





## Choosing Stock

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# Stock Properties

The type of stock used for digital printing has a significant effect on color reproduction. Paper reflects unabsorbed light back to the eye of the viewer, so the more reflective the paper's surface, such as coated paper, the wider the range of colors perceived that can be produced.

Choosing the right paper calls for a strong knowledge of paper characteristics and how they relate to the specific print technology. Xerox Digital Presses use dry ink, which is a very fine powder. The following stock properties interact with the dry ink to determine the quality of color images.

## Brightness

Brightness is the measure of blue light at 457 nm. Brighter papers produce images with higher contrast. Be aware that some artificial brighteners can affect color reproduction by reflecting colors unevenly. A bright blue-white paper may reflect more blue and less red and green, affecting how the eye perceives the paper color.

Blue-white papers contain ultraviolet (UV) brighteners that break down over time when exposed to UV light. As UV brighteners break down, the paper shade may change from bright white to a warm white (yellow cast). UV light exists naturally indoors and outdoors.

### Recommendations for Brightness

- As a general rule, use brighter papers when printing documents with photographs, halftone images or complex graphics.

## Finish/Smoothness

Finish is the smoothness or roughness of a paper's surface. Paper is processed to have a specific type of finish, ranging from very smooth to highly textured. Finish can significantly impact image quality. If paper is too rough, light patches and graininess appear in solid areas. Halftone images also appear grainy. Dry ink may not fuse properly to extremely rough paper, which may cause deletions where the ink rubs or flakes off. Smooth and coated papers produce sharp images because they reflect light more directly than rougher papers.

Sheffield is a test that is used to measure the smoothness of paper. It measures the rate of air flow over the surface of a sheet. The lower the Sheffield smoothness number, the smoother the sheet.

The following two tables provide descriptions of the paper finish categories and descriptions of the coating categories.

Table 1-1 Paper finish categories

Finish	Description	Examples
Smooth	All Coated Papers	<ul style="list-style-type: none"><li>• Coated Text</li><li>• Coated Cover</li></ul>
Regular	All uncoated papers with Sheffield smoothness between 40 and 225	<ul style="list-style-type: none"><li>• Uncoated papers that are highly calendared or very smooth</li><li>• Papers with low texture (vellum)</li><li>• Uncoated papers for digital color printing</li></ul>
Rough	All uncoated papers with Sheffield smoothness above 225	<ul style="list-style-type: none"><li>• Papers with highly textured finishes (felt, linen)</li><li>• Bristol papers</li><li>• Index papers</li></ul>

Table 1-2 Paper coating categories

Paper Coating Types	Common Names/ Descriptions	Gloss Range (% Reflectance)
High Gloss	Cast, Chrome coated, C1S/C2S, Cast coated and any other high gloss special process media	Gloss range = 80+
Gloss	Gloss, Enamel, Art	Gloss range = 50 to 80
Semi-Gloss	Dull, Silk	Gloss range = 35 to 50
Satin	Satin, Velvet	Gloss range = 23 to 35
Matte	Matte, Reply Card	Gloss range = 10 to 25

The gloss ranges in Table 1-2 are measured at a 75 degree angle with the TAPPI test method T 480. Gloss ranges are not rigidly fixed, which accounts for the slight overlap in values. You can normally use the name or description of the finish to determine the coating type. Note that paper mills may not be consistent in how they describe coatings.

### Recommendations for Finish/Smoothness

- Use smooth or coated papers for proper dry ink transfer to ensure the best color density and image detail, and to increase the appearance of glossiness. Using a very smooth paper is especially important when printing fine lines and detailed images.

### Shade

Shade is the color of the paper. Paper shade may change the colors of printed images because dry ink is applied in dot patterns that allow the paper shade to show through. Lighter images reveal more of the paper color than darker images.

### Recommendations for Shade

- Select a true white for the truest colors and natural looking skin tones.
- Be aware that shaded paper will affect image colors and overall hues.
- Remember that paper shades can vary significantly among brands and lots.



## Formation

Formation is the distribution of fibers and fillers in paper. Fibers and fillers should be distributed evenly throughout the sheet. Although formation is not included in the manufacturer's specifications, you can check it by holding a sheet up to a light. If the sheet looks even throughout, it has good formation. If you see uneven light and dark areas, formation is poor.

Good formation is especially important when documents include halftone images of photographs or high ink coverage. Halftone images appear sharper on paper with good formation. Solid images can appear uneven or spotty when printed on paper with poor formation.

### Recommendations for Formation

- Choose paper with good formation to ensure uniformity of color images.

## Impurities

Impurities in the paper-making process can leave tiny specks in some stocks. The specks can appear as marks or spots in printed images, especially in high resolution images, fine type and fine lines.

Impurities in recycled papers consist of inks and adhesives (from window envelopes, stick-on notes, labels, etc.), which are difficult to remove during the recycling process.

### Recommendations for Impurities

- Use high quality, non-recycled papers when the best image quality is required.

## Opacity

Opacity impacts the ability of a printed image to show through from the opposite side of a sheet or from another sheet below it. To increase a paper's opacity, filler may be added to increase thickness or be applied as a coating.

Opacity is measured according to how much light a sheet blocks and is expressed as a percentage between 0 and 100. Most papers fall within the 80% to 90% range. However, an opacity of 98% will prevent a printed image from showing through on the opposite side of the sheet.

### Recommendations for Opacity

- Choose paper with high opacity when printing on both sides of the paper or when heavy dry ink coverage will be applied.

# Size and Weight Specifications

The following links provide the locations of a number of digital press specifications sheets.

## iGen3®

<http://www.xerox.com/digital-printing/digital-printing-press/color-printing/xerox-igen3-110-90/spec-enin.html>

## DocuColor® 7000AP/8000AP

<http://www.xerox.com/digital-printing/digital-printing-press/color-printing/docucolor-8000ap/spec-enin.html>

## DocuColor 5000

<http://www.xerox.com/digital-printing/printers/digital-press/docucolor-5000/spec-enin.html>

## DocuColor 260

<http://www.office.xerox.com/multifunction-printer/color-multifunction/docucolor-242-252-260/spec-enin.html>

# Stock Recommendations

There is a long list of stocks that can be printed on a digital press. See your printer or service bureau for a list of the supported media.

Table 1-5 Stocks that can be run on a digital press

Stock Types Recommended	
• Bond	• Perforated and scored paper
• Bristol	• Preprinted
• Cover weight coated and uncoated	• Recycled
• Drilled Paper	• Synthetic papers and plastics
• Index	• Text weight coated and uncoated
• Label Stock	• Tabs

Xerox takes extra steps to ensure consistent quality among our offerings. See [www.xerox.com/supplies](http://www.xerox.com/supplies)

The following stocks are not recommended for a digital press:

Table 1-6 Stocks that should not be run

Stock Types Not Recommended
Highly conductive papers, such as foil-backed papers
Stocks with melting points at or below 365° F (185° C)
Stocks outside the size and weight ranges listed on the product specification sheets
Non-paper backed transparent stocks (iGen3® only)
Stocks with caliper greater than 500 microns (18 pt)
Stocks containing talc or plasticizer
Preprinted sheets printed with non-laser compatible inks or inks that are not sufficiently cured
Preprinted sheets that were dried with offset drying powder