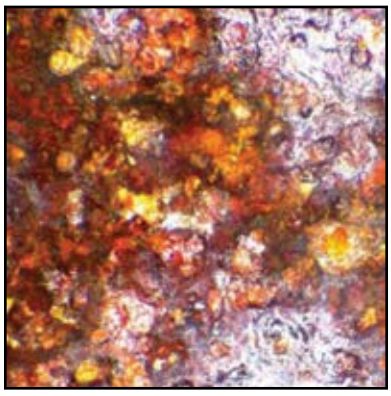

Figure 1. Detailed surface morphology of uncovered steel sample after 500 cycles.

Test results

After 250 cycles, the non-covered steel samples showed several small red rust spots on the surface. The steel samples that were covered with CONDENSTOP showed no visible changes. As expected, the salt coated steel samples showed significant acceleration of steel deterioration; they were heavily corroded and covered with thick, red-brown, iron-rich rust; the salt coated steel sheets covered with CONDENSTOP however clearly showed significantly less deterioration than the non covered steel samples.

Figure 2. Salt coated steel sample after 500 cycles.

Figure 3. Salt coated steel sample with CONDENSTOP after 500 cycles.

After 500 cycles, the non-covered steel samples showed relative large red iron-rich rust spots, viewing under the optical microscopic further revealed many very small rust-like features. These typical corrosion characteristics were rarely observed on the steel samples covered with CONDENSTOP. The salt coated steel samples directly exposed to the lab atmosphere were heavily corroded as shown in figure 2; the surface morphology of the mild steel sample showed that red-brown, iron-rich, rust covered the whole surface. The salt coated steel samples covered with CONDENSTOP however, while also corroded, showed significantly less oxidization than the bare samples, as shown in figure 3.

As stated earlier, the edges of the samples laminated with CONDENSTOP were not sealed. However no increase of corrosion was visible at cut edges of steel sheets.

Conclusion

CONDENSTOP does not increase the corrosion of long run steel metal, not even on the cut edges. CONDENSTOP also helps to fight corrosion, even in a severe, marine environmental situation.

BRANZ

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Cyclic Corrosion Testing of the Condenstop Product