

Service Life of Prepainted Metal

By Al Dunlop, NCCA Technical Director

Many companies in the metal construction/building industry are preparing Environmental Product Declarations (EPDs)¹ for their product portfolios. In many of the EPDs, a service life designation is required for the metal panel. There is not currently a generally "accepted" service life for prepainted metal; however, we know that coating metal will not significantly alter the service life of the substrate it covers. If anything, coating the metal should extend service life, but, what will it look like?

To demonstrate "accepted" service life for prepainted metal, NCCA has reviewed exposure data for PVDF (Fluoropolymer) coated metal from various sites in South Florida from the following NCCA member companies: Arkema, AkzoNobel, PPG, and Valspar.

All of the testing sites use ASTM G-7, *Standard Practice for Atmospheric Environmental Exposure Testing of Nonmetallic Materials*. This standard covers procedures to be followed for direct exposure of nonmetallic materials to the environment. The panels were exposed at an angle of 45° facing south. The South Florida area is used for the outdoor exposure test sites in order to get rapid indication of outdoor durability since this region exhibits high UV, temperature and moisture. 45° south is the most commonly used exposure orientation.

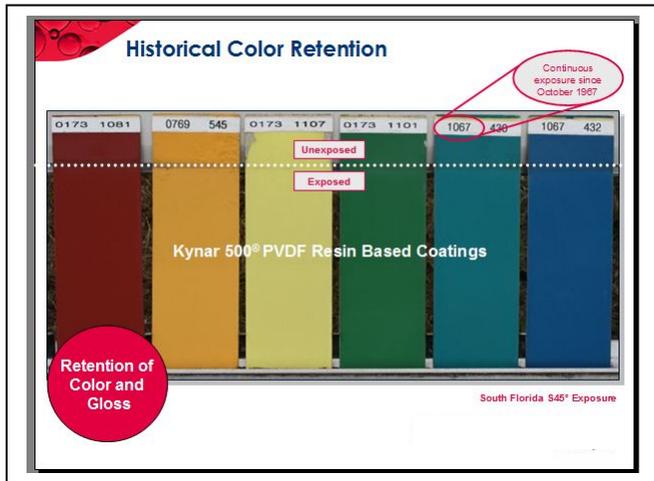
The following are pictures of exposed PVDF coated metal panels with all testing conducted at 45° South Florida from the member partners. In all cases, the prepainted coating is intact (not cracking or chipping) and visually exhibits good color retention and chalk performance.

Based on this pictorial data, it is reasonable to assume an unretouched service life of greater than 40 years for prepainted PVDF metal panels. Manufacturers should work with their entire supply chain to determine the appropriate EPD (trademark sign) for their products.

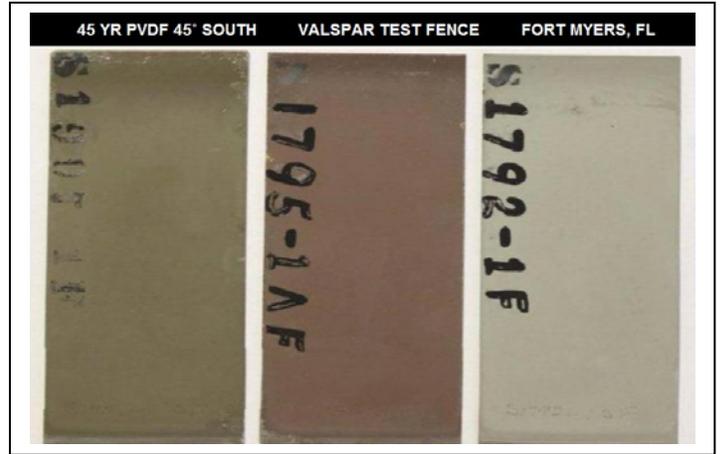
¹An EPD® (Environmental Product Declaration) is an independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products.

Samples

Arkema (47 years exposure)



Valspar (45 years exposure)



PPG (40 years exposure)



AkzoNobel (28 years / 23 years exposure)

