
Relative Performance of treated and untreated L-joints under UC3A and UC3B Conditions Using Two Exposure Conditions

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UC3A compared with UC3B

UC3A

- Protected above ground exposures
- Painted or protected
- Windows, painted trim

UC3B

- Unprotected above ground exposures
- Unpainted
- Decks, unpainted fences



Failure mode of window joinery

- Frame decay common
- Bottom corners especially vulnerable
- L-joint test simulates corner
- Developed many years ago



— L-joint test

Accelerated results

- 10% angle of exposure
- Painted test samples
- Paint film broken at joint to collect water



— **Purpose of this study** - To determine the relative performance of painted and unpainted L-joints at two different high moisture exposure sites.

- **Greenhouse study**
 - 8 hours spraying every 2 days
 - Drying limited between spraying



— **Purpose of this study** - To determine the relative performance of painted and unpainted L-joints at two different high moisture exposure sites.

- **Hilo field study**

- Severe above ground decay site

- Warm with high rainfall

- Can have significant drying between rain events



Methods – Greenhouse test

- 16 ponderosa pine boards treated with water-based triazole/WR system
- Two end-matched L-joint pairs machined from each
 - One matched pair painted, one left unpainted
- Untreated L-joints prepared same way
- Exposed in greenhouse under artificial water spray
 - Four 1-hours sprays over 10 hrs, overnight
 - Repeated every 2 days
- Monitored for MC and decay

— Methods – Field test Hilo

- Forty ponderosa pine samples were selected
- Half of the samples were treated with Triazole/WR system
- Samples were cut from treated stock
- Half of each group of samples were painted
- Exposed in Hilo, HI under tropical conditions
- Samples evaluated for m.c. and decay

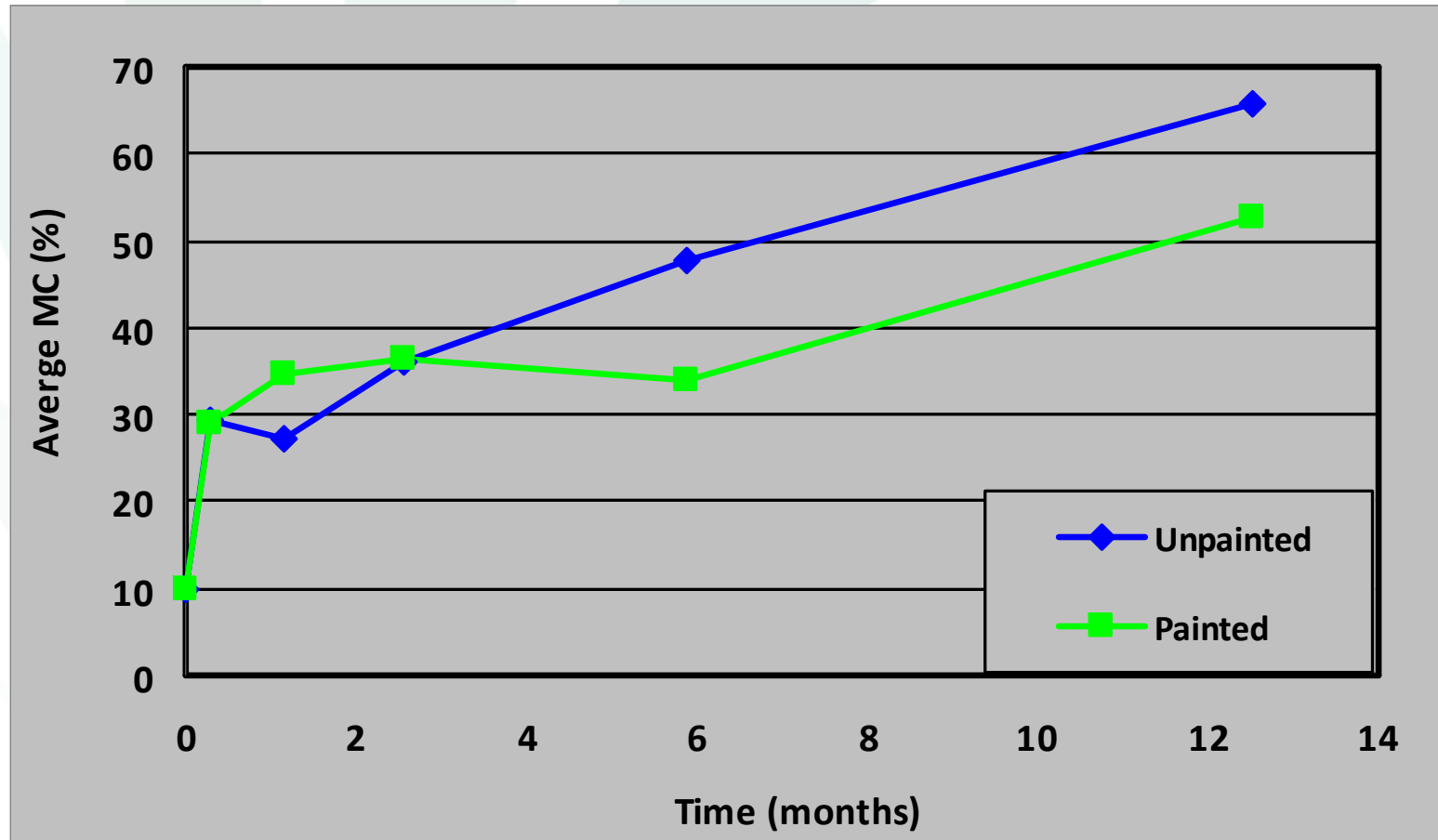


Results

- **Greenhouse (Spraying every 2 days)**

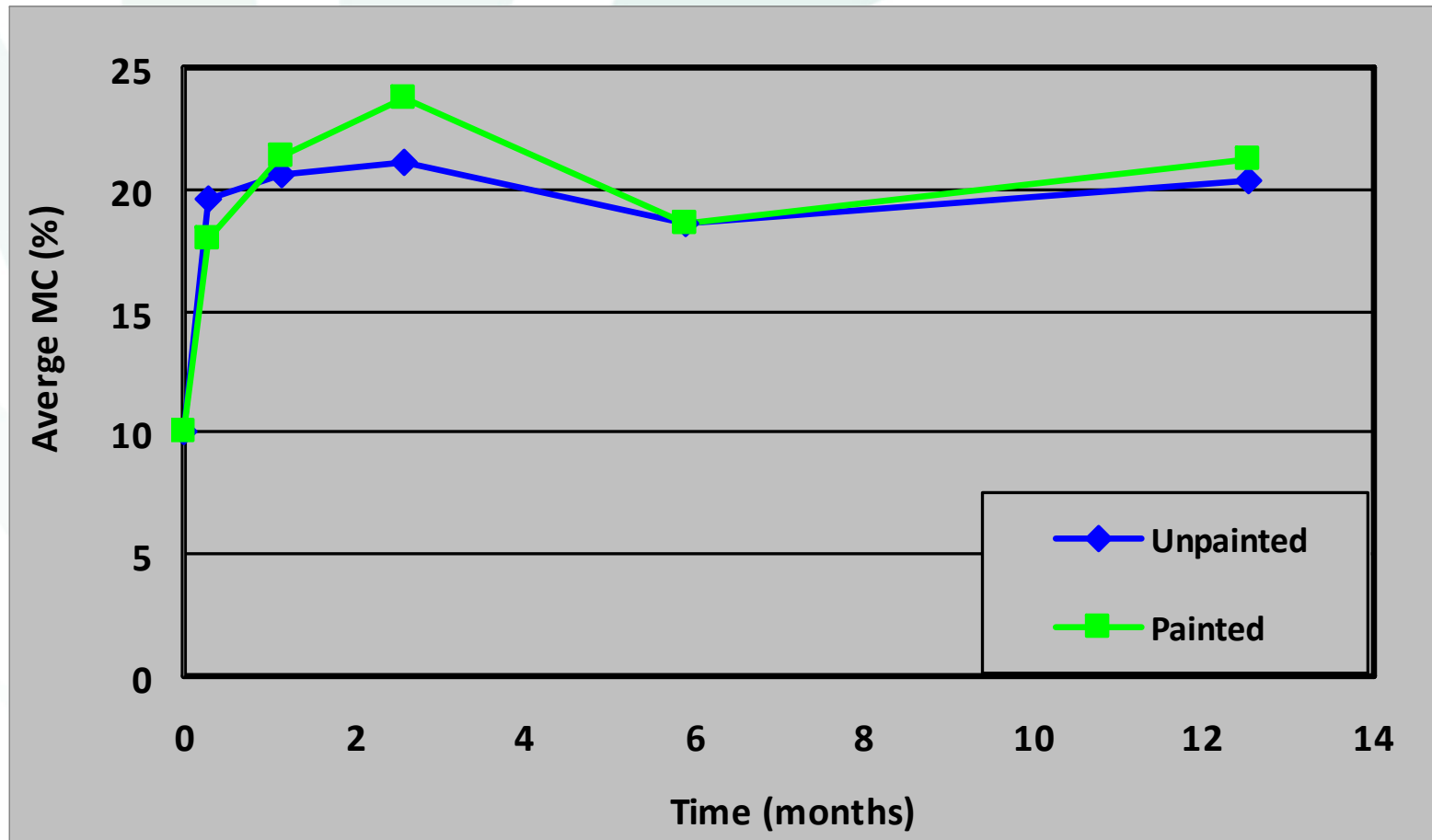
Untreated L-Joint Moisture Contents

Painted and Unpainted Condition



- Presence or absence of a coating did not greatly impact moisture content using consistent greenhouse spray cycle

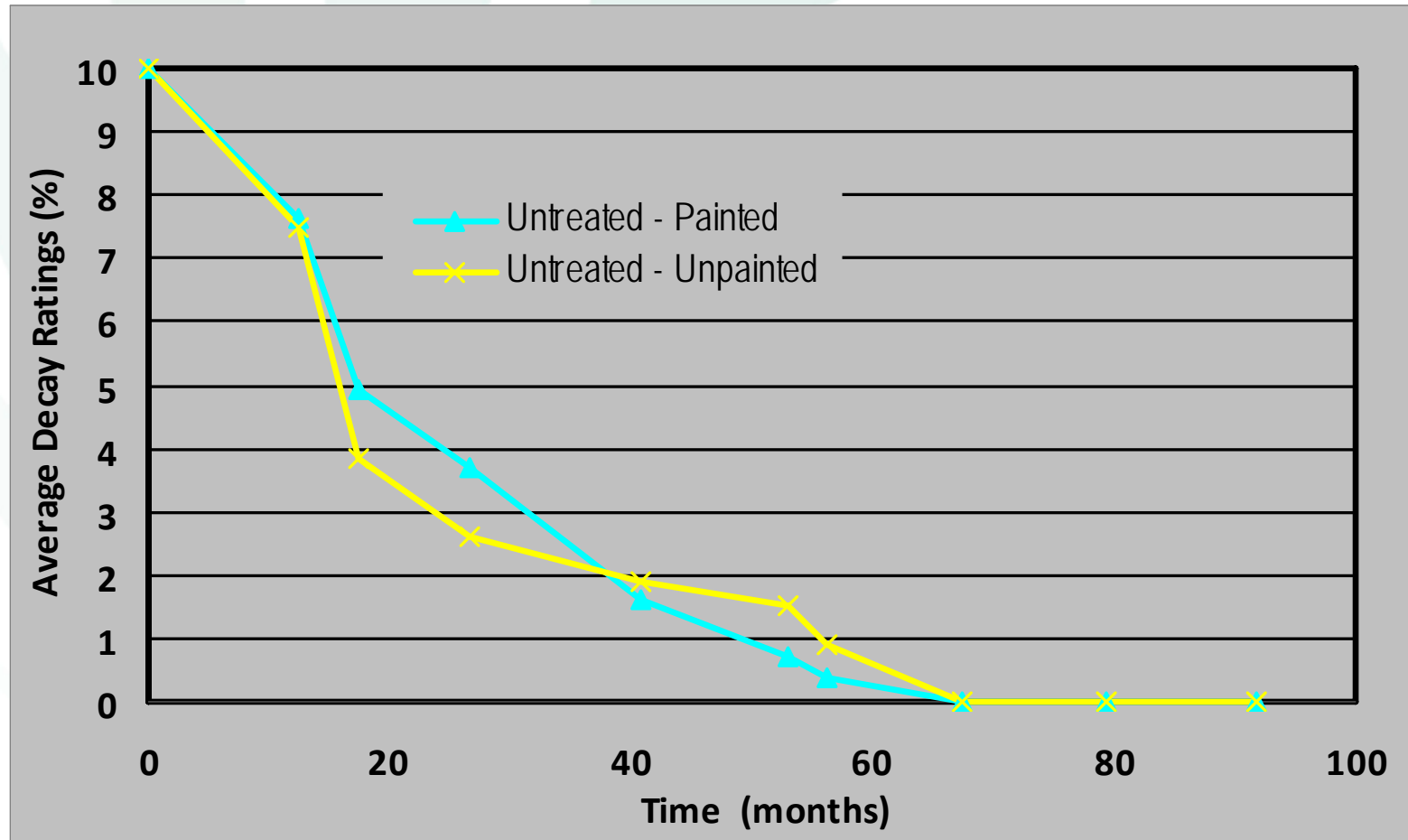
Triazole-WR Treated L-Joint Moisture Contents Painted and Unpainted Condition



- Presence or absence of a coating did not greatly impact moisture content using consistent greenhouse spray cycle

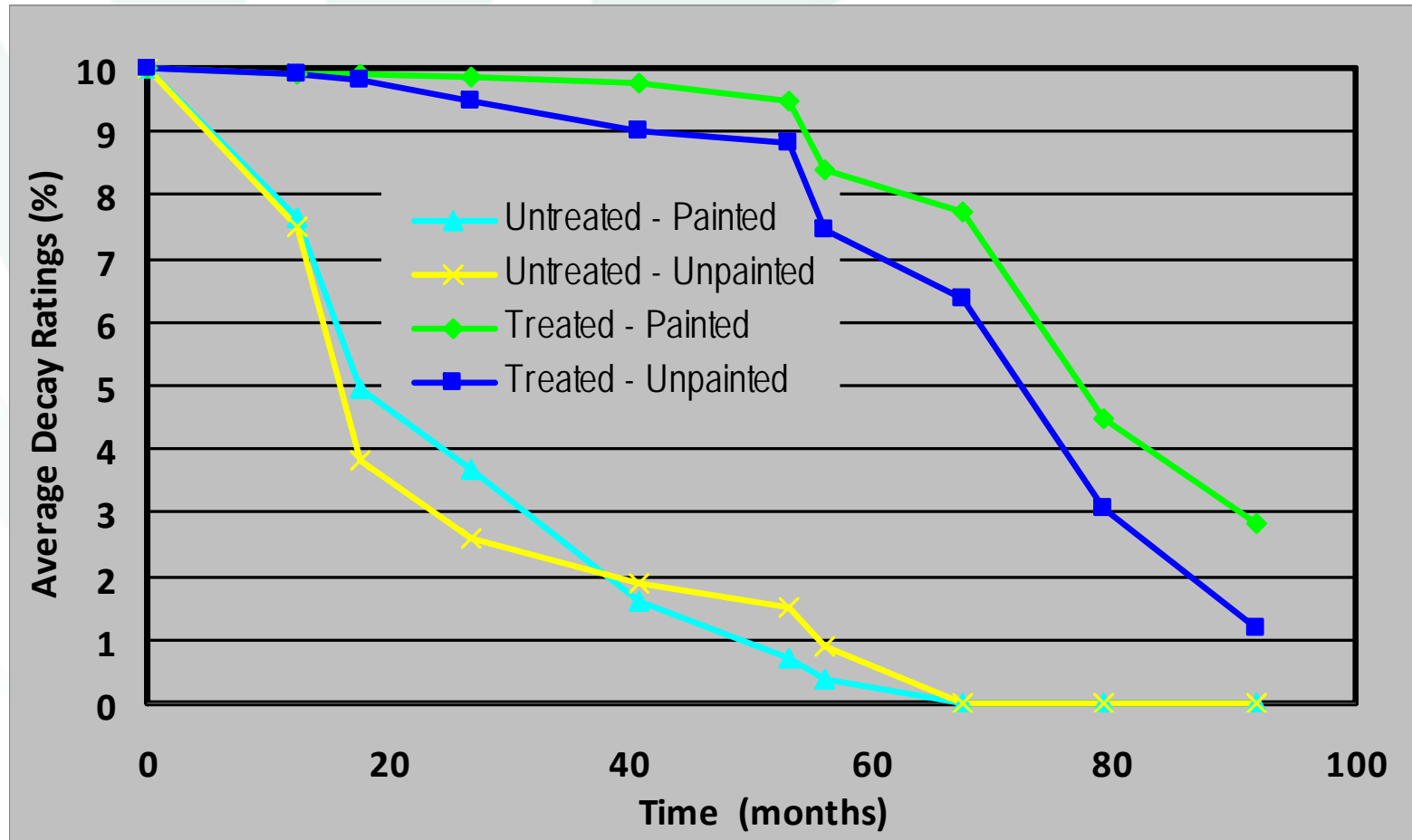
Decay Development in Untreated L-Joints

Painted and Unpainted Condition



- Presence or absence of a coating did not affect decay

Decay Development in Azole-WR Treated L-Joints Painted and Unpainted Condition



- Presence or absence of a coating did not greatly affect decay

— Results -Greenhouse

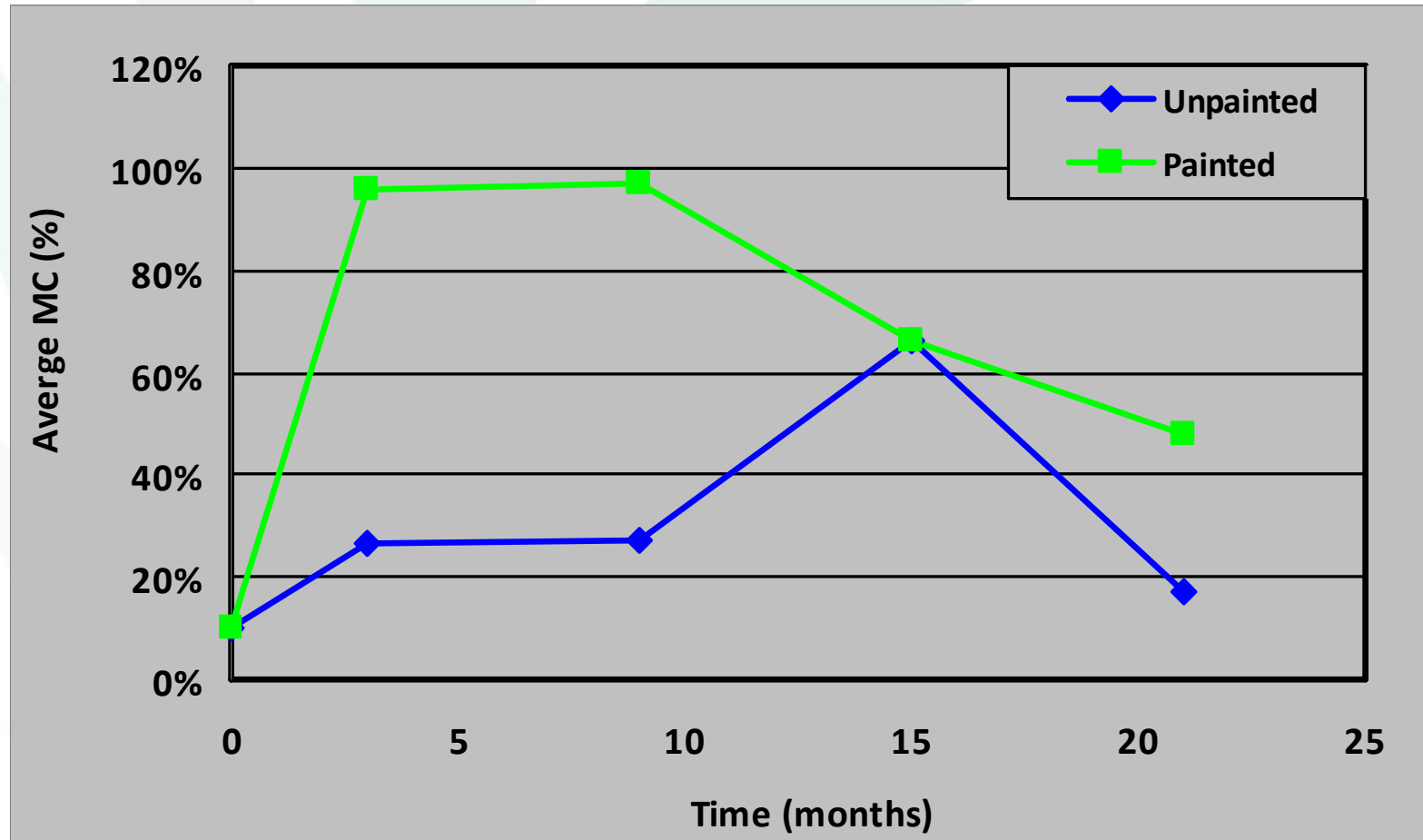
- Repetitive 2-day water spray cycle resulted in similar moisture contents for painted and unpainted untreated L-Joints
- Same for Azole-WR treated L-Joints
- Presence of absence of coating had no impact on rate of decay development in
 - Untreated L-Joints
 - Azole / Water-Repellent treated L-Joints

Results

- **Hilo, HI Field Exposure**

Untreated L-Joint Moisture Contents

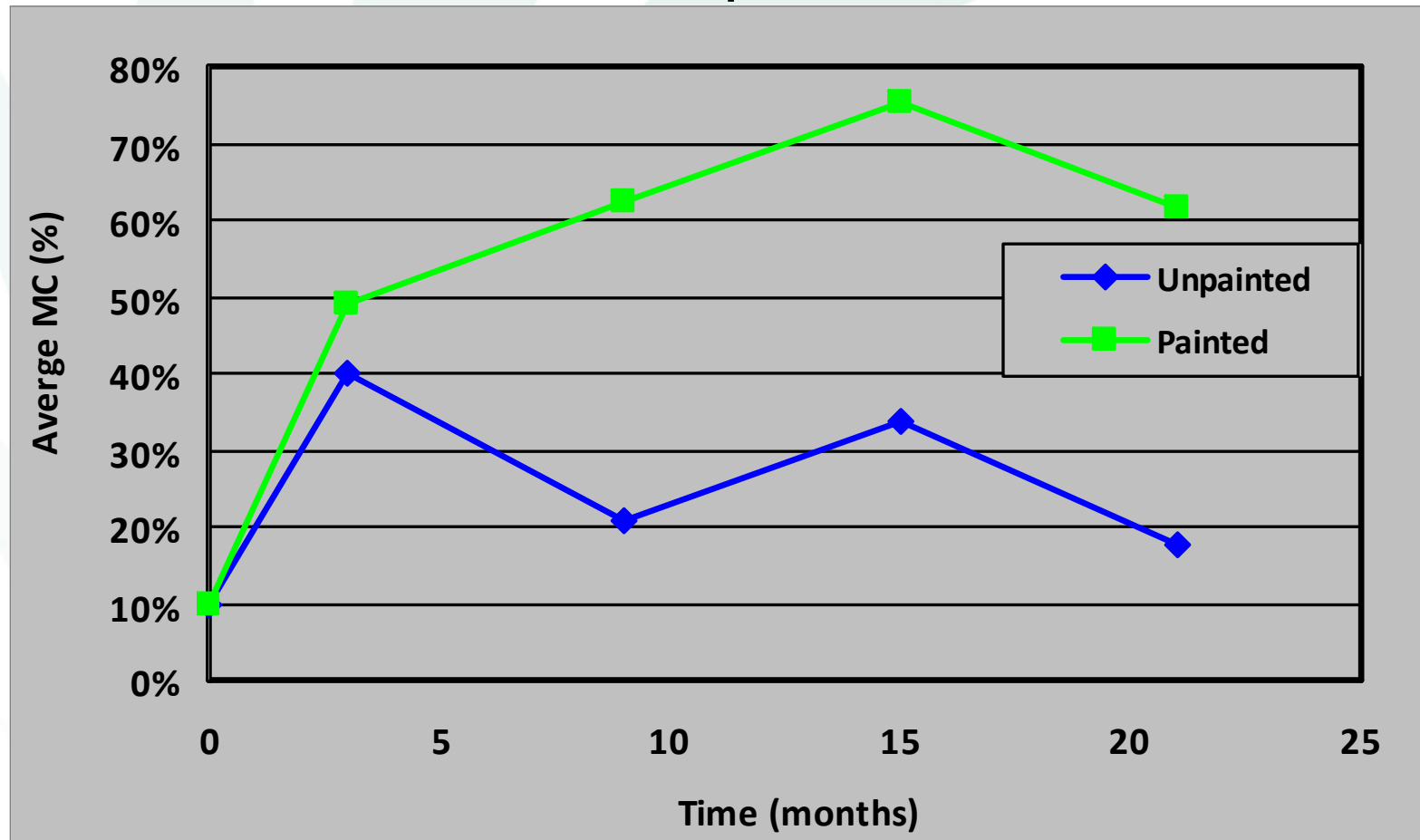
Painted and Unpainted Condition



- Moisture content of painted samples usually higher
- Unpainted often below FSP, Painted Above?

Azole – WR Treated L-Joint Moisture Contents

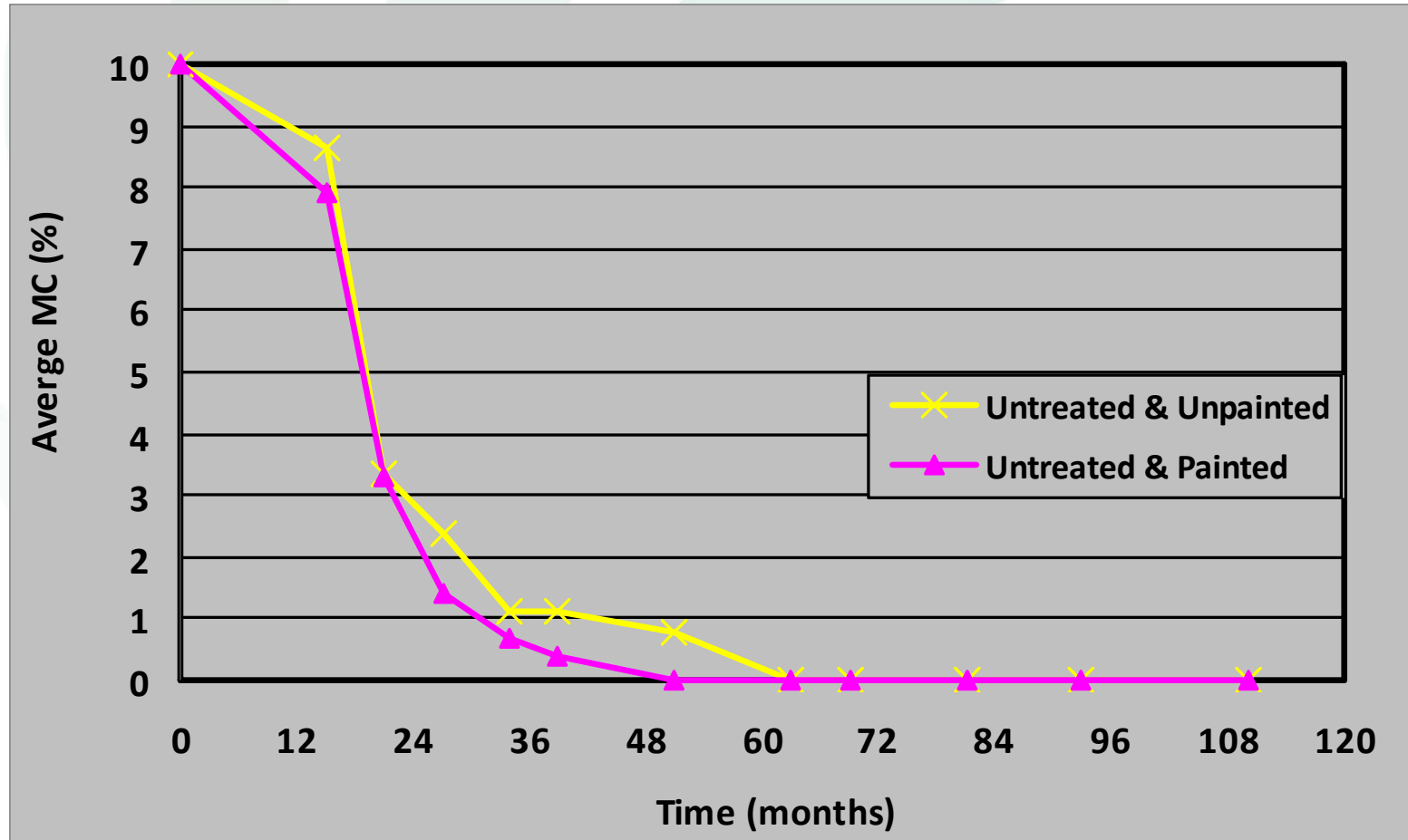
Painted and Unpainted Condition



- M.C. of painted L-Joints was high, staying above FSP
- M.C. of unpainted L-Joints varied, often below FSP

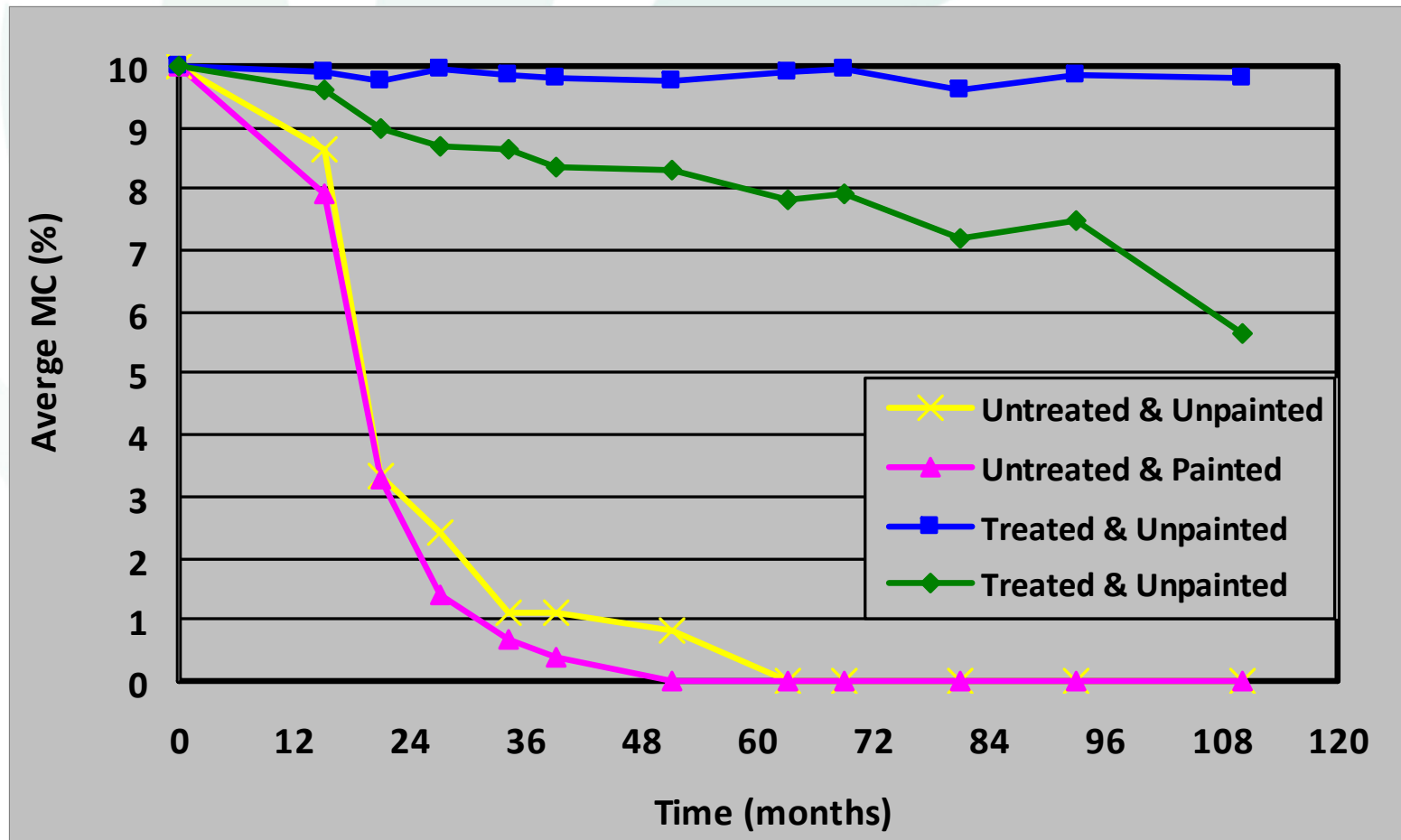
Decay Development in Untreated L-Joints

Painted and Unpainted Condition



- Rapid decay of untreated L-joints supports severe decay hazard of site, minimum impact of paint coat

Decay Development in Azole-WR Treated L-Joints Painted and Unpainted Condition



- Paint coat on azole-WR treated L-joints creates a more severe decay hazard – Limits drying between rain events?

— Results- Field study in Hilo, HI

- Coating samples reduced decay resistance of treated samples
- Coating samples prevents drying

— Conclusions

- Coating samples had no apparent effect on decay in greenhouse exposure conditions used
- Coating L-joints in field conditions caused increased decay relative to uncoated matched samples
- Coatings appear to increase decay hazard where moisture content changes during exposure
- Decay hazard of UC3A relative to that of UC3B may need to be reassessed in regards to preservative requirements going forward