

What's in a Name?

Today, containerboard product names are cleverly coined to describe appearance or printing characteristics. Yet, when product improvements take place, the name can lose relevance and create confusion. For example, customer demands in the mid-1990s for a brighter, less mottled liner from North American producers led to the development of white top liner. The resulting product resembled white top liners common to the European market. However, the term "mottled white" is still commonly used even though a truly mottled white top can rarely be found in the North American market.

With company mergers, changes in product offerings and quality, containerboard product names have left many corrugated manufacturers bewildered. Unfortunately, the variety of graphics grades, product differences and catchy brand names have only added to this confusion. With the increased significance of packaging acting as a "silent salesman," it's more important than ever for corrugated printers to understand the differences between various white liner grades.

In this issue of *Paperwise*, we'll discuss the basic construction of these liners to give you a clearer understanding of product differences, and we'll decipher the trade names and aliases so you can make the best product selections for your customers and your business.

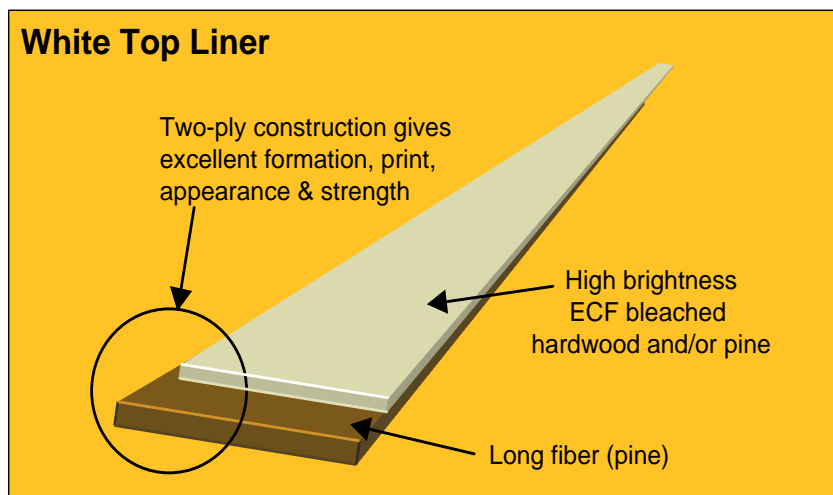
White Top Liners

White top is typically a two-ply sheet, with the top ply being elemental chlorine free (ECF)* bleached white fiber and the bottom ply being made of unbleached virgin fiber, recycled fiber or a mixture of both.

Because the outer facing of white top is bleached fiber, it gives corrugated printers the latitude to expand the gamut of colors and graphics that can be used, which tends to enhance a consumer's product perception. White tops also have a much smoother surface than kraft liners and their uniform white appearance allows for graphics ranging from full ink coverage, to screens or a combination of both.

Additionally, white tops have the structural strength characteristics box makers associate with kraft liners, which allows them to be used in applications needing stacking strength or to tolerate rough handling.

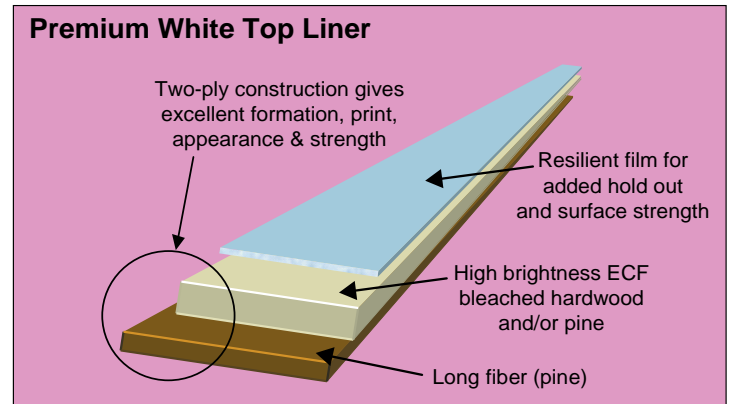
Elemental chlorine free (ECF) means virgin brown fiber was bleached white without using hazardous chlorine gas. ECF bleaching is recognized as the best available technology for protecting public health and the environment, while providing high quality bleached pulps for papermaking.



Premium White Top Liners

Premium white top has the same basic construction as white top, with one ply of bleached fiber and one ply of virgin brown fiber. However, premium is made with a thicker ply of white fiber and a surface treatment. The result is a much brighter sheet with virtually no mottle and more ink hold out than regular white top. Additionally, the brightness of premium white top makes it ideal for applications where bleached or coated linerboards have been typically used.

Premium offers better value than fully bleached liners and its smooth surface makes it ideal for four-color process printing. It's often used in high quality retail packaging when greater visual impact is required by the end user. Many electronics, and food and beverage producers have used premium white top very effectively.

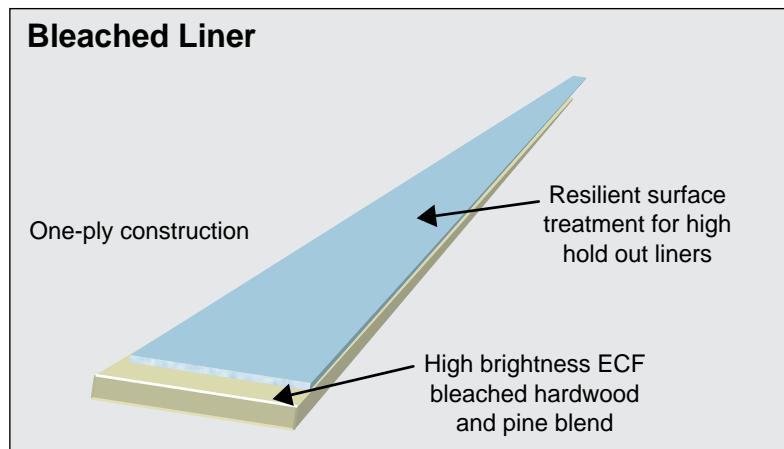


Bleached Liners

These liners are a one-ply fully bleached substrate that are popular in applications where the end user needs a clean white appearance to convey a sense of high product quality. Although there can be differences in the ink hold out and the visual appearance of bleached liners, the absence of mottle helps communicate superior product quality and value for the money spent. Consequently, bleached liners are popular for pharmaceuticals, cosmetics and food products.

All bleached liners can be directly printed without air or infrared dryers, but corrugated printers need to understand the differences in ink hold out levels. In general, most bleached liners can be used for one- or two-color, full ink coverage printing that are often used in point-of-purchase displays. High hold out bleached liners provide the highest ink hold out levels of any uncoated graphic liner. These hold out levels generate strong colors and the smoother surface is ideal for four-color process printing, but shouldn't be used solid coverage print.

Regular hold out bleached liner or a coated liner may be the product to use if you desire a high degree of ink hold out for solid ink coverage. A UV-cured overprint varnish can be used to add high gloss or give the appearance of a coating if your printing press is not capable of running coated liners.



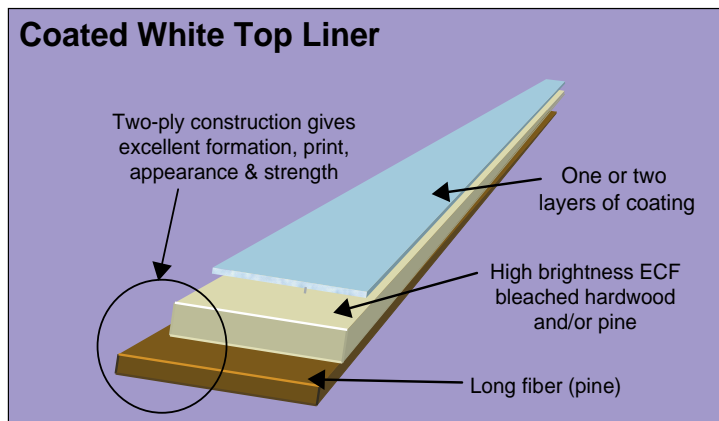
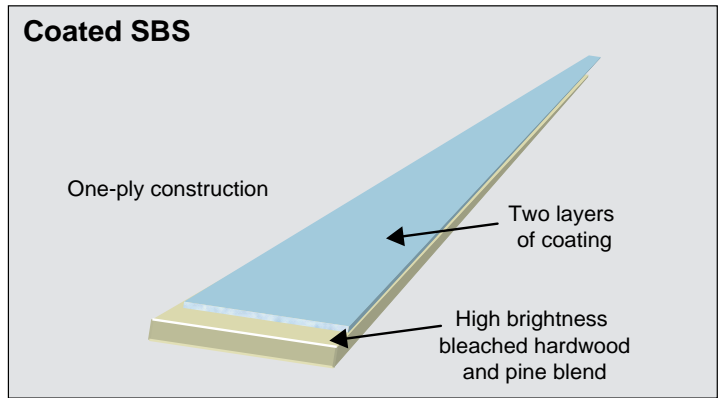
Coated Liners

Coated linerboard can be constructed in a variety of ways from the fiber make-up, to the number of plies in the base sheet. Coated white top liners with one layer of coating are referred to as lightly-coated liners and are typically made using a two-ply construction with a layer of clay coating applied to the sheet surface in order to increase ink hold out levels. Coated liners with two layers of coating are referred to as fully-coated liners and provide even greater ink hold out levels.

Typically, coated solid bleached sulfate (SBS) has two layers of coating (double-coated) applied to a layer of solid bleached board. These two layers of coating restrict SBS' use on corrugated printing presses because of excessive ink hold out. Coated SBS and double-coated white top are used more in preprint operations that are outfitted with interstation dryers.

The single coating layer of coated white top liners are preferred for corrugated printing presses because it provides greater balance between ink hold-out and ink drying time, making these substrates an ideal choice when the highest image quality and graphics are needed. They are used for higher-margin retail packaging where the graphics promote a specific brand image or highlight product features. The combination of coating and smoothness creates a level of ink hold out printers need for eye-catching graphics and it has the structural strength needed for point-of purchase displays. (Note: Most POP displays only require containment for handling and distribution.)

Occasionally, the term high hold out is associated with coated liners. However, the term is more fitting when discussing uncoated liners since they are intended to described the highest hold-out level of an uncoated sheet.



Know Your Options

White liner grades offer a range of features primarily structured around their graphic capabilities, but the numerous product names can cloud a true understanding of their functions and capabilities. For corrugated printers, knowing the differences between white top, premium white top, bleached and coated white top, and their uses, is pivotal in working with your customers to supply them with packaging that is also a cost-effective selling tool. Below are tables that serve as an easy reference tool:

Product	Common Aliases
White Top	Mottled White, Oyster, Sno Top, Tri-lite, Mist White, #3 White, Preferred, Oxy White, Clay White, Spray White
Premium White Top	Printer's Select, C-White, #2 White, High Brite
Bleached Liner	SBL, CIP, 80-Brite, Water Finish, High Hold Out, Regular Hold Out, Bleach White, #1 White
Coated White Top	C1S, Lightly Coated

SSCC Product Names	Basis Weights (lbs/mf)	Features/Benefits
White Top	26, 29, 31, 33, 38, 42, 69 High Performance: 36, 56	Good for combined screen and solid coverage. Good hold out and uniform coverage.
Premium White Top	31, 36, 42	High level of process print capability. High brightness and higher hold out than standard white top.
Bleached Liner	42 (Regular Hold Out) 42 (High Hold Out)	High level of line art and solid coverage capability. High brightness and very uniform surface. Designed for four-color process printing. High brightness, hold out levels and very uniform surface.
Coated White Top	29, 31, 33, 37, 41, 46	Highest level of direct print graphics for process, line art and solid print. Highest hold out and print gloss.

If you would like more information on graphic liners or other technical topics, contact your Smurfit-Stone Sales Manager or call us toll free at 1-877-785-7835, or e-mail us at paperwise@smurfit.com. You can also download and print related articles from the Paperwise Archive section of our Web site, www.sscboardsales.com