Sara McKenzie
508-479-5260
Sara@SaraJanesStudio.com

www.SaraJanesStudio.com

ALL ABOUT PAPER AND CARDSTOCK

Everything You Wanted to Know About Paper, and More!

Have you ever wondered what was meant by "80 lb cardstock"? So have I! And did you know that "cover stock" is often used synonymously with "cardstock"? I didn't. This article is the result of research that I've done into understanding the differences between different types of papers and cardstock: the weight, the finish, and the content; so that I can make the best use of each type in my papercrafting. Read on to learn more about one of the fundamental supplies in our craft, and how you can make the most of it in your own art.

Definitions

Fiber	Paper and cardstock are made of fiber from paper pulp or from pure cellulose. Sometimes they are made of 100% of a particular kind of material, such as 100% hemp. In addition to whatever basic fiber is used, inclusion cardstock may have mulberry fiber, rice husks, flower petals, seeds, bark, leaves, or glitter mixed in during the manufacturing process to provide an interesting texture and pattern in the finished paper.
Acid-Free/Archival	Acid-free/archival papers and cardstocks are safe to use in scrapbooks and artwork that is intended to be kept for a long period of time. They are manufactured at a neutral pH level (pH 7.0) or higher, and are stable over time. They are lacking the acid that causes paper and photographs to yellow and breakdown (think of what a very old newspaper looks and feels like).
Finish and/or Surface Texture	The term "finish" is usually used to describe the sheen of a paper or cardstock; matte, semi-matte or luster, semi-gloss, and glossy. "Finish" is often also used to describe the surface texture. Some of the common textures of uncoated papers are: • **Laid:** machine-made paper with a pattern of parallel lines. • **Vellum:** a paper finished to appear like the original writing material of the same name. It was originally made from either prepared animal skin or parchment. Vellum has various degrees of opacity, and has slightly rough finish. • **Linen:** a paper finished to appear like linen. • **Felt:** paper that is textured by being pressed with patterned wool or felt during the manufacturing process. • **Embossed:** a paper with a raised design created by pressing or hammering the design onto the back side. • **Wove:** somewhat bulky and with a slightly rough surface that results from a fine wire cloth used during the last stages of the manufacturing process. Ideal for laser printers.
Grain	Have you ever sewed on fabric? Remember learning about the "straight grain" of the fabric? Well, paper and cardstock also have a grain. It is the direction in which the majority of the fibers are aligned. The orientation of the grain affects the rigidity of the cardstock. To determine the grain, hold the cardstock gently by the two sides and bend the sides towards each other. Get a feel for how easily it bends. Then, turn it 90° and do the same test. You should notice a remarkable difference between the two tests. The grain runs parallel to the bend or fold that was easiest to achieve.

Sara McKenzie
508-479-5260
Sara@SaraJanesStudio.com

www.SaraJanesStudio.com

ALL ABOUT PAPER AND CARDSTOCK

Definitions (con't)

Weight

Weight is one of the ways that paper is described. The term, more specifically, is "basis weight" which is a measurement in pounds of the weight of 500 sheets of the standard size *of that paper*. Since papers are made in different sizes, this makes comparison of different papers difficult. (And it's the reason that one manufacturer's 80 lb cardstock may actually be heavier than a 100 lb cardstock made by a different company!) The standard proposed by the International Standards Organization (ISO) provides the most consistent way to compare paper weights as it uses a measure of grams per square meter (gsm). Below is the range for papers in terms of their gsm:

10–35 gsm	tissue paper
35–70 gsm	lighter textweight
70–100 gsm	medium textweight
100–120 gsm	heavy textweight/light cardstock
120-150 gsm	regular cardstock
150-200 gsm	heavy cardstock
>200 gsm	super heavy cardstock

MAKING PAPER

We've all heard of papyrus, which is the fore-runner of the paper as we know it. Starting over 5000 years ago (!!) papyrus was made from strips of the grass *Cyperous papyrus* which grew prolifically on the banks of the Nile River in Egypt. The strips were softened with water, then layered and pounded and left to dry to create sheets with a reasonable writing surface.

The father of the patented paper-making process is T'sai Lun, a Chinese court official in 105 A.D. He mixed the inner bark of the mulberry tree with bamboo fibers and water, and pounded them with a wooden tool. He spread the resulting mixture on a coarse cloth and let it dry, and ended up with a quality writing surface. This method spread from China to Vietnam and Tibet, and ultimately to Korea and Japan in the 6th century AD. Paper making later made its way across Central Asia and Persia, whence it was later introduced into India by trade. It then spread out to Europe leading to the birth of modern paper-making techniques.

Machine-Made Paper

Most machine made papers start with trees as a source of fiber. Better quality papers also contain cotton fiber, and the best are made of 100% cotton. In any case, fibers are converted into a pulp that is suspended in water, by either chemical or mechanical processes. The pulp is spread on screens which are then passed through a series of drums to flatten them and remove the water.

ALL ABOUT PAPER AND CARDSTOCK

Sara McKenzie
508-479-5260
Sara@SaraJanesStudio.com

Chemical pulp is made from trees stripped of their bark and turned into chips and then boiled in very strong chemical solutions that remove anything that is not cellulose (such as **lignin**). Mechanical pulp is made from the entire tree and does not eliminate other components of the tree. It tends to make a weaker paper that becomes brittle with age; most newsprint comes from mechanical pulp.

Once the pulp is made, it goes through additional steps like mechanical beating and chemical bleaching. Unbleached pulp becomes grocery bags and heavy Kraft wrapping paper. Bleached pulp may be further treated with white clay or titanium oxide (remember the white stuff you used to put on your nose in the summer time? It's pretty much the same thing.). This creates opacity and increased whiteness of the resulting paper. Sizing is added if a stiffer paper is desired; and dyes are used to tint paper at this stage. This is also the point at which any remaining acid is neutralized, providing the "**acid-free**" moniker, and a long-life for the paper.

At this point, the paper pulp is still 99% water. The water is removed through a series of steps that either allow the water to drain, physically squeeze the water out, and/or heat it to cause evaporation. The pulp is laid on continuous screens, and suction below pulls water out while drums press on the paper from above. Sometimes the drum cylinders are covered with wire mesh to create a "**laid**" finish (see Definitions, above). A **watermark** can also be introduced at this stage by attaching the watermark design to the drum cylinder. The paper is further dried by running it through heated rollers.

Once dry, the paper is "calendared" by passing it through a series of highly polished metal rollers; this compacts the paper even further and smoothes its surface. A variety of finishes are achieved at this stage: from antique (or rough) (the softest and dullest), through eggshell, **vellum**, machine finish, and English finish (the hardest and shiniest available without further treatment). The final finish is brushed-on or rolled-on in liquid form; it's at this point that "**glossy**" paper is created. Other coatings include clay, which can create a wonderful surface for art and craft work. Finishes can be applied on one side only, or on both sides of the paper.

Cellulose fibers like to line-up in the direction of travel of the paper through the process, and this results in the "**grain**" of the paper, which causes its tendency to tear or bend more easily in one direction than another.

Hand-Made Paper

The steps in the process to make hand-made paper do not differ fundamentally from those in machine-made paper. The differences lie in the scale of the paper produced and in the tools. Additionally, hand-made paper is generally not made from trees, but rather from a variety of natural fibers that may not be suitable for large scale production, resulting in very interesting and beautiful papers, sometimes with specific, unique properties.

Hand-made papers of all types are gaining popularity because of their unique features, such as: elegant and exquisite surface for writing; high strength and unmatched texture for drawings; and their high tensile bursting, tearing and fold strength as compared to mill-made paper. AND hand-made paper has a long life, which preserves traditional arts and crafts

www.SaraJanesStudio.com

Sara McKenzie
508-479-5260
Sara@SaraJanesStudio.com

ALL ABOUT PAPER AND CARDSTOCK

TYPES OF PAPER & CARDSTOCK

Matte Cardstock A matte coated cardstock has a specific chemical added during manufacturing that results in a satin (non-glossy) finish. Dye inks and pigment inks both work well on this type of cardstock. It should be sealed if pencils or chalks are applied as it can be more prone to smudging than other types of drawing paper.	**Coated Cardstock** Coatings are generally applied to achieve a uniform surface or enhance the opacity. Coated cardstock accepts most inks, markers, and colored pencil, but pigment ink **must** be embossed.	**Glossy Cardstock** Glossy cardstock is shiny in appearance and has a relatively non-absorbent surface. Dye ink will dry on it, but pigment inks **must** be embossed. And just to throw us off, the weight of glossy cardstock is indicated in "points" (pt)- the higher the number, the heavier the cardstock. The average weight is 10-12 pt.
Bristol Board This is a high quality heavy weight drawing paper, sometimes made with cotton fiber prepared or glued together, usually with a caliper thickness of 0.006" and up, used for many types of two-dimensional artwork, including lettering. It is popular for the sharpness of the resulting image. The U.S. Patent and Trade Mark office specifies the use of Bristol Board for trademark and patent drawings.	**Bond Paper** A category of paper commonly used for writing, printing and photocopying. Also called business paper, communication paper, correspondence paper and writing paper. It is a grade of paper that is stronger and more durable than the average sheet of paper, often used for letterhead. The basic weight is 13 to 24 lbs	**Cover Paper OR Cover Stock** Cover Stock is used interchangeably with Card Stock. Cover Paper is another large, nebulous group of papers that come primarily from the printing industry. These papers are of medium weight, 65 to 80 lb., and are used for covers for magazines, booklets, and catalogues. They include a high-grade construction paper. The better grades have good lightfastness, are quite durable, and make good drawing and calligraphy paper. These papers are not good for permanent artwork
Paste Paper The term refers to a method of decorating the surface of paper with paint mixed in a "paste" medium. Colored paste is brushed onto the paper, and then a variety of common objects can be used to drag through the paste to create unusual designs. The easiest approach is to use wallpaper paste diluted to the consistency of heavy cream, with the addition of acrylic paint for color. The paper itself must have a good "wet" strength to stand up to the manipulation; an 80 lb "text" weight works well. Construction paper, cover paper, and cardstock will all work. Tools can include combs, crumpled plastic wrap, forks, corks, dowels and even fingers; anything that is water resistant can be experimented with. Once dried, the resulting paper can be used for book covers, greeting cards, wrapping paper- almost anything!	**Mulberry Paper** Fiber for mulberry paper comes from the bark of the mulberry tree, as opposed to the inner wood. Depending on which type of mulberry tree is used, this type of paper can be called kozo, gampi or mitsumata. Sheets are formed by laying thin layers of prepared fiber, one on top of another. This is a beautiful, decorative paper for paper crafting, available in a wide variety of colors. You can achieve a fine feathered edge by painting your cutting line with a fine brush loaded with water, and then gently tearing along the wet line, by hand.	**Offset Paper** Also known as book paper. General description of any paper primarily suited for offset printing. Can be coated or uncoated. Characterized by strength, dimensional stability, lack of curl and freedom from foreign surface material. Finish can be vellum or smooth. Paper that contains the quality characteristics needed in order to withstand the rigors of offset presses.

www.SaraJanesStudio.com

Sara McKenzie
508-479-5260
Sara@SaraJanesStudio.com

ALL ABOUT PAPER AND CARDSTOCK

TYPES OF PAPER & CARDSTOCK (con't)

Vellum

Originally, vellum was made from untanned calfskin that was stretched and dried. Today, it is made from wood pulp and/or cotton fiber, and is translucent and low-gloss. It comes in a variety of weights. You must be cautious about using vellum in either inkjet or laser printer, as some are much more susceptible to buckling from the heat generated by the printer. Also, vellum is not porous, and therefore adhesives tend to dry slowly, as well as show through the vellum. Try attaching vellum with non-adhesive methods (such as photo mounts, brads, or eyelets) or purchase a double-sided tape or spray adhesive that is made specifically for use with vellum.

Watercolor Paper: Hot-Pressed vs Cold-Pressed

Watercolor paper is sold in "hot-pressed", "cold-pressed" and "rough" finishes.

Hot-pressed watercolor paper has a smooth vellum surface with a very fine tooth. This finish is excellent for soft drawing materials, pen and ink, brush linework, wash, and airbrush. This type of paper is not as popular for traditional watercolor techniques.

Cold press, or semi-rough, is the most popular finish. It is excellent for traditional watercolor technique and, because of its moderate texture, will handle some detail. This finish is also excellent for charcoal, pastel, and paint sticks.

Either the Cold or Hot press can be used with rubber stamps. It comes down to a personal preference for the look of the finished product. Either choice is preferred over cardstock for use with any watercolor techniques using rubber stamps, whether you use markers, crayons, or colored pencils as your color medium.

The Rough finish has extreme peaks and valleys on the surface of the paper, which are created by air drying the paper instead of pressing it with drum rollers. It is challenging to get color even applied across the surface as a result, and can be either frustrating or interesting to work with, depending on your perspective!

Also of note, watercolor paper contains sizing which allows the color to stay on the surface of the paper while allowing the water to sink in. This allows the color to be reworked, and also gives watercolors their uncommon brilliance and luminosity.

Rice Paper

Rice paper used in paper-crafting is not made from rice, but rather from the fiber of the rice paper plant (*Tetrapanax papyrifir*, for those of you into taxonomy). It has been used for centuries in Japan and China for writing and artwork. "Raw" rice paper has a smooth fluid texture, while "sized" rice paper is dry and coarse, and is less absorbent than raw rice paper. It is slightly translucent and has a distinctive texture.

www.SaraJanesStudio.com

Sara McKenzie
508-479-5260
Sara@SaraJanesStudio.com

ALL ABOUT PAPER AND CARDSTOCK

JAPANESE PAPER

We hear a lot about, and see many, many beautiful Japanese papers. The reason is that Japan has long been a leader in the making of unique and sometimes exotic handmade papers. All Japanese hand-made paper is commonly called "washi" or "wagami". **Kozo, mitsumata,** and **gampi** are the three Japanese shrubs whose fibers are most often used for making Japanese papers. They also employ the use of a glutinous substance called **neri** to add body and strength to their paper. The combination of these fibers and **neri** produce a quality paper with even the sheerest being able to withstand centuries of wear. Some of the more common are noted below.

Asamashi Made of kozo and sulphite, this is a one-sided sheet with straw inclusions. It is acid-free and compatible with laser printing.	**Chiri** Also called "chirigami", this is made from long kozo fibers and inclusions of mulberry bark. The paper is thin, light weight and highly textured.	**Hemp** A beautiful paper made from hemp fibers. It is strong and thin. It resists decomposition and does not yellow with age.
Inshu The fine texture of inshu paper is due to the excellent quality of mulberry and mitsumata fibers and of course the skill and dedication of the papermakers. Brushes move easily over the surface, making it perfect for calligraphy.	**Kitakata** Made from 100% Phillipine gampi or mitsumata. Mitsumata fibers produce a soft, smooth surface with a natural gloss. This paper has a delicate and subtle laid pattern in a natural or light green color. Handmade Kitakata Paper is an acid free paper. These warm and natural colored papers are available in a wide range of sizes and thickness.	**Kizukishi** These papers are made from pure kozo fibers without adding any bleach or adulterant during the paper making process. Kizukishi papers are natural in color with body and a hard surface. These silky papers are created by master craftsmen of Japan. These are light weight and acid free paper.
Kochi It is a multipurpose paper excellent for drawing and print making. It is made of a mix of kozo & sulphite and has 4 deckles (ie all four edges are naturally uneven or rough).	**Misu** Misu paper is a splendid Japanese paper made by cooking the dried bark of a plant such as paper mulberry, extracting the fiber and chopping it up in water to form a pulp, which is evenly formed in a mold before being dried as individual sheets. Beautiful handmade misu papers are available in a spectrum of color and various sizes.	**Mulberry** Mulberry is actually the Western name for the plant from which the kozo fibers are derived. Mulberry papers are made from kozo and other similar fibers. Most have distinct, obvious fibers running through the papers. Some papers have finer fibers that are not noticable. They are available in a huge range of colors in both light weight and smooth and textured handmade styles. They are sized and acid free.

www.SaraJanesStudio.com

Sara McKenzie
508-479-5260
Sara@SaraJanesStudio.com

ALL ABOUT PAPER AND CARDSTOCK

JAPANESE PAPER (con't)

Ogura These are the strongest Japanese papers made from 100% manila hemp. To form the distinctive lace pattern, a water jet is directed on the newly formed sheets to create patterns of holes in the fibers. These papers are internally sized and are not acid free, however it does not itself turn yellow and disintegrate.	**Ozu** The Ozu style of paper making is the oldest, and during the Edo Era (1603-1867) it was regarded as paper of the highest quality. It is a style of paper making, as opposed to a description of the fiber content, as this paper can be made from any of the common Japanese shrubs.	**Sekishu** This paper has been made in the Iwami area (Sekishu) for over 1,300 years. Sekishu paper is made only from locally cultivated paper mulberry and has excellent strength, fineness, and luster. The long kozo fibers make the paper strong and supple. Handmade Sekishu Paper has great wet strength for its weight and is an excellent sheet for traditional oriental painting technique.
Silk Tissue This is a beautiful acid free paper of Japan. Silk Tissue is a mixture of gampi and sulphite. It is an extremely thin shiny tissue. It has a silky feel, is quite transparent and is surprisingly strong for its weight. It has no deckle edge. Like some of the Japanese papers it is also made from short glossy fibers of gampi. These fibers make the strongest of papers. Gampi fibers are resistant to insects and this resistance makes the paper very long lasting.	**Tamashii** The elegance of exquisiteness and the richness of tamashii paper are the aspects that inspires one to possess them for as much utilization as possible. Tamashii is a splendid Japanese paper with a colored base and a subtle dotted pattern. This decorative paper is made of the fibers from gampi, mitsumata or kozo, like other Japanese papers. It is available in five colors including green and violet.	**Tosa Tengujo** Tosa tengujo is made generally of kozo fibers on a silk-covered su-keta to provide a very smooth, extremely light-weight paper. The long silky fibers and formation give this lightweight paper an almost woven look. This is a very evenly made sheet with neutral pH and deckle edges. This paper weighs only 10g and is dyed with synthetic dyes.
Uchiyama The distinctive and appreciable characteristic of uchiyama paper is its strength which makes it specially suitable for paper screens. This strength is derived from the long kozo fibers. These fibers are taken from the slower growing cold climate mulberry plant and snow is used to bleach the fibers. This paper is also durable, can hold moisture and does not discolor in sunlight. Handmade Uchiyama Paper has additionally lent its grace to Japanese life as the paper for shoji screens.	**Unryu** Unryu, which literally means "Cloud Dragon Paper," is made by adding long swirling fibers to a basic kozo pulp. Unryu paper is white and translucent. The design origin 'Unryu' comes from the illustrations in the old days that dragons flying over the clouds (heaven) that means to bring a good fortune to persons.	**Waffle Weave** Waffle weave paper is generally made of sulphite and polypropylene. It is also called Basketweave paper. Waffleweave paper has a wonderful texture that resembles the handwork on a bamboo basket. It is a heavy and stiff paper with trimmed edges. It has a superior shine. Metallic paper embossed with a basket weave pattern adds to the grace and richness of the handmade paper.

ALL ABOUT PAPER AND CARDSTOCK

Sara McKenzie
508-479-5260
Sara@SaraJanesStudio.com

REFERENCES

1. What is cardstock? www.wisegeek.com
2. Making Paper- Machine Made http://science.jrank.org/pages/5013/Paper-Machine-made-paper.html
3. Making Paper- Hand-Made http://www.theearthpaper.net/history-of-handmade-paper.html
4. Types of handmade papers. http://www.theearthpaper.net/ "Handmade Paper- Inspiring assortment of Exquisite and Enticing Handmade Paper"
5. Hot-pressed and cold-pressed watercolor paper: http://www.trueart.info/watercolor.htm
6. Japanese paper http://www.theearthpaper.net/japanese-handmade-paper.html