



One Tough PUPU™

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PUPU® Crossarm Resistance to Ultraviolet Radiation

PUPU fiberglass crossarms are made with triple protection against environmental degradation:

1. Outer surface is our patented thermally-bonded SunGUARD® UV resistant coating with over 25 years of use on Geotek pultruded fiberglass products in a wide variety of environments.
2. Ultraviolet-resistant polyester veil covers PUPU fiberglass beams under the bonded coating.
3. The entire PUPU resin system contains a broad spectrum UV inhibitor.

SunGUARD® Coating

Geotek engineers have been manufacturing fiberglass structural products for outdoor applications since 1972. We started coating fiberglass products for outdoor applications in 1973 and started shipping SunGUARD® coated fiberglass structures in 1982. Since that time, we have not had a single product failure of any SunGUARD® coated product anywhere in the world due to environmental degradation nor have we seen any measurable coating erosion over time.

➔ **PUPU crossarms have a synthetic veil surface and UV resin inhibitors as our competitors do plus our unique thermally-bonded SunGUARD® coating to give unmatched UV resistance.**

Accelerated Testing of Resistance to Ultraviolet Radiation

The Rural Utilities Service, US Department of Agriculture specifies 2500 hours of accelerated testing according to ASTM G53-96, now G154-06. PUPU beams were tested with QUV Accelerated Weathering Testers at the Composite Materials Technology Center at Winona State University, an independent testing facility. Results were:

- PUPU crossarms had no degradation in flexural strength, modulus, or deflection to failure after 2500 hours of exposure and minimal lightening of coating color.
- ➔ A more aggressive test of 10,000 hours of accelerated exposure to intense UV-B radiation showed some lightening of the coating color and loss of gloss but minimal coating erosion with no effects at all on the fiberglass structure.

Note: The QUV is a comparative test. The ASTM states in G151 for accelerated testing: “Even though it is very tempting, calculation of an *acceleration factor* (ASTM italics) relating x hours of a laboratory accelerated test to y months or years of exterior exposure is not recommended.”

Field Experience

At present, there are hundreds of thousands of PUPU fiberglass crossarms installed in a wide variety of environments including the hot and wet climates of Southern Florida and overseas tropical areas, the hot and dry environment of the Arizona desert and other Southwestern states and the frigid Northern areas of Canada and Alaska.

- With over 16 years of exposure in various natural environments, not a single PUPU beam has failed due to environmental degradation.
- In the most intense UV exposure environments, some lightening of the coating color may occur, particularly on the top surface, but the coating remains intact.

➔ **PUPU crossarms have projected service life well over 60 years.**