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***Armor Blue Shrink Poly Film with UV Compared to VpCI-126
HPUV-Part 2 Comparing UV Protection***

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Project #: 14-023-1125-Part 3.bis

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Date: October 7, 2014



Background: A sample of Armor Blue Shrink Poly Film with UV was submitted and it was requested that it would be compared to VpCI-126 HPUV.

This is part two of the report, which focuses on the comparison of UV protection of VpCI-126 HPUV and Armor Blue Shrink Poly Film.

Sample Received:

- 1) Armor Poly VCI film, 5.5 mil, good condition, received 01-30-14, customer identified it as the following: PVCISHH6MB240100UV-6 MIL 65"x55" 20'x 100' Blue Shrink Poly Film w/UV

Method:

- 1) ASTM G 53

Materials:

- 1) VpCI-126 HPUV, 10 mil, Lot#34446
- 2) QUV chamber

Procedure:

- 1) The tests were performed according to standard procedure. UVB lamps were used in the QUV chamber.
- 2) The panels were placed in the QUV chamber , set to the following repeating cycle:
 - a. Condensation cycle: 40°C for 4 hours
 - b. UV Cycle: 60°C for 4 hours.
- 3) Panels were prepared in triplicate for each film being tested.
- 4) The panels were checked daily for signs of degradation. The panels were also rotated daily to insure that they received even light throughout the test.
- 5) When a panel of the Armor Poly VCI film showed signs of degradation, a picture was taken of the film.
- 6) The VpCI-126 HPUV panels were continually monitored for changes. Since no visual changes were seen after 145 days, they have been left in the QUV chamber to be monitored for changes.

Results:

UV Test Results

Sample	Panel 1 Days to Failure	Panel 2 Days to Failure	Panel 3 Days to Failure
Armor Poly VCI film	85	98	104
VpCI-126 HPUV	210	210	158 days*

* The area that failed is thinner than the rest of the film as a result of heat shrinking the film

Results relate only to the items tested

Photos:



Figure 1. The 3 pictures above were taken the date that the Armor films failed; the corresponding date of the failure is listed above each panel.

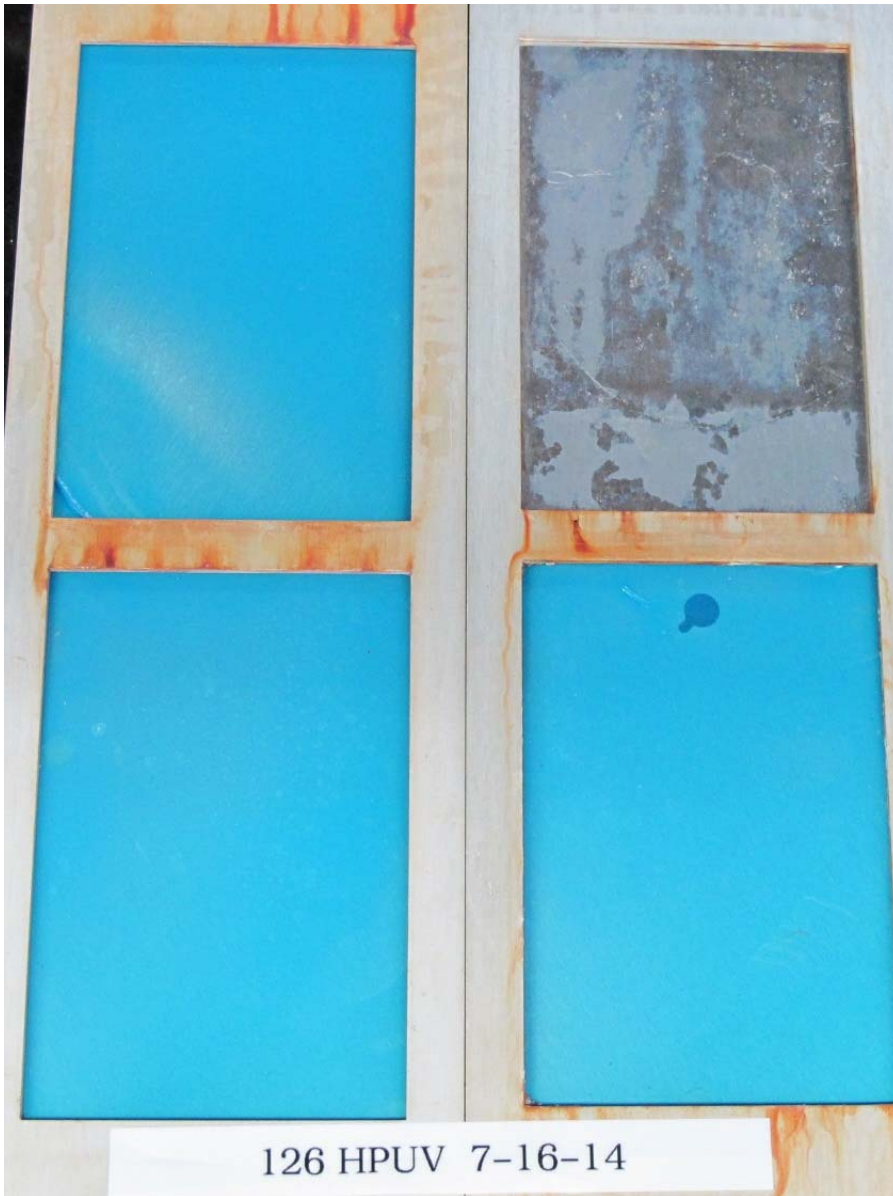


Figure 2. VpCI-126 HPUV film 145 days after the films started in the UV chamber, and there are still no signs of the film degrading. The panel in the upper right is a control.

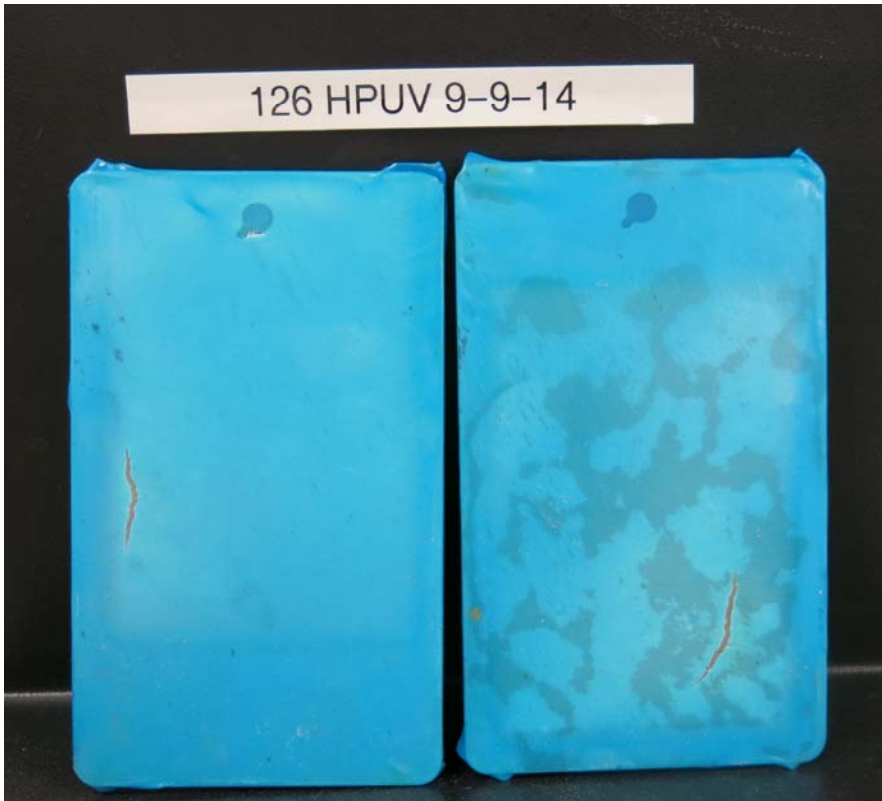


Figure 3. VpCI-126 HPUV films that failed after 210 days in the QUV chamber.



Figure 4. VpCI-126 HPUV films that failed after 158 days in the chamber.

Interpretations:

1. Based on test results, VpCI-126 HPUV provides better UV protection than Armor Poly VCI film.
2. The Armor film started cracking and breaking down after 85-104 days in the UV chamber (figure 1) compared to VpCI-126 HPUV, which failed after 210 days (figure 3).
3. One of the VpCI-126 HPUV panels started failing at 158 days. This may be due to the fact that the film appears thinner in that area from the heat shrinking process.