

# Textile Printers Textile Inks & Dye Sublimation



## Illustrated Glossary Terms



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Illustrations by María Renée Ayau, Graphic Designer and Technical Writer on wide-format inkjet textile printing at FLAAR Reports

## Introduction

The purpose of this glossary is to help printshop owners, managers, printer operators, as well as anyone and everyone in the wide-format inkjet printer industry to better understand the jargon used in inkjet printing for fabrics.

Most glossaries on the Internet are copied, with no bibliography, and often entire everything is copy-and-pasted. We have a bibliography and most of our descriptions are based on our own experience with wide-format printing on fabrics. Already over a decade ago FLAAR was offering a lecture on digital textile printing (at IMI). Plus we have been in textile ink factories, textile printer demo rooms, ITMA (Europe), ITMA Asia in China, and a tad of experience elsewhere, such as FESPA, DRUPA, ISA, SGIA, Sign Istanbul, and VISCOM Milano.

What you are reading now is the first updated edition. The actual original dates back over a decade, but Maria Renee Ayau has updated the original Hellmuth edition, and now I (Nicholas) am updating the Ayau addition.

We will be asking both DigiFab and ATPColor and other textile related companies to contribute suggestions for improvements, and for additional photographs from them to illustrate various terms and technologies and textile ink chemistries. So please return for an update later this year (2013).

But we wanted to get this new edition out now, during January 2013.

**A**

**Acid dye textile ink**, one of several special inks for inkjet textiles. Acid dye inks are for synthetic materials such as lycra, nylon, spandex, as well as natural silk, wool, and leather. See also disperse inks and reactive inks.



*Acid dye ink bottles.*

**Advantages and disadvantages of dye sublimation.**

Advantages are continuous tone, since the ink turns into a gas so there are no individual droplets which leave their trace. Downsides are that sublimated ink, on cloth, is great for some colors but lacks details in shadow areas. The best results for soft signage would be produced by a graphic designer who knows which colors and which kinds of shapes look best printed on polyester by sublimation. If you wish to not use sublimation heat chemistry, you can consider pigmented ink (on cotton primarily), or reactive dye or acid dye ink workflow. Each ink chemist has its own slightly distinct workflow, and each has its own pros and cons.

**Askewed or bias**, fabric defect where filling yarns are not square with warp yarns on woven fabrics or where courses are not square with wale lines on knits.

**B**

**Back fabric seam impression**, backing fabric is often used to cushion fabric being printed. Fabric defect caused if there is a joining seam in the backing fabric, an impression will result on printed fabric.

**Banding**, bands of discrete color or tone that appear when a laser toner printer cannot reproduce a smooth graduation from one color to another. Instead there are noticeable jumps between one value and the next. Lack of registration to speed too far or not far enough.

Banding on inkjet is more complex; several kinds of banding may occur in wide format output. It is generally stated that most (but not all) banding results from clogged nozzles, especially on piezo printheads and notably on some Roland printers. Banding is most noticeable in areas of cyan or blue (such as the sky) or across dark solid colors. Banding may be worst in humid environments and on certain media. Dr Ray Work indicates another source of banding in piezo printheads is air bubbles inside the printhead. He notes that any open ink system can allow nitrogen to get into the ink. Considering that he is the developer of DuPont chemical company's inkjet ink program, he definitely knows printhead technology inside out. For more information on which printers are most prone to banding defects, see the FLAAR Report entitled: "Piezo vs Thermal."

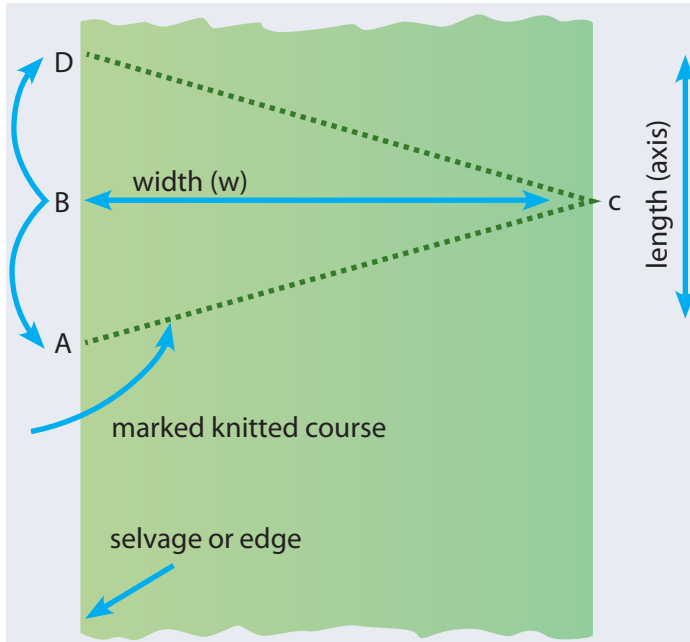
Banding can also result when the media is feed too far, or not far enough (by even a millimeter; you get a dark band if fed not far enough; a light band if fed too far).

Banding tends to increase when you try faster speeds. This is especially true on many printers which use Epson DX printheads. So if you use an Epson printer at over 12 passes you may have less or no banding; if you use an Epson printer at 2 passes you may experience pathetic banding. Other printheads may exhibit comparable problems with banding at high speeds.



*Banding lines in printed fabric sample.*

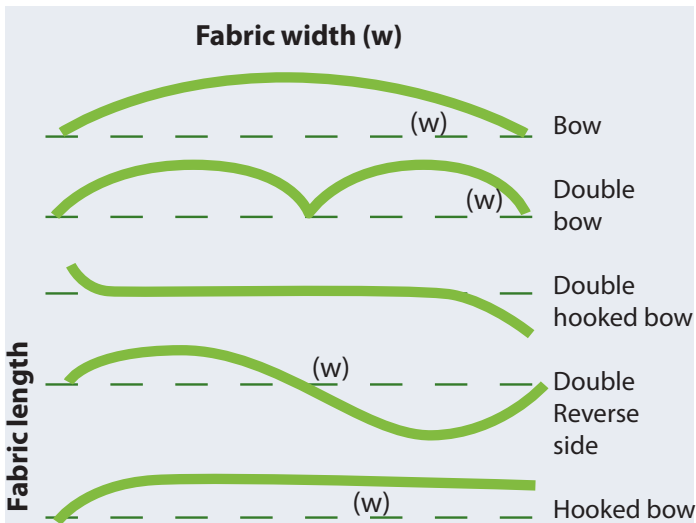
**Bias**, a line diagonal to the grain of a fabric. A line at a 45 degree angle to the selvage often utilized in the cutting of garments for smoother fit



Typical skewness (bias) in a fabric. Illustration based on [www.nationaltextile.org](http://www.nationaltextile.org)

**Birdseye**, fabric defect caused by unintentional tucking from malfunctioning needle. Usually two small distorted stitches, side by side.

**Bowing**, fabric defect usually caused by finishing. Woven filling yarns lie in an arc across fabric width: in knits the course lines lie in an arc across width of goods. Critical on stripes or patterns and not as critical on solid color fabrics.



Different types of bowing. Illustration based on [www.nationaltextile.org](http://www.nationaltextile.org)

**Broadcloth**, fabric with plain weave. Closely woven with smooth finish.

**Bulk ink system**, usually means one liter or more of ink per color. For years printshop owners were stuck with the impractical Epson ink system of 220 ml cartridges. Epson required that Mimaki, Mutoh, and Roland use these same cartridges. Epson further required that Mimaki, Mutoh, and Roland buy all their ink through Epson (Epson did not make the ink, they just collected profit on the ink). All this was because Epson was the supplier of the printheads for most printers in the years 2001-2012. If the other printer manufacturers did not want to use those cartridges or pay Epson for the ink, then Epson would tend not to allow them to use Epson printheads. Today a printer manufacturer can get printheads elsewhere, and even Epson itself has abandoned those terribly wasteful cartridges (Epson was sued for the amount of ink waste these cartridges caused). So many companies, to get around the Epson cartridge system, made bulk-ink systems to save money (and to save ink waste). Mimaki was the first to make nice bulk-ink systems (even for their old Epson printheaded machines).



Mimaki bulk ink system.

**C**

**Calendering unit or calendaring machine**, a machine that is used in the process of passing cloths between one or more rollers; usually under carefully controlled heat and pressure, to produce a variety of surface effects or textures in a fabric like smoothness or luster.



*Klieverik GTC, calendering machine.*

**Charmeuse, a luxurious**, supple, silky fabric with an extremely shiny face and a dull back, similar to satin but lighter in weight. Usually made from rayon or cotton, but premium varieties are made from silk.

**Chiffon**, made from tightly twisted crepe fibers, chiffon is lightweight, extremely sheer, almost transparent fabric that has a slightly bumpy texture.

**Coating**, is a chemical treatment, and is comparable in some regards to an inkjet receptor layer for materials to receive water-based ink. But coatings for fabric need to be different chemistry since each kind of textile ink is a bit different than water-based ink for an Epson or Canon printer. You generally buy the fabric already coated for the specific ink and fixing process that you know in advance you will use it for. The downside of coated fabrics is that they tend to cost more than uncoated materials.

**Color kitchen**, when you use color management and ICC color profiles you can enter a sort of digital color kitchen. Color management and ICC profiles are discussed in a comprehensive FLAAR Series on that subject. This Series includes its own glossary.

**Color smear**, fabric defect as a result of color being smeared during printing. Smearing is usually the result of a printhead strike.

**Cotton**, although I always assumed cotton originated in Egypt, in reality it is a soft fiber that grows around the seeds of the cotton plant. This fiber can stand high temperatures and takes dyes easily. Cotton is most often spun into thread and used to make a soft, breathable textile.



*Since we spent Christmas Week 2012 studying native Maya cotton in Guatemala, we show photographs of cotton here.*

**Crease mark**, fabric defect that appears where creases are caused by fabric folds in the finishing process. On napped fabric, final pressing may not be able to restore fabric or original condition. Often discoloration is a problem. Differs from crease streak in that streak will probably appear for an entire roll.

**Crease streak**, fabric defect that occurs in tubular knits. Results from creased fabric passing through squeeze rollers in the dyeing process.

## D

**Décor** see also, interior design, interior decoration

**Dedicated fabric printer**, would be a printer that is designed specifically to handle textile inks or fabrics. Examples would be StampaJet from DigiFab or textile printers from ATPColor. The term dedicated fabric printer is to distinguish these professional units from simple water-based printers which can handle paper-backed textiles, such as the HP Designjet 5000 or 5500.



*DigiFab StampaJet, dedicated fabric printer.*

**Defect (within a long roll of fabrics)**, a fault that, if it were to appear in a prominent position in a garment or manufactured article made from the fabric, would readily be seen and objected to by an ordinary person who might contemplate purchasing such a garment or manufactured article in a retail shop.

**Disperse dye inks**, are for direct dye sublimation onto polyester inkjet textiles. See also acid dye ink and reactive dye inks.

**DPI (dots per inch), (dots per inch)**, a measure of the output resolution produced by printers, imagesetters, or monitors. Dpi in the images themselves is actually ppi, pixels per inch since of course there are no dots in an image on a monitor. So when you prepare a file, be aware that the dpi in Photoshop is not the same as dpi in the printhead spec sheet. Plus, most dpi for printers may be a tad exaggerated. An image 150dpi (ppi) per full size you will print it is usually enough resolution in your file. Realize that the file format will impact the eventual quality and depends which RIP software you use. Some printshops favor one kind of file and other printshops favor others. I have found that most printshops want to crank your job out as fast as possible (usually resulting in low resolution for you).

**Drop stitches**, fabric defect that results from malfunctioning needle or jack. Will appear as holes or missing stitches.

**Duck**, also known as canvas. A tightly woven, heavy, plain-weave, bottom-weight fabric with a hard, durable finish. The fabric is usually made of cotton.



*Canvas printed sample.*

**Dwell time**, means how long do you keep the fabric inside the steamer or heat press or fixing unit.

**Dye streak in printing**, print defect which results from a damaged doctor blade or a blade not cleaned properly. Usually a long streak until the operator notices the problem.

**Dye sublimation**, is a fascinating chemical process whereby the final color on the cloth is created from a liquid (the ink) imprinting on cloth or transfer paper and drying or curing to a "solid" and then the heat turns the image (color) into a gas (a vapor) to deposit its color or merge the color within the polyester. Sublimation usually requires the material be polyester. So you can also sublimate onto specially pre-coated ceramic tiles and aluminum. So dye sublimation transfer paper is not only for decorating textiles. Sublimating (dry) toner is similar but used mainly with desktop printers for simple tasks.

You can print on transfer paper (with dye sublimation ink) and sublimate the image off the transfer paper onto your polyester. Downside is you need to buy a calendaring machine.

You can print directly to the fabric with disperse dye ink and sublimate directly within the cloth with hot air (cheap way) or with heated cylinders (more sophisticated and potentially more even sublimation).

In either case the ink sublimates: turns from a solid into a gas without going through another liquid stage.

Also see: **Advantages and disadvantages of dye sublimation**



Inkwin dye sublimation inks and printer.

F

**Fabric**, a cloth produced especially by knitting, weaving, or felting fibers.



Fabric rolls.

**Finishing**, with a regular inkjet print, finishing means trimming, laminating and/or mounting. With an inkjet textile you may have to heat set (steam), wash out the excess ink. Like any other cloth that was just washed, you might wish to iron it too. But, if you select the newer fabrics, they don't require steaming or washing, hence no ironing. But their longevity may not be as long. Steaming fixes the colors so it can withstand washing and dry cleaning.



Hollanders washing unit.



**Fire codes;** be very careful of fire codes in your city or state. Fire codes dictate which fabrics may be used in public buildings and which not.

**Fixation unit,** see also heat press



Century Star fixation unit.

**Flag material,** fabric used to print flags made out of polyester, knitted polyester or woven polyester.



Flag material

**Flax,** a soft, lustrous and flexible fiber. It is stronger than cotton fiber but less elastic. The best grades are used for linen fabrics such as damasks, lace and sheeting. Coarser grades are used for the manufacturing of twine and rope.

**Fray,** to become worn away or tattered along the edges or threadbare spot on fabrics.

**Fumes issue from a fixation unit,** especially a grand format size (three meters and wider). You need a fume extraction system on all direct-to-fabric grand format dye sublimation printing systems.



Fume extracting unit.

**G**

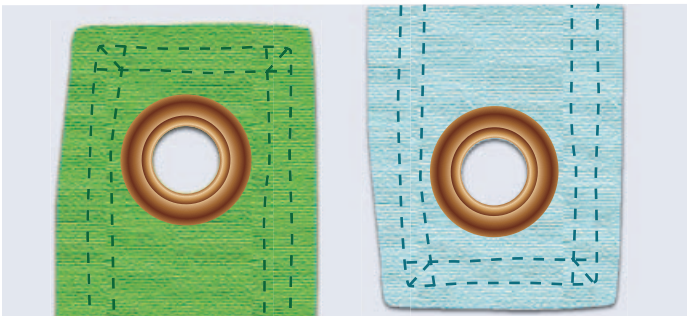
**Gauze**, a thin, sheer fabric with a loose open weave that is usually made from cotton or silk.



*Gauze.*

**Georgettes**, a woven fabric created from highly twisted yarns creating a pebbly texture. It is thin and semi-sheer and is characterized by its crispness and exceptional strength.

**Grommet(s)**, can you easily put grommets in the fabric? A grommet is a large, metal-edged unit which surrounds a hole in a garment. The hole is used to put a rope or comparable material to hang banners or signage.



*Grommets placed into fabric. Illustration by Maria Renée Ayau.*

**H**

**Habotai**, a China Silk, plain weave fabric with a soft sheen. These silks do not add bulk but will add a slight amount of body and weight while remaining soft and fluid.

**Hand**, how the fabric feels to the hand or skin (if worn). You want a soft hand. If you utilize an ink not specifically for fabrics (such as HP latex or and UV cured inks) the feel of the fabric is coarse and rough. But a nice feeling hand is not needed latex or UV inks work acceptably. Just realize that each ink chemistry favors some colors and does weakly or inappropriately with a few other colors.



*Hand.*

**Heat press**, see also calendering unit, fixation unit  
A machine engineered to print a design or graphic on a substrate, such as a t-shirt



*T-shirt heat press.*

**Heat set**, means in effect pre-shrinking the material so that when it is in the heat press dye sublimation system it won't suddenly shrink. If a material shrinks during sublimation the design may become distorted.

**Heat transfer** is the use of heat (to sublimate the ink) and pressure to transfer the ink from the paper to the polyester related material.

**High energy dye** (disperse inks). High energy disperse dye inks are better in most respects than low energy disperse dye inks, but high energy costs correspondingly more.

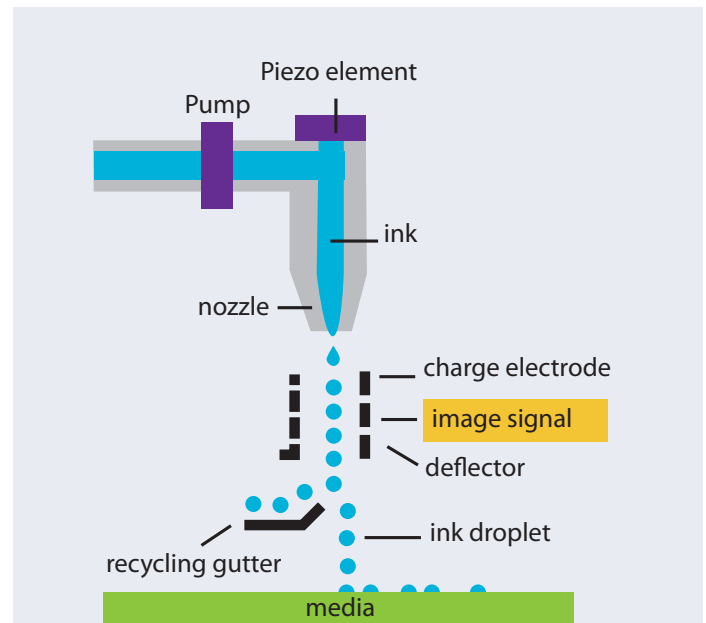


Disperse dye inks.

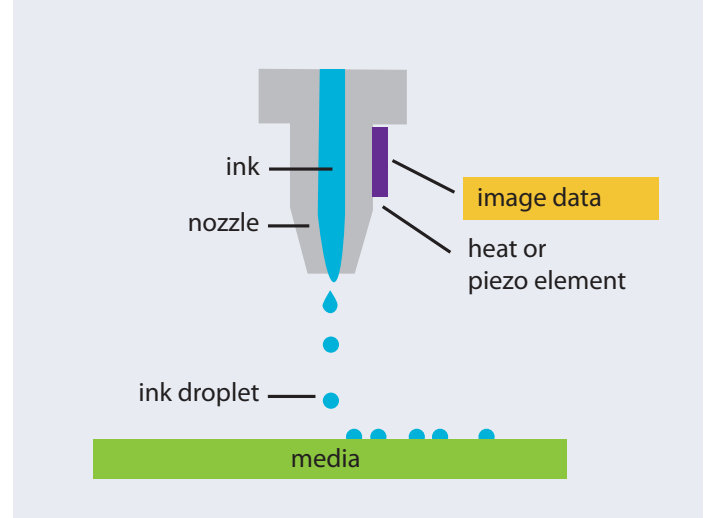
**Hot knife**, a tool with a heated blade used to cut media. It also refers to the properties of the fabric, can you hot knife the fabric easily, or not.

I

**Inkjet**, a printer technology where ink is squirted through nozzles onto the printer paper or other material to form an image or character.



Continuous inkjet process. Illustration based on [www.dp3project.org](http://www.dp3project.org)



Drop-on-demand inkjet process. Illustration based on [www.dp3project.org](http://www.dp3project.org)

**Interior design**, interior decoration is where kilometers of printed fabrics are used, as curtains, upholstery, etc.

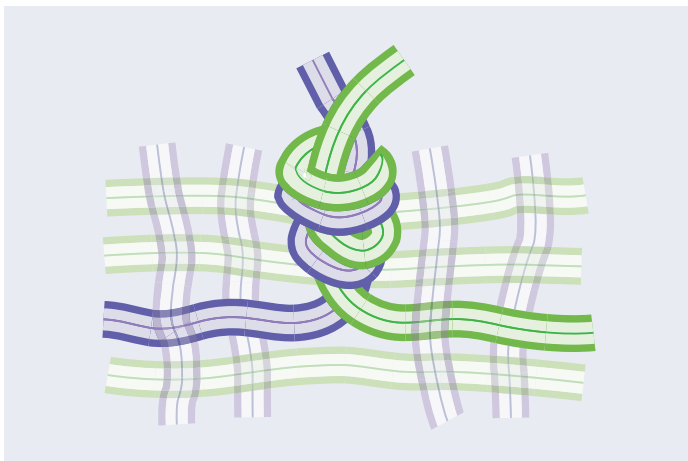
**J**

**Jacquard**, a weaving method invented by Joseph Marie Jacquard, which involves a machine attached to a loom that can electronically select and control individual warp threads. The Jacquard loom is used to create intricately woven fabrics, including brocade and damask. Silk, polyester and rayon are commonly used in the Jacquard process.

**Jerk-in**, fabric defect caused by an extra piece of filling yarn being jerked part way into the fabric by the shuttle. The defect will appear at the selvage.

**K**

**Knots**, fabric defect caused by tying spools of yarn together.



*Knots in fabric, caused by two threads tied together.  
Illustration by Maria Renée Ayau.*

**L**

**Linen**, use reactive dye ink. A fabric made from linen fibers obtained from inside the woody stem of the flax plant. Linen fibers are much stronger and more lustrous than cotton. Linen fabrics are very cool and absorbent, but wrinkle very easily, unless blended with manufactured fibers.

**Low energy dye** (disperse inks). See also high energy dye (disperse inks). Low energy dye inks cost less and need less heat to sublimate (Work 2009:33).

**M**

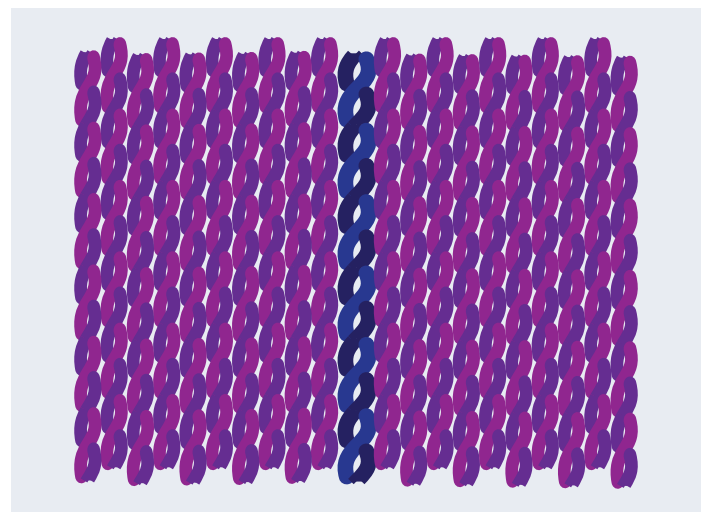
**Media**, actually in this case singular and plural. Means any material coated with inkjet receptor powder. 90% of the material you put through an Encad, Epson, or HP is media. Also see substrate. The word media also has many other meanings in digital imaging.



*Nassenger VII media samples.*

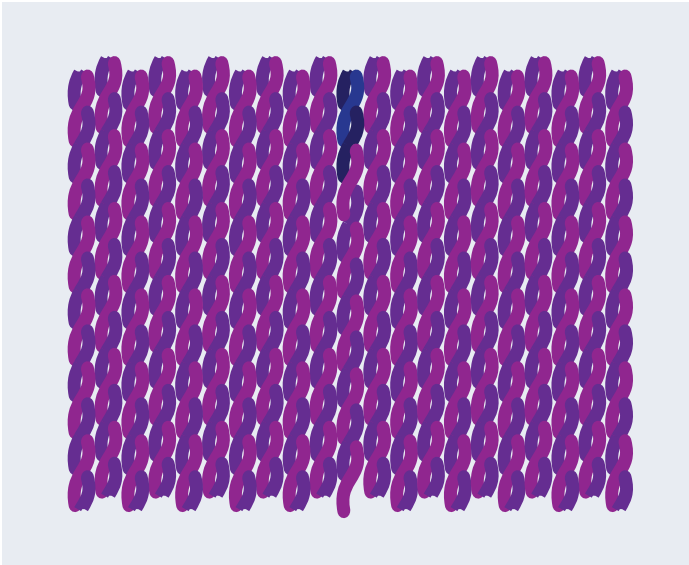
**Mesh fabric**, is often defined as a loosely woven or knitted fabric that has a large number of closely spaced holes, frequently used for modern sports jerseys and other clothing

**Missing yarn**, fabric defect which occurs in warp knit. Results from wrong fiber yarn (or wrong size yarn) placed on warp. Fabric could appear as thick end or different color if fibers have different affinity for dye.



*Missing yarn. Illustration by Maria Renée Ayau.*

**Mixed end (yarn)**, fabric defect that occurs when yarn of a different fiber blend used on the warp frame, resulting in a streak in the fabric.



Mixed yarn. Illustration by Maria Renée Ayau.

**mm** does not necessarily stand for millimeter but for momme.

**Momme**, is a measurement of weight for silk

**Mottled**, Color applied unevenly during printing.

**Muslin**, a sheer, lightweight cotton fabric that is produced mainly in India. This plain-weave material can be used a thin blankets or as a backing for quilts

N

**Needle line**, fabric defect that is caused by bent needle forming distorted stitches. Usually a vertical line.

**Needlepoint**, is a form of canvas work created on a mesh canvas. The stitching threads used may be wool, silk, or rarely cotton. Stitches may be plain, covering just one mesh intersection with a single orientation, or fancy, such as Bargello. Plain stitches, known as Tent stitches, may be worked as basketweave or half cross.

**Nylon, polyamide**, which can be made into a synthetic fiber. The first completely synthetic fiber developed in 1938. Known for its high strength and excellent resilience, nylon has superior abrasion resistance and high flexibility, high strength, elasticity, low water absorption and quick-drying.

O

**Oil based textile inks**, may be compared and contrasted to water-based textile inks and solvent-based dye sublimation inks.

**Olefin is polyethylene**, strong man-made fiber giving resistance to abrasion and stain resistance. Good resistance to fading when solution dyed, very sensitive to heat.

**Optical brighteners**, are chemicals that attempt to make the material as white as possible.

**Oversaturation**, too much ink deposited onto a printed image which leaves the substrate to buckle.



Oversaturated printed fabric.

**P**

**Piezo-electric**, The property of certain crystals that causes them to oscillate when subjected to electrical pressure (voltage). ). When the membrane oscillates, this movement forces ink out the nozzle. If you are interested in the specific details, attend the IMI conferences on ink-jet technology: for more information check out <http://imi.maine.com>.

**Pigment inks**, have pigments instead of dye molecules. Pigmented textile inks have better longevity but are noticeably less colorful (lack pop in most cases).



*Pigment ink one liter bottles.*

**Polyamide**, Nylon, see Nylon

**Polyester, PET**, a polymeric material that can accept dye-sublimation or disperse dye direct fixation.

**Polyester blend**, a fabric resulting from the combination of polyester with two or more fibers within the same yarn. Fabrics are often made from blended yarns to increase durability, stretch, stain resistance and cost efficiency.



*Polyester printed fabric.*

**pop**, is jargon in wide-format inkjet printing (and other graphic arts) for meaning that colors stand out. Sometimes it means that colors change from dull to bright and thus pop out, so to speak. But a color that is bright from the beginning can also be referred to as pop. You may tend to get colors that pop from full dye sublimation (printing first on transfer paper) than direct-to-fabric with disperse dye (whose resulting colors may not pop as much).



*pop: Color before fixing (above), color after fixing (below).*

**POP, If capitalized**, POP can mean point of purchase (point of Sale, POS), which means in-store advertisements directly in front of the merchandise that the store wishes to entice you to buy.

**Poplin**, also called tabinet, this plain-woven fabric has a corded surface that runs selvage to selvage. Usually made from a silk warp with a weft of worsted yarn, but can also be made with wool, cotton, rayon, or any mixture.

**POS**, means point of sale, same as POP, point of purchase

**Post-processing**, might be considered comparable to the more technical print shop term "finishing."

**Pressure**, is needed along with heat and/or steam to fix the ink colorants to the fibers. How much and what factors are determined by the kind of ink chemistry and whether or how the fabric has been pre-treated.

**Printhead longevity**, all printheads eventually wear out, even piezo printheads. Some dye sublimation inks are rougher on printhead longevity than other inks. So it is important to know whether the ink supplier has a warranty for printhead life, or not. If a printhead costs a thousand dollars to replace, you should consider only ink that has a warranty, or at least an honest estimate of the printhead life.

**R**

**Raster Image Processor (RIP)**, Produces an image defined as a set of dots/pixels in a column-and-row format. Rasterisation is the process of determining values for the dots/pixels in a rendered image. The placing of ink in a random pattern on a print pleasing to the eye.



*RIP Evolution Software from DigiFab.*

**Rayon**, use reactive dye ink. A synthetic textile fiber made from cellulose. Rayon is known for its high absorbency, bright or dull luster, pleasant feel or hand, good draping qualities, ability to be dyed in brilliant colors and superior strength.

**Reactive dye inks**, are for cotton, silk, rayon, and wool. See also acid dye inks and disperse dye inks for inkjet textiles.



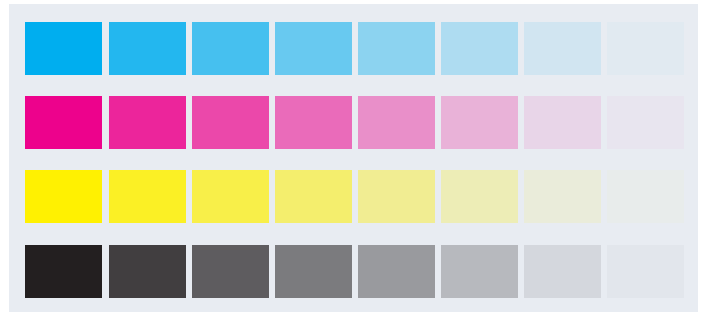
*Reactive dye inks.*

**Runner**, fabric defect caused by broken needle. The runner will appear as vertical line. Most machines have a stopping device to stop the machine when a needle breaks.

**S**

**Sailcloth**, a strong canvas of cotton, linen, or nylon in a plain weave, sometimes with a crosswise rib. The weights vary, but most often the count is around 148 x 60. Able to withstand the elements (rain, wind and snow).

**Saturation**, the amount of color in a specific hue.



*Saturation. Illustration by Maria Renée Ayau.*

**Scud-launcher steamer**, is a vertical steamer. Looks like a launcher for scud missiles.

**Scrimp**, the result of fabric being folded or creased when passing through tender frames.

**Selvage**, the edge on either side of a woven or flat-knitted fabric so finished as to prevent raveling. A narrow border often of different or heavier threads than the fabric and sometimes in a different weave



*Selvage*

**Silk noil**, raw silk. This is a slightly nubby fabric with random flecks in a natural, off-white color. It has a somewhat rough texture and a gentle drape.

**Sizing**, a fabric finish that adds weight, stiffness, and firmness. The purpose of this is to make the yarn smoother and stronger to withstand the strain of weaving, to provide an acceptable hand in the woven gray goods, and to increase fabric weight.

**Solvent inks**, use aggressive chemical solvents instead of water. Due to environmental and health concerns, some companies have switched to lite solvents. Lite solvents come in several flavors: one is simply less aggressive the other is evidently an oil-based solvent ink (used by Roland SolJet as an example). FLAAR will be issuing a primer on textile inks shortly.



*AT Inks solvent ink bottles.*

**Spandex**, use acid dye ink, synthetic fiber made from polyurethane. It is lightweight, highly elastic, strong, durable and non-absorbent to water and oils. It can be repeatedly stretched over 500% without breaking, and will still recover to its original length



*Most swimsuits and sporting gear are made out of Spandex.*

**Shrinkage**, as the material is run through a steamer or heat fixation unit.

**Steamer**, many inkjet textiles need to be steamed, preferably under pressure, in order to set and pop the colors. Steamers come in several sizes and shapes:

- stove-top steamer
- scud-launcher steamers (“vertical steamers”)
- moderate pressure steamer
- industrial production steamers

**Steaming paper**, is used to keep the freshly printed fabric from sticking to itself as it is rolled to place it into the steamer. With the vertical 3P steamer a wire mesh is used instead of paper. This means it can be reused as often as needed. Steaming paper is available from Jacquard.

**Sticky belt**, is a transport belt (conveyor-like belt) with a glue-like material so that the weave of the fabric does not get pulled out of shape as it is pulled by the tension rollers through the printing system. In the world of UV-cured flatbed printers any printer with a transport belt would not have glue, but otherwise the transport belt for a UV-curable flatbed printer is similar in drive mechanism of the belt. A transport belt adds anywhere between \$20 and \$30,000 to the cost of a printer (or less if made in China). But a low-cost transport belt may cause the material to feed improperly.



*Sticky belt close-up (upper) and complete textile printer (below).*



**Stop mark**, fabric defect caused when the loom is stopped, the yarn elongates under tension; when the loom starts again, the slack is woven into the fabric.

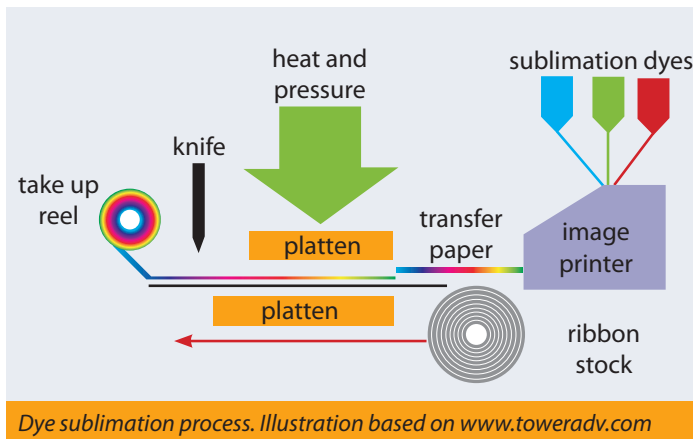
**Stove top steamer**, is just as the designation states: a metal cooker that you put on the stove top to heat. It is horizontal. The one from Jacquard can handle fabrics up to 36"

**Straying end**, fabric defect on the warp knit. Caused when an end of yarn breaks and the loose end strays and is knit irregularly into another area.

**Sublime**, to turn from an ink (in theory a "solid") into a gaseous state.

**Sublimation-dye process**. With wax or thermal ribbons, it is a printing process that uses special media consisting of a printer ribbon, a heated "print head" and laminated printer paper. When the "printer head" passes over the paper, the image is printed by varying the heat and causing color (consisting of cyan, magenta and yellow) dyes to be passed on from the ribbon to the paper. Printers such as Matan and Summa use this, as does the desktop Kodak 8600 series printers.

Another form of Dye Sublimation involves printing with a regular thermal (Canon or HP) or piezo (Epson) printer on transfer paper. Heat press is subsequently applied to the paper on top of the material to which you wish to sublimate. The ink turns into a gas and penetrates the inkjet receptor later of the material. You end up with an image on ceramic tiles, solid metal, etc.



**Substrate**, see also material, media

**Synthetic fabrics**, fibers elaborated to increase and improve the supply of natural fibers that have been used in making cloth. Few examples of synthetic fibers are rayon, acetate, nylon, modacrylic, olefin, acrylic and polyester.



Polyester sample, the most commonly used synthetic fiber for printing.

T

**Taffeta**, With a smooth feel, and a crisp hand, taffeta can be made from a variety of fibers including silk and rayon. It has a subtle horizontal ribbing effect and provides lots of body and an ultimate rustle.

**Technical textile** is one whose extra strength allows it to be used for building wrap, billboard sized soft-signage, or car park tends. Yeong Jeou makes ARIA, a PE technical textile. If you wish a more complete definition, try the 576 pages of Handbook of Technical Textiles, by Richard Horrocks and Subhash Anand, Woodhead Publishing, 2000.



Yeong Jeou PE technical textile trampolines.

**Tensile strength** of the textile, is determined by the size (denier) and strength (tenacity) of the yarns and the number of yarns per linear inch or meter. The larger the yarn and the more yarns per inch, the greater the finished product's tensile strength.

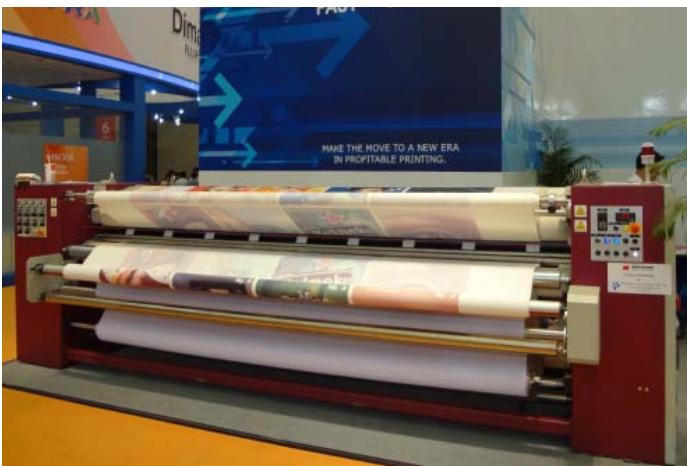
**Tension roller (system);** you can use either grit rollers against pressure rollers (for inkjet printers primarily for simple media and normal substrates. If you are using material that stretches, or is heavy, or has other features, you may prefer a more sophisticated system such as tension rollers.



*Tension roller system on the ATPColor textile printer.*

**Textile steamer,** see steamer

**Thermal transfer,** a printer technology that uses heat to transfer colored dye onto paper. Matan is a wide format printer using this technology. Alps was a desktop sized printer (which went out of business several years ago).



*Monti Antonio thermal transfer unit.*

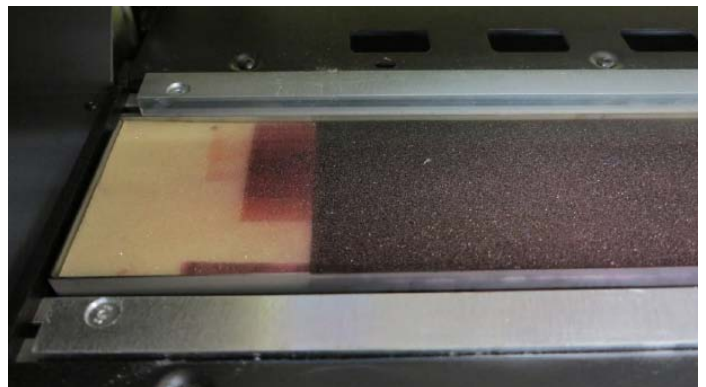
**Transfer paper,** one major brand is Coldenhove; another is Beaver. Some ink chemistries work better on transfer paper than other textile ink chemistries.



*Printed transfer paper (top) and satin fabric (below).*

**Treated,** see also untreated, a finishing process associated with the application of synthetic chemical compounds to the fabric to provide wrinkle-resistance, wash-and-wear characteristics, or an improved hand.

**Trough,** a kind of drainage that catches the ink which passes through some woven materials. This trough is the entire length of the platen and is directly underneath where the printheads pass over for each pass. To clean the trough, either there is a small drainage tube or you lay down absorbant paper towels or simply wipe up the ink quickly at the end of the day (before the ink solidifies). May also be called a gutter. If I remember correctly, ATPColor cleverly uses a sponge in their trough. This also keeps ink from splashing around in the trough



*Textile printer trough.*

**Tussah silk**, is a plain weave silk fabric from "wild" silk worms. It has irregular thick and thin yarns creating uneven surface and color. Wild silkworms feed on leaves other than mulberry leaves. Tussah silk is similar to shantung, with silk from the wild. Color is often uneven; usually referred to as "raw" silk.

**Twill**, an incredibly versatile fabric distinguishable by diagonal ribs on its face, and a soft, smooth finish. Gabardine, serge, and denim are all examples of twill fabrics.

U

**Untreated**, see also treated, usually but not always means treated polyester or untreated polyester

**UV cured inks**, pigmented inks which dry instantly upon contact with UV light. More environmentally friendly than solvent inks. UV cured inks are gradually replacing solvent inks in industrial and grand format printers due to new environmental protection laws against solvent inks. Do not confuse these with HP's so-called "UV inks" which are regular water-based pigmented inks. Hewlett-Packard inks from DuPont are not by any means UV cured.



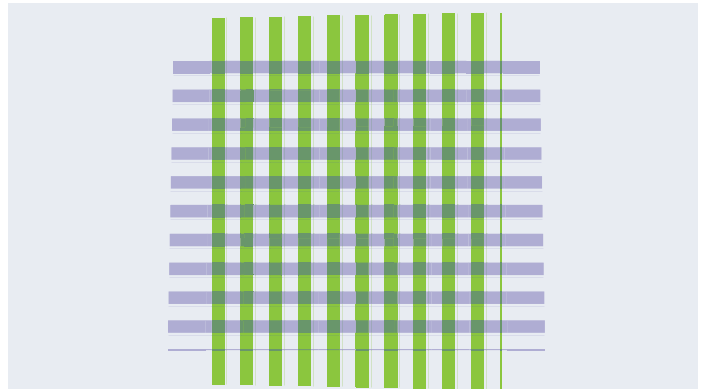
UV cured ink bottles.

V

**Viscose rayon**, man-made synthetic fiber, typically referred to as rayon. Viscose has a silken, smooth feel and a terrific drape, and is often used for linings and bridal garments.

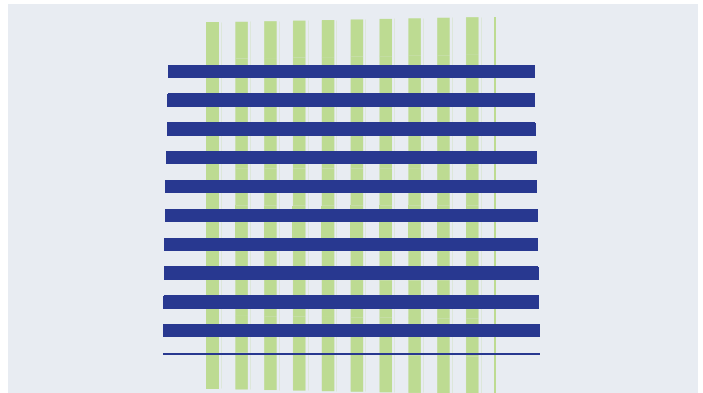
W

**Warp**, the vertical threads in a particular fabric or on a loom.



Fabric warp. Illustration by Maria Renée Ayau.

**Weft**, the horizontal threads in a particular fabric or on a loom.



Fabric weft. Illustration by Maria Renée Ayau.

**Wool**, use acid dye ink. This textile is made using the fibers from the hair of animals, such as goats, sheep, camels, or llamas, and it comes in several different forms from crepe, to gabardine, to worsted. Wool is moisture absorbing and known for its warmth, and is also naturally stain and wrinkle resistant.

**Wrinkle resistance**, a fabric that has been treated to resist the formation of wrinkles.

### Sources and Resources on the Internet

[www.clothingsourcing.com/doc/trguide/spanishenglish.pdf](http://www.clothingsourcing.com/doc/trguide/spanishenglish.pdf)

**Spanish-English dictionary, but no definitions**

[www.dharmatrading.com/glossary/A.html](http://www.dharmatrading.com/glossary/A.html)

**An excellent glossary on fabrics.**

[www.en.wikipedia.org/wiki/Glossary\\_of\\_textile\\_manufacturing](http://www.en.wikipedia.org/wiki/Glossary_of_textile_manufacturing)

**A glossary on different types of fabrics.**

[www.en.wikipedia.org/wiki/Glossary\\_of\\_textile\\_terminology](http://www.en.wikipedia.org/wiki/Glossary_of_textile_terminology)

[www.fibre2fashion.com/glossary/glossary.htm](http://www.fibre2fashion.com/glossary/glossary.htm)

**Very complete dictionary for textile printing.**

[www.hsc.csu.edu.au/textiles\\_design/glossary/2387/index.htm](http://www.hsc.csu.edu.au/textiles_design/glossary/2387/index.htm)

**General textile terms glossary**

[www.kuamadomo.com.ar/blog/download/dic\\_ingles\\_espanol\\_v0.5.pdf](http://www.kuamadomo.com.ar/blog/download/dic_ingles_espanol_v0.5.pdf)

**Spanish-English dictionary, but no definitions**

[www.regalfabrics.com/learnabout/glossary.htm](http://www.regalfabrics.com/learnabout/glossary.htm)

[www.silkery.com/terms.html](http://www.silkery.com/terms.html)

**Brief glossary of silk (not inkjet silk, but traditional silk).**

[www.sinclairconsultancy.co.uk/glossary.php](http://www.sinclairconsultancy.co.uk/glossary.php)

[www.textilecollection.blogspot.com/2010/06/fabric-defects-terms-glossary-of-fabric.html](http://www.textilecollection.blogspot.com/2010/06/fabric-defects-terms-glossary-of-fabric.html)

[www.textilesintelligence.com/glo/index.cfm](http://www.textilesintelligence.com/glo/index.cfm)

**Common textile industry terms.**

[www.victor-innovatex.com/en/glossary.php](http://www.victor-innovatex.com/en/glossary.php)

[www.weavers.org.uk/glossary](http://www.weavers.org.uk/glossary)

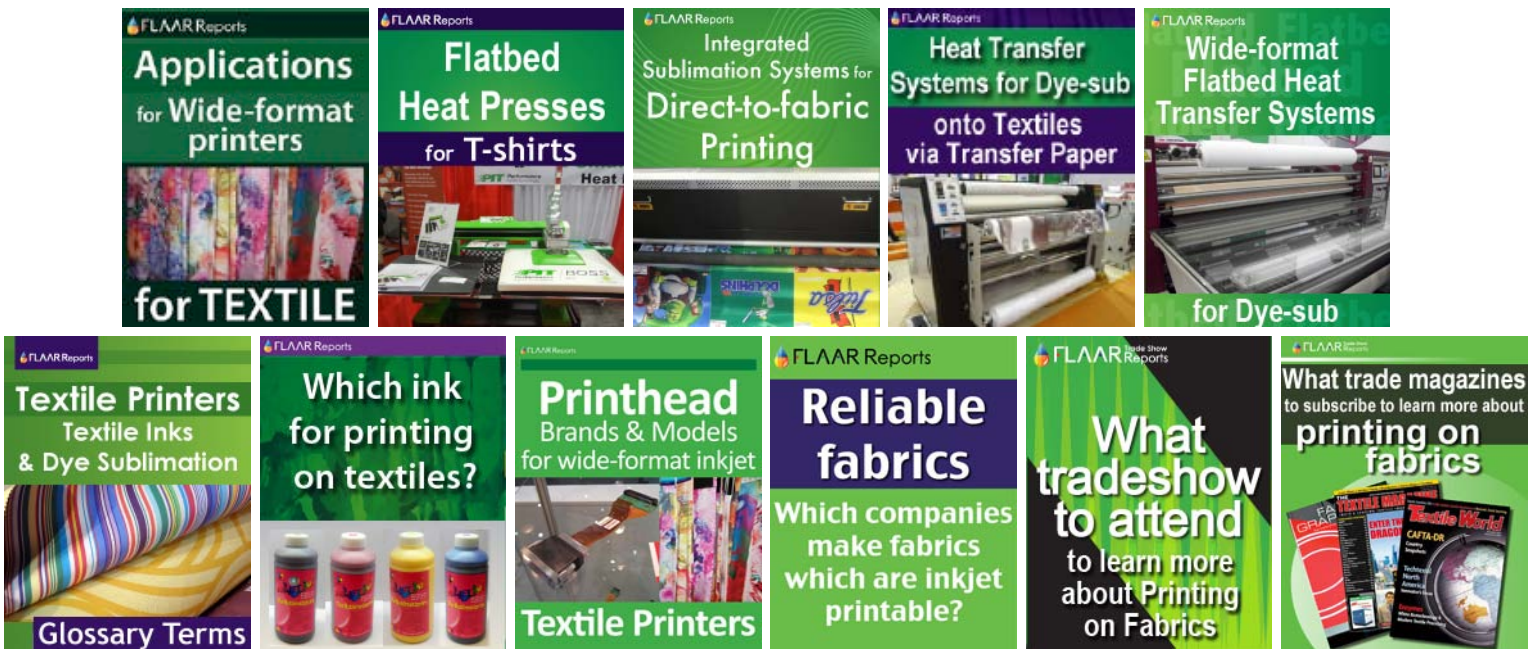
Consider looking into "Fabric Glossary," by Mary Humphries, 2nd edition, 1999, Prentice Hall publisher.

**A great glossary on fabric defect terms.**

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## Introductory Textile Reports



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