

FRAME COLOR CHANGE

- Chemicals can cause PVC discoloration. All fuels, solvents, bleaches or corrosive chemicals must be avoided.
- In dry climates with high levels of solar energy, a color change can be expected with PVC, like most any finish.
 - A color change has no effect on the strength or structural integrity of the PVC.
 - Intense solar energy can initiate a change in the molecular structure at the surface that results in a yellowing effect.
 - Over time and with exposure to normal humidity, this yellowing most often returns to a white color.

Figure 1 below shows the evolution through the change process with a return to the whiter color after continuing exposure.

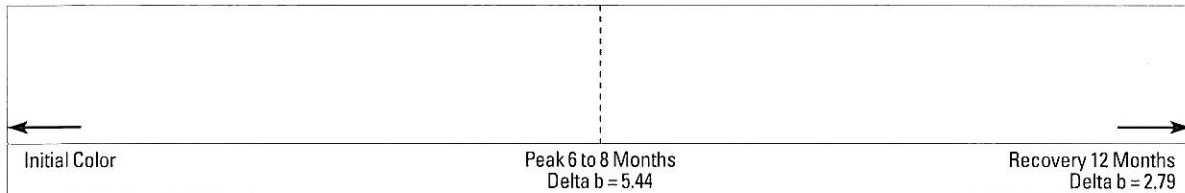


Figure 1: Shows actual color change on PVC window frame material when exposed in Arizona. Color can yellow after initial exposure in dry, high-solar-energy climates, then normally whitens again with time and weather. See Notes 1, 2, 4 below.

INDUSTRY COLOR STANDARD

- Some degree of color change is built in to industry standards.
- These standards take into account natural aging and weathering factors and describe the allowable change in ways that can be scientifically measured.
- As an example, in Figure 2 below, the potential color change along one spectrum shows the point at which the AAMA standard for white PVC is set.
- In the ASTM Standards, these values are determined for color change on a three-dimensional measure (dark to light, red to green, and blue to yellow) and mathematically expressed to allow objective and repeatable standards to be established.
- PVC that passes the AAMA standard for window profiles meets this color change standard.

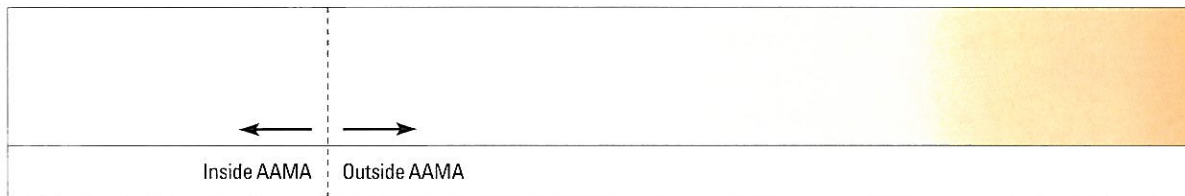


Figure 2: Demonstrates the American Society for Testing and Materials standard (ASTM D4726-98) incorporated in the AAMA specification for white PVC window frame acceptable color change. See Notes 1,3,4 below.

- NOTES:**
1. Printing processes can vary. Colors shown are best approximations of actual laboratory samples. View in shaded outdoor lighting conditions.
 2. Reproduced from actual weathered sample exposed for 1 year at an independent laboratory in New River, AZ. Color development and recovery depends on environmental factors, time of year, and total elapsed time.
 3. ASTM Standard and AAMA Specification inside/outside point is visually demonstrated as closely as could be shown with independent laboratory verification, actual weathered samples, and reproduction techniques.
 4. Color tone and time frame in actual field situations may vary from these examples.

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