

STARLINE

POLYSPAN

by Don Typond

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Wouldn't it be nice if there were a covering material that's strong and stable and just about puncture-proof, and not any heavier than what's being used now?

Polyspan, a modern covering for traditionalists. Looking very much like the more transparent silkspan of 30-plus years ago. Polyspan is made of non-woven polyester fibers randomly intertwined, but with a definite grain running lengthwise along the sheet. It isn't as stiff as silkspan or tissue, but rather feels "floppier" and is soft and silky to the touch. Like silkspan and tissue, Polyspan is porous, and needs to be filled with dope. It's perhaps best described as a "paper" made with polyester fibers instead of wood fibers. But unlike paper, Polyspan is waterproof and doesn't absorb moisture. Which means it won't sag and change the airplane's trim on those dewy early morning flights or rainy day flying sessions.

And it is tough! Trying to tear it across the grain takes more force than you'll ever put on a model in normal use. It does tear more easily with the grain, but is still much stronger than silkspan, and probably even stronger than silk. Let's put it this way; if you dropped a quarter on it from two feet up, it'd bounce off. Yes, sharp objects will puncture it, but the polyester fibers will resist the puncture growing into a tear.

Polyspan is made in Germany, and imported by Sal Fruciano. A roll measures 12 feet by 20 inches, and sells for \$15.00. Polyspan is available only in white, but can be colored by mixing dye into clear dope and spraying it on. (The old method of dyeing in colored water before covering doesn't work because Polyspan is waterproof.) Starline by FAI Model Supply sells 2 oz. concentrate dyes in red, yellow, blue, orange and black, at \$5.50 per-ounce bottle, which will dye a lot of dope at the recommended one-to-ten ratio. Polyspan can also be painted with opaque dope, of course, or with other compatible paints once it's been sealed with a few coats of nitrate dope.

Okay, how heavy is it? I weighed one-square-foot samples on my balance scale (which I'm sure is accurate, but even if not produces usable *relative* weight comparisons). Polyspan weighs 2.25 grams per square foot, Japanese tissue ("Esaki" white, from Oldtimer Model Supply) weighs 1.125 grams per square foot. Thus, Polyspan is twice the weight of silkspan, and slightly more than twice the weight of Japanese tissue.

But raw weight doesn't mean much since these coverings require dope to seal them, and Polyspan is said to need only two coats of 50-50 thinned nitrate to fill it. So I made a 12 x 12-inch balsa frame, and doped the Polyspan to it. Then I thinned Sig nitrate clear dope 50-50 by volume could result in a more full-bodied material, requiring fewer coats.) Two coats began to produce a gloss, and filled most of the grain, but there were still a few small pinholes that could be seen when I held the panel up to the light. It took five coats to completely fill all the pinholes, and by then the surface had become attractively glossy. Obviously, applying many coats to the entire surface just in order to fill the pinholes is overkill, and were I covering a glider or rubber-powered model I would consider two or three coats sufficient (maybe dabbing a little more on the pinholes), especially since the dope isn't needed to make the covering moisture proof.

I then removed the Polyspan from the frame and replaced it with a sheet of silkspan. Painting silkspan is like painting a blotter, and the first couple of coats used a lot of dope as it soaked in. By the time the silkspan was sealed and the surface no longer fuzzy, I had applied six coats.

Lastly, I repeated the procedure with a panel of tissue, which required three coats to fully seal it.

After allowing 48 hours drying time, I weighed each panel. The Polyspan weighed 3.6 grams, the silkspan also weighed 3.6 grams, and the tissue weighed 1.8 grams. In short, Polyspan ends up having the same finished weight as silkspan, but with much more strength, moisture resistance, and longevity. Yes, it's twice the weight of Japanese tissue, which is still my choice for small, light rubber models, but Polyspan is perfect for larger, heavier freeflight,

control line, and R/C models.

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