



Paperboard Material in Folding Cartons.

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In today's packaging landscape, the choice of raw materials can be daunting. Substitutions are sometimes made with little or no regard to suitability, nonetheless, the differences in paperboard properties and appropriate application are creating some interesting nuances in today's recovering economy. The choice of substrate is influenced by a number of key parameters including the requirements of print performance, product protection, design features and requirements, sustainability and overall value. This article explains the main paper substrates used in folding carton packaging, as well as their characteristics and primary uses.

There are four main types of substrates used in folding cartons: 1) Unbleached Kraft Paperboard 2) Bleached Kraft Paperboard 3) Recycled Paperboard 4) micro-flute corrugate.

SUS (Solid Unbleached Sulfate) / CUK (Coated Solid Unbleached Kraft)

Unbleached Kraft Paperboard — often referred to as Solid Unbleached Sulfate (SUS), is the most commonly used substrate for folding carton packaging. It is produced from at least 80% virgin-bleached wood pulp and is coated with a thin layer of kaolin clay and titanium dioxide to improve color, smoothness and printing receptivity. Unbleached Kraft can also be treated with a moisture barrier for use in liquid and food packaging.

The use of unbleached, usually softwood pulp results in good tear resistance and the greatest stiffness and strength in relation to basis weight of the paperboard substrates. Thus, Unbleached Kraft often allows for the use of a lower caliper paperboard relative to other substrates. It also has cost advantages over bleached virgin paperboard. Unbleached Kraft is used in many folding carton applications, especially when strength and durability are paramount. Typical uses are consumer electronics packaging, beverage carriers, dry food packaging, hardware packaging, and packaging for powdered detergents and soaps.

Primary North American suppliers of SUS include Kapstone, Graphic Packaging and MeadWestvaco (MWV).

SBS (Solid Bleached Sulfate / Bleached Kraft)

Bleached Kraft — often called solid bleached sulfate (SBS), is the highest quality and most expensive paperboard substrate. It is produced from bleached virgin wood pulp that is produced with a chemical pulping process. Most Bleached Kraft paperboard grades are claycoated to enhance the smoothness and receptivity of the printing surface. Like Unbleached Kraft, SBS can be treated with a moisture barrier for use in liquid and food packaging. Bleached cellulose pulp has high whiteness, brightness and light stability. Thus, Bleached Kraft is white throughout the sheet and is ideal for packaging requiring high impact graphics. The softness and flexibility of bleached virgin pulp provides superior creasing, embossing, and cutting properties with low dust generation, allowing for a wide scope of structural designs. However, the bleaching process also adds cost and reduces stiffness. Bleached Kraft paperboard has the highest purity and provides food products with the best odor taste and taint protection.

SBS is typically used in high-end packaging, where the impact and quality of the printed image are essential. It is also used in food packaging to ensure taste protection. Common uses are health and beauty packaging, pharmaceutical packaging, and frozen foods.

Primary North American suppliers of SBS include International Paper Company, MeadWestvaco (MWV), Georgia Pacific, Evergreen Packaging, Clearwater and Rock-Tenn.

CRB (Recycled Paperboard / Coated Recycled Board)

Coated Recycled Board (CRB), also known as clay-coated news back (CCNB), is a dominant material in North America and elsewhere in the world. CRB is generally made from a blend of recycled newsprint, old corrugated containers and mixed secondary paper. Its fibers are often 100% recycled with 35% or more of the content considered “post consumer.” It is comprised of as many as eight or more layers of material with the top ply made of bleached or semi-bleached fibers. A variety of machines are used in its manufacture including fourdrinier, cylinder and hybrid forming systems.

CRB is the most common substrate for low cost folding carton boxes when recycled content is preferred or required. It is often used for single pouch cereal boxes and other multi-purpose packaging where tear strength and premium print quality aren't paramount. It often has a one-direction stiffness advantage that can be beneficial for bulge resistance in the packaging of granular products such as rice, pet foods, pancake mix and powdered laundry detergent.

The specification tolerances of CRB are somewhat less stringent than with SBS and other virgin grades. It is often not as strong and tends to carry slightly higher moisture content than other grades. CRB is more absorbent than SBS and CUK, and therefore requires a slightly thicker ink film and/or stronger inks to achieve a given strength of color. As with all other materials, die cutting, creasing and gluing conditions should be adjusted to optimize its performance.

Primary North American suppliers of CRB include Graphic Packaging, Rock-Tenn, Cascades, Paperworks, Strathcona, Caraustar and The Newark Group.

Micro-flute corrugate

Microflutes are a light weight yet durable corrugated board available in a wide range of flute and liner combinations to meet your exact requirements. Small flute corrugate is generally used in high-end folding carton packaging in which strength and stiffness are essential. It can also be used to provide large windows in packaging while maintaining structural integrity. Typical uses include small appliance packaging, overnight shipping boxes, beverage carriers, club store boxes, sporting goods packaging, and toy packaging.

Source: *Brand packaging; Independent Carton Group*



Thank You

Give us a call and we'll chat
through what you need.

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