

Book Business Magazine

The Virtually Indestructible Book

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Book designers have a lot of options to choose from and one such option is synthetic papers. Synthetics contain no wood pulp, or natural fibers of any kind, and are most commonly made out of polypropylene resin along with inorganic fibers. The quality of synthetics is so high it is hard to tell them from real paper as they look and feel like a #1 freesheet.

Other unique characteristics that distinguish synthetics from pulp-based paper are strength and durability as they are tear-, water-, chemical- and grease-resistant, as well as UV stable. These characteristics are ideal for books that can be read in the bath, pool, spa, or shower. They can be safely used while boating, fishing, skiing, snowmobiling or scuba diving. They're ideal for instruction manuals for lifeguarding, first aid, emergency preparedness, engine mechanics or landscaping. Cookbooks and children's books are also good candidates, as they can be wiped clean. You can even sanitize them with disinfectants or medically sterilized with Gamma irradiation.

Synthetic papers have been around for a while, but have not been generally used for publications. The most common uses of synthetics have been for labels, tags, maps, posters, packaging and manuals. They derive their strength from a base layer that is covered with surface layers that add an ultra bright finish and smooth texture.

Synthetic papers have high opacity ratings due to the innumerable micro-voids created during the manufacturing process. Their brightness rating is 90, which allows for vibrant color. They're tough, long lasting, waterproof and tear resistant. Just the characteristics Greg Wittstock, the "Pond Guy" and President of Aquascapes envisioned for his 'how-to' manual.

Aquascapes, Inc, a Chicago-based company specializing in the water-garden business produced a 328-page high-quality four-color instruction manual called the *Pond Builder's Bible*. "We designed the book to be physically strong and sturdy so you can put it in the glove compartment of your truck and pull it out for use in the field. It's virtually indestructible. It can get rained on, dropped in the mud or right into the pond and it won't fall apart. In fact, you couldn't rip these pages even if you tried." says Wittstock. "The best field manual I've ever seen!" he adds.

The two largest producers in the market is Oji-Yuka (Yupo), followed by Arjobex (Polyart). Other large producers include Hop Industries (Nanya), PPG (Teslin) and Transilwrap (MXM, Proprint). "Our product was so close to real paper that it was a natural to offer it to the publication industry." says John Courtie, Western Region Sales Manager for Polyart. Yupo, Polyart and Nanya all offer publication-grade stocks internationally, but Nanya is not as common within the U.S. Most stocks are offered in both web rolls and sheets.

There are differences between Yupo and Polyart. “Polyart has no grain direction and is clay-coated.” Courtie points out, “And it does not require special inks.” Which correctly implies that Yupo has a directional grain, does not have a clay coating and requires special inks engineered for high-quality printing on a non-porous surface.

The differences between the two brands offer various advantages and disadvantages depending on your publication’s needs.

- **Grain**
Both brands are tear-resistant, which is not the same as tear-proof. All synthetic stocks will easily tear if the edge gets nicked. Yupo has a directional grain, which makes it almost impossible to tear against the grain. But the direction of the grain needs to be considered if folding heavier stocks. Polyart has no grain and thus there’s no problem with folding. However, it is recommended that any stocks over 120#s be scored and folded with the grain.
- **Clay Coating**
The clay coating Polyart puts on their stock imitates the clay coating on regular coated paper stocks. The coating helps with drying time and will accept regular offset inks. The clay coating also feels more paper-like whereas Yupo has more of a slick, but interesting, feel. Because of the clay coating, Polyart is also more susceptible to scratches than Yupo. Both options have characteristics a designer should take into account.
- **Special Inks**
Yupo requires special ink, whereas Polyart uses regular offset inks. However, those offset inks require special diluting. So in essence both stocks require special handling, but Yupo’s ink is engineered specifically for high-quality offset printing on a non-porous surface.

If you plan on using UV coating, Yupo first requires a UV-curable primer or appropriate aqueous coating.

It is the common characteristics between the two brands, unique to synthetics, which present the most challenges. Whether its offset or special inks, both stocks experience drying problems. Yupo’s recommended press output speed is 7,000 impressions per hour. Polyart claims their paper runs a little faster than that but didn’t give any figures.

Sheets need to be racked on one-piece delivery boards, up to 4” depending on ink coverage. It is recommended that Yupo be powdered and wined regularly to prevent ink and gas ghosting. Polyart does not require winding. One printer, who wishes to remain anonymous, found out that it took up to 36 hours, per side, for the ink to dry on a Yupo job with heavy ink coverage before they could turn and print the other side. Polyart states that it takes a minimum of three hours per side depending on ink coverage. On heat-set presses the dryers have to be turned down to 165°. All of this special handling time adds to the overall cost.

Binding has its own requirements. Saddle-stitched books require stainless steel wire, spiral bound books require rounded die-cut holes and perfect, or patent, bound books require a silicone- or urethane-based hot-melt glue for underwater adhesion.

The first printing of the *Pond Builder's Bible* was 10,000 copies and was printed on Yupo. It was one of the largest run of high quality books ever produced on the stock and Yupo had a technician working onsite with the printer. "Things went really well until we got to the bindery stage," says Michele Kurschner, Creative Director, "then everything fell apart...literally." The first samples to arrive had pages just falling out. The 'virtually indestructible' book was anything but. It was soon discovered that the bookbinder die-cut square holes for the double-wire spiral binding and the square corners provided the nicked edge needed for the pages to easily tear. The problem was quickly remedied by changing to a single-wire with round holes.

Most printers have no problem with either stock for print quality. "We finding running Polyart easy. It has a great surface, dries easily, good ink holdout, folds easily and takes to embossing and such," says George Anderson of Riddle Press in Beaverton, OR. "It is not paper, yet it has everything you want from a good-quality paper...and then some."

Even with all of the advantages of strength, durability and aesthetics there are very few books printed entirely on synthetic paper. Most are children's bath books with manuals and specialty books close behind. Melcher Media Inc. produces waterproof DuraBooks that includes a series of six Soapdish Editions and in the single-volume anthology, *Aqua Erotica*. The Soapdish Editions, as their name implies, are only about the size of a bar of soap and they were specifically designed to be used in the bath.

Ancient Mariner Aquatics, Inc. published, *The Waterproof Triathlete. Waterproof Workout for Triathletes*, which can be used in all conditions of the sport.

There's three basic reasons why most book publishers do not use synthetic stocks more often: one, it's not necessary. Most books do not need to be indestructible.

Two, they're more expensive. By how much varies. Many factors affect the actual price of various stocks and the additional printing costs attributed to the special needs of synthetics makes direct price comparisons misleading. The best thing is to get your own printing bids with both stocks quoted.

Aquascapes switched to Polyart for its second edition of the *Pond Builder's Bible*. When asked why, Kurschner said it was just because of price. "We didn't have any issues with the quality of Yupo, but with a different printer and Polyart stock we got a better price."

Justifying the higher cost of synthetics over regular paper is partly objective and partly subjective. Does the synthetic paper itself actually add to the value of the book? If so, is it worth the additional expense? Only you can make that decision.

A third reason why synthetic papers aren't more commonly used is many designers are unaware of their availability. *Clear*, a fashion magazine, published in the Detroit area is entirely on Yupo. They selected the synthetic stock, not for its toughness, but for its unique feel. The cover is on a translucent stock.

Many types of books are good candidates to be on synthetic papers. All kinds of applications can take advantage of this high-quality option, such as book jackets in which the durability protects the book longer.

Synthetic papers have met the quality standards that magazine and book publishers expect and, arguably, exceed them, but be prepared for the idiosyncrasies of their special characteristics. Being aware of these small differences can make printing on synthetic paper go very smoothly. The product will be unique and its value enhanced with strength and durability that most books never have.

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