

PITFALLS OF TRADING MARKET PULP ON THE INTERNET

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MARKET PULPS ARE NOT LIKE PORK BELLIES OR OTHER COMMODITIES. ALL PULPS WITHIN A CATEGORY ARE NOT ALIKE, AND THE INTERNET BUYER MUST BE WELL INFORMED TO CHOOSE WISELY.

GLOBAL MARKET PULP TONNAGE NOW EXCEEDS 38 million metric tons per year and involves more than 100 grades produced by more than 25 different companies. Many of the grades are comprised of one or more wood species, each of which impart a significant influence on the characteristics of the pulp grade. The indiscriminate switching of suppliers within a grade group can wreak havoc with a paper mill's quality and production standards. Knowing a pulp's benefits is more important than simply knowing its characteristics. Even more important is matching each pulp's "outstanding attribute" with the paper grade's essential requirement.

Why shouldn't market pulp be traded on the Internet? Don't we already have commodity exchanges like FOEX that now deal in pulp futures? Isn't it proof enough to know that 100 or 1000 or 10,000 metric tons of NBSK can be broadly marketed and bought/sold just like pork bellies? The problem is, there have come to be far too many differences between the various grades of pulp for anyone to even think that all pulps within a group are alike. Furthermore, astute market pulp consumers have learned that some pulps are ideally suited to more sophisticated grades of paper.

BUYING MARKET PULPS ON THE INTERNET

What information will be known about pulps purchased on the Internet? What technical information will be available besides price and tonnage? Here are some questions the traditional pulp buyer might ask:

1. What's the price?
2. When can you ship it?
3. How long can I have to pay for it?
4. Can you overnight a 2kg sample which includes a Beater Curve?

However, the buyer for a mill producing a variety of specialty or technical grades should also be asking:

1. Does this pulp have any unusual or unique properties?
2. What are its most prominent or outstanding features?
3. In what way does this pulp vary from a common, garden variety pulp?
4. For what applications do most papermakers use this particular pulp?
5. What does the producing mill say about this pulp's benefits? Of what is it most proud?

What any buyer of pulp—on the Internet or face-to-face—should be trying to learn is a definition of the pulp's benefits (what it will do for the mill) rather than characteristics (what the pulp is). Some sellers can now tell the buyers if the fibers came from roundwood, chips from sawmill slabs, or even from sawdust. They may also know and include some of the major species of trees in the pulp, that no elemental chlorine was used in the bleaching process, and that the mill is now in compliance with all environmental guidelines. However, these details provide very little practical information that will predict refining characteristics, most appropriate end-use applications, and unusual properties that might permit the paper mill to develop a competitive advantage.

Let's get to the heart of the matter by explaining why market pulps can't be treated like pork bellies, corn, wheat, or soybeans. First, consider the varieties of market pulps:

1. Northern bleached softwood kraft from Canada, the Scandinavian countries, and now Russia.
2. Northern hardwoods: traditional northeastern mixed hardwoods, high maple hardwoods, birch, maple, and aspen.
3. CTMP, both spruce and aspen.
4. Southern softwoods, including papermaking grades made from loblolly pine and diaper fluff grades for disposables, high in thick-walled slash and longleaf pine.
5. Southern hardwoods from the middle South, high in vessel element laden white oak vs. those from the

deep South, where gum and red oak are the predominant species.

6. Bleached Eucalyptus: Brazilian BEK high in *E. Grandis-flora* versus Iberian and Chilean that is predominantly the temperate *E. globulus*. The former is all grown on carefully monitored tree farms and cut on a definite 6- to 6.5-year cycle, while the latter is natural growth that in some cases can age to 22-24 years before being randomly cut.
7. Indonesian mixed tropical hardwoods can be up to 80 different species, some as small as eucalypts and some larger than Scandinavian NBSK.
8. Indonesian *Acacia* is not currently a single species, since strips of *Gmelina* must be planted and grown on the same plantation to prevent a dry-season forest fire from destroying all the *Acacia*. This species is being marketed as "plantation grade."
9. MDIP, Market De-Inked Pulp from 100% post consumer SMOW (sorted mixed office waste). There is the wet-lap variety as well as the 100% air dry version.

Within each category are numerous subcategories. And it is because of these subcategories that market pulps should not be treated as commodities.

NORTHERN BLEACHED SOFTWOOD KRAFT

Let's begin our review of all the major categories by examining one of the most familiar of all market pulps, NBSK—Northern Bleached Softwood Kraft.

Scandinavian

Only two major wood species, pine and spruce, come from the Scandinavian countries. Both are a bit on the short side (typically 3.1-3.3mm for full length fibers with diameters of only 30-32 μ m). These fibers are shorter and thinner than the majority of their Canadian cousins.

These fibers offer a fairly uniform pulp in that they are approximately all the same dimension and have similar wall thicknesses (which make for predictable refining characteristics), and the pulp does not have any vastly dissimilar fibers mixed in. These grades of NBSK do not have especially high tensiles or folds but do exhibit above-average burst figures. Their tears tend to be much lower than any grade of southern softwood. Because of their shortness and narrow fiber diameters, there are an above-average (for softwood) number of fibers/gram. Therefore they are capable of making a strong, smooth, level base sheet for Lightweight Coated Offset, C2S and C1S, gravure printing grades, pressure sensitive release papers, OTC, and others.

Russian softwoods possibly could be lumped together with their Scandinavian counterparts, but we still have a lot to learn about the NBSK coming out of Russia.

Canadian

Canadian NBSK have the greatest dissimilarity. There are, generally speaking, six different groups:

West Coast NBSK. This can include both old growth hemlock and second growth hemlock. On most of Vancouver Island and up the coast grow large stands of both thick-walled Douglas-fir and cedar. Mixed in with these four can be larch, Sitka spruce, and white spruce. West Coast BC softwood has full-length fibers which can sometimes exceed 5.0 mm. They are used in very lightweight grades such as Bible paper, where wet tensile and maximum mechanical entanglement are essential to minimize wet end breaks and snaps in the press section.

NBSK from the MacKenzie Valley in the interior of British Columbia. Here we have even a wider variety of species (but little or no Douglas-fir or cedar) that can include Engelmann spruce, lodgepole pine, Ponderosa pine, grand fir, larch, white spruce, and hemlock. The pulps from this region are good all-around papermaking softwoods but have no outstanding physical attribute. Even so, papermakers have preferred these pulps for their uniformity, consistency, reliability, and relative ease of refining.

The Eastern Slope of the Rockies. This is undoubtedly the harshest growing environment in all of Canada. The three major species are Engelmann spruce, lodgepole pine, and alpine fir, with some white spruce at lower elevations. Thousands of tons of masking tape, cable wrap, OTC, and specialty tapes have been made from the NBSK that grew in this region.

The Plains and Western Ontario. Here, mills have traditionally produced NBSK known as "good all-around papermaking softwoods" since they lacked any outstanding strength property. However, those mills fortunate enough to have high percentages of that favorite of papermakers, black spruce, also found themselves in the enviable position of having a pulp ideally suited to facial tissue. Black spruce is noted for its ability to provide the needed wet tensile for these lightweight tissue grades, excellent levelness of surface, and excellent "crumple."

Quebec. This area features two major market pulp mills who enjoy the luxury of being surrounded by black spruce.

Maritime Provinces. Here we have a greater variety of species than anywhere else in Canada: red and black spruce, red and white pine, eastern hemlock, and balsam fir. These species are very similar to Scandinavian NBSK in that they are shorter and thinner than any of the other Canadian conifers. These fibers are capable of producing a very tight, dense sheet, even at very light basis weights.

Thus six varieties of Canadian softwood can be added to the fairly homogenous NBSK from Norway, Sweden, Finland, and Russia. What happens when the traditional "price buyer" purchases the wrong grade of NBSK for his specialty mill? Percent first quality goes down, field claims and rejections go up, competitive standing undoubtedly suffers, the papermakers all have headaches, and the offending pulp's reputation suffers as being "no darn good"!

NORTHERN BLEACHED HARDWOOD KRAFT

Until the mid-1980s, NBHK was known as Northeastern Mixed Hardwoods and was comprised of five predominant fibers—maple, birch, beech, poplar, and aspen. In the mid-1980s, mills began producing “high-maple hardwood” that was made up of at least 50-55% maple. Today, all producers of NBHK offer a high-maple hardwood in the range of 80% maple with minimal levels of low specific gravity hardwoods such as aspen or poplar. These single-species hardwoods offer a degree of uniformity unmatched by any mixed hardwood and allow the eastern North American mills to compete more effectively with Scandinavian birch, Brazilian and Chilean Eucalyptus, and Canadian aspen kraft. Changing their hardwoods to a high-maple or almost all-maple fiber content increases the pulp’s fiber population to more closely approximate that of the current high population BEKs and aspen krafts on the market.

Aspen kraft is generally lumped together with other NBHK pulps, but it really deserves to be a class by itself. Aspen has a low specific gravity, which means very thin walls. The downside to this is its lower than average bulk and opacity and its tendency to generate high fines when refined. However, the aspen fiber collapses into a flat ribbon which produces exceptional smoothness, ink holdout, and printed gloss. Aspen kraft is an ideal fiber species for any gravure printing application or when high printed gloss is required. Basing a paper grade’s field performance on a furnish made up of aspen kraft and then inadvertently switching to another hardwood could make for some very unhappy customers. Here, then, is another area about which buyers must be careful.

SOUTHERN BLEACHED SOFTWOOD KRAFT

Although seven different major tree species are in this category, they are all members of the pine family. The four most prominent are thick-walled slash pine, longleaf pine, the thinner-walled loblolly pine, and shortleaf pine. The first two, slash and longleaf, are found principally in the southeastern United States and are ideally suited to diaper fluff, mercerization (steeping in caustic), latex saturation, and chemical cellulose-derivatives. The pulps for these end-use applications all carry premium prices over loblolly and shortleaf pine.

Loblolly pine’s thin walls give it vastly superior refining properties over thick-walled slash pine. Each has its own principal end-use application. SBSK’s outstanding attribute is its tear which, while diminishing with refining, is still far better than any NBSK.

Southern Mixed Hardwoods (SBHK) have traditionally been lumped together. However, market pulp mills in Kentucky have 55% white oak in their fiber basket. By comparison, the mills in Alabama and Mississippi possess a fiber basket that is high in gum (43%), red oak (35%), ash, and poplar, along with almost a dozen other species ranging from pecan and magnolia to hickory, maple, birch, beech, sycamore, and others. While these deep-south hardwoods are relatively free

of the pick-prone white oak, their gum fibers are relatively long (1.7mm) and fairly coarse (29 μ m).

Most appropriate end-use applications for Kentucky SBHK would be copybond, CPO, envelope paper, and tablet papers. For Mississippi/Alabama hardwoods these would be regular and vellum finish offset, vellum envelope, text and cover papers, and 7 pt. minimum return mail card stock, to name just a few.

EUCALYPTUS

Two major groupings exist—Brazilian and Iberian/Chilean. Eucalyptus began to be grown commercially in Brazil back in the early 1950s. In the late 1970s, it got its start as a market pulp by being marketed as a “filler fiber” which apparently had few, if any, redeeming benefits. Customers learned that BEK was a very uniform fiber that could contribute to opacity, smoothness, formation, printed gloss, and lack of show-through. Papermakers began to specify it over traditional NBHK and even birch. In 1979 it was learned that Brazilian BEK’s low single fiber flex and high population made it an ideal surface treatment for facial tissue. Laying it on the surface produced a tactile softness that consumers appreciated.

Brazilian BEK is an excellent example of how the industry has married a pulp’s unusual “outstanding attribute” to their paper product’s “essential requirement.” Here we have a market pulp where the predominant end-use application is a single product whose performance does not rely at all on traditional strength and aesthetic properties.

CLOSING THOUGHTS

Buyers on the Internet must always be careful to ask the right questions. It is the responsibility of the paper mill’s technical staff to make the buyer aware of their specific needs. Specifying and buying pulp has become more of a partnership than ever.

Sellers must be prepared to offer all the pertinent information required by buyers so that knowledgeable decisions can be made. Sellers must take care not to promote their pulp as a “one-size-fits-all” product that is capable of being all things to all people.

Benefits are far more important than characteristics.

Emphasis should be placed on outstanding attributes, unusual or unique properties, most likely end-use applications and applications to avoid, and so on.

Once a paper mill has succeeded in establishing a new or redesigned grade of paper based on a particular furnish, it should endeavor to maintain this same combination of fiber species in the various market pulps going into that grade of paper. Indiscriminate switching can only lead to grief! TJ

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