

PRINT DIRECTLY ON Wallpaper

JETALL Water-Based Pigmented Ink



Nicholas Hellmuth



with NO

solvent odor
solvent HAPs
solvent out-gassing

Also prints on un-Coated Paper



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Printing on wallpaper is a topic of importance:

No more requirement to limit printing of wallpaper to flexographic printing technology. Don't need rotary screen or rotogravure at all. Today you can print wallpaper with wide-format inkjet printers.

And, you can do your own customized designs. If you wish, you can print your own wallpaper yourself.

And today, when people and corporations do not want harmful chemicals in their residence or workplace, there is no excuse to continue using solvent inks, or vinyl either.

Yet it is notable that almost all of the offerings for wallpaper on the Internet are with solvent or UV-cured inks. We discuss the downsides below.

FLAAR is interested in all aspects of interior decoration

Our background at FLAAR is in architecture. I studied architecture at Harvard and have spent decades researching and writing about architectural history (Mayan pyramid-temples, palaces and sacred ballgame courts). For the present decade we have dedicated our resources to learning about wide-format inkjet printing on wood, stone, ceramic tiles, and glass. This same decade I have also been doing research on innovative inks to print on atypical material (material other than for traditional advertising signage). Wallpaper, wallcoverings, and wall murals are all part of our interest.

We are especially interested in wall coverings for museum exhibits, both temporary exhibits and permanent exhibits. Digitally printed wallpaper is especially pertinent for temporary museum exhibits.



So anything and everything about interior decoration is what we enjoy learning about, and once we have year(s) of research and experience, then we issue FLAAR Reports to assist individuals and companies to learn how to do customized wallcoverings. And one thing is helpful at the beginning: to understand which inks, substrates, and printers are not ideal. It is as crucial to learn what is not appropriate for reproducing wallpaper as it is to understand what options are optimal.

So to begin our journey into printing customized images onto wallcoverings, let's first learn which printers and inks are not ideal.

Wallpaper is best printed without solvent odor

If you print wallpaper with solvent ink, it will stink for days, possibly weeks.

No restaurant, no home, and no office would put up with the smell of wallpaper freshly printed with solvent ink. Even eco-solvent ink has an unpleasant odor.

If the wallpaper material is PVC, the odor of the PVC will also mix with the smell of the solvents.



Hongsam makes ink for giclee as well as wallcovering. Though a nice wallcovering can also be fine art quality.



Here you see the newly installed equipment. I spent several days in the new factory, and also visited the old former factory. The new factory is improved in every way, shape, and form. It has considerable amounts of sophisticated equipment on several floors.

Wallpaper may be better not printed with UV-cured ink

The most popular-selling printers today, and for the last six years, are UV-cured printers. Since printshops have invested heavily in UV-cured printers it is understandable they will want to use UV-cured machines to print on wallpaper.

But there is no particular need to use a quarter-million dollar UV-cured printer to produce wallpaper. This is overkill. And most big production roll to roll UV-cured printers have 50 picoliter drop size, or 30 picoliters. Print quality is not adequate.

Plus, UV-cured ink can have an awful smell. Some brands of UV-cured ink are much much worse than others. And some settings (some print modes) result in more smell than other print modes. Indeed it would be a challenge to decide which can have the most offensive odor: solvent ink or UV-cured ink. Print shop personnel get used to the odor and hardly think of it after a while. But clients, who have never been exposed to this smell, may find the odor unacceptable.

UV-cured print jobs can emit odor for many weeks after printing. UV-cured ink is not cheap either. So although UV-cured printers can print wallcovers, this would not be my first choice. Besides, the color gamut of most brands of UV-cured ink are weak in greens, yellows, and reds.

Yes, wallpaper can be printed with HP latex ink, but electricity expense is high

Although latex ink does not smell very bad, when you heat substrates to 100 degrees the material can stink. So if you print PVC, the finished job can have a mildly unpleasant smell.

The new latex ink is okay in color gamut, but the original version was not bright in all colors. Also, yellow had poor light-fastness, and cyan did not hold up well to water. The new HP latex inks are improved in most respects, but these inks are not yet available for the HP Designjet L25500.

Electricity costs are high when using latex ink.

So yes, you can print on some materials acceptably with latex ink (high curing heat will distort some media, but many materials do okay). But I would not buy a latex printer just to print wallpaper. A printer at half the cost can print wallpaper perfectly (most normal Mimaki printers, for example).



Print Samples of the wallpaper printed with JETALL ink.

You can use disperse dye ink to print polyester as wall covering

If you want wall covering with a fabric finish, you can consider a disperse dye printer, such as MTEX or any number of other brands. And use disperse dye sublimation ink. Many colors are okay; some colors are really beautiful, but you need to choose a scene with colors that pop well with direct-to-fabric disperse dye inks.

Direct-to-fabric inks are gorgeous in many colors, but not perfect in some earth colors. So if your scene carefully selects the right colors, then the output will look beautiful in disperse dye sublimation process. But if the graphic designer or photographer is not familiar with the specific color gamut peculiarities of disperse dye inks, then the output may be okay in some colors but not perfect in all colors.

What then is potentially better than all the above options?

Of the above options, disperse dye sublimation is pretty good, since the texture of a fabric looks nice on a wall. But now there are new inks coming out that escape the worse odors of full-solvent ink. This is a water-based pigmented ink from Zhengzhou Hongsam Digital Science and Technology Co., Ltd. I have spent several days inspecting the company, inspecting their R&D department, inspecting the ink production, and seeing all the test prints in their demo room and display room.

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Ink bottles waiting for quality control check at Hongsam manufacturing plant.

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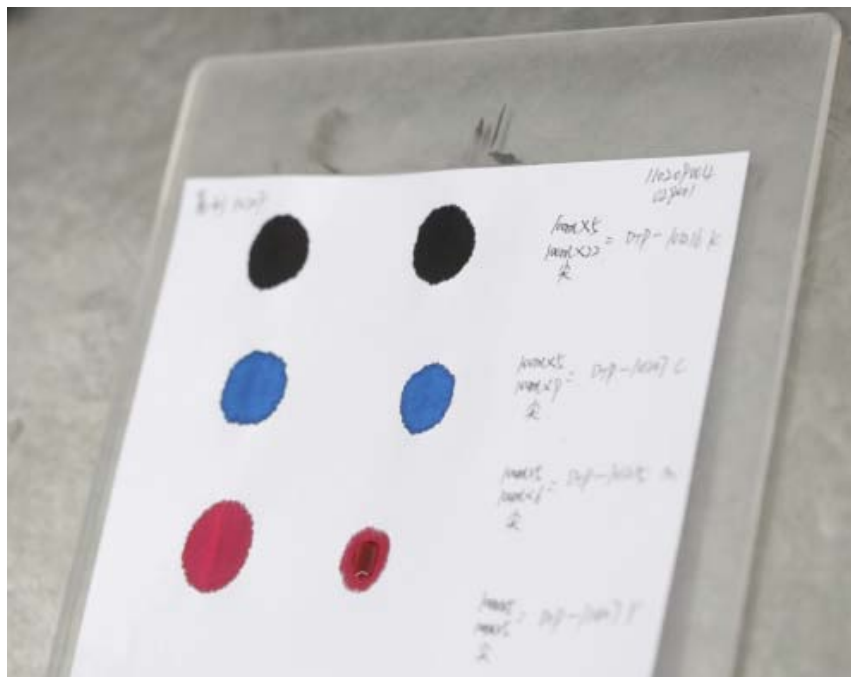
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You can use disperse dye ink to

print polyester as wall covering. A Mimaki TSS 1600 AMF is one of many brands and models of printer which can utilize the Hongsam ink, for wallcoverings and for other uncoated materials.

print polyester as wall covering



Absorption and dispersion tests.

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Hongsam has a special ink, specifically for printing on wallcoverings, wallpaper, and wall mural substrates. The material can be uncoated. You can use most Mimaki, Roland, and Mutoh printers, and some Epson printers. But not with their original ink; the ink Hongsam offers is different: it is not considered a solvent ink and is good for many uncoated substrates, especially wallpaper.

And, this ink, JETALL from Hongsam, is available with light black and light-light black. It is ironic that you can get good colors using grays and blacks, if you have a good RIP and top quality color management software and spectrophotometer.

Colors available with JETALL inks:

- C
- M
- Y
- K
- LC
- LM
- LK
- LLK

So you can opt for dual CMYK or full eight color, or six color (if your printer prefers six colors).

To keep cost down, it helps if the wallcovering does not need to be coated

When you use normal inks in a wide-format HP, Epson, or Canon printer the media has to be coated with an inkjet receptor layer (or the image looks unacceptable in most cases).

And, quite important, it really helps to have an ink that does not require coated media. Eco-solvent inks often require coated media. Coated media is much more expensive than non-coated substrates. JETALL ink does not require coated media, though with any ink, some media with coatings may have advantages.



Absorption and dispersion tests.

Printing on other materials, much more than wallpaper

The JETALL ink is named "jet ALL" because it can print on many materials. It understandably also likes coated media. But the purpose of selecting the ingredients for JETALL ink were to allow it to print on a diverse range of non-coated material, especially paper.

PVC has its own odor; and PVC is not popular in North America or Western Europe. And logically wallpaper should be PAPER and not vinyl.

So the next time you are at a trade show, such as FESPA Digital or APPPEXPO in Shanghai, look for the booth of Zhengzhou Hongsam Digital Science and Technology Co. or contact dctec@ink4you.com or telephone +86 371 6030 1017 or +86 371 6030 1018.

General comments on JETALL inks

- Water solubility: insoluble
- Odor: slightly aromatic odor
- Light fastness: ISO 7-8 grade
- Washing fastness: ISO 4-5 grade
- Dry rubbing fastness: ISO 4-5 grade

This is a first stage of a long-term evaluation

Since there are dozens and dozens of ink companies, it takes time to check them out and decide with which companies to visit. Once I have visited the company headquarters, the next step is to inspect a customer site, where the ink is being used out in the real world. As soon as a customer site-visit case study is initiated, we will update this report.

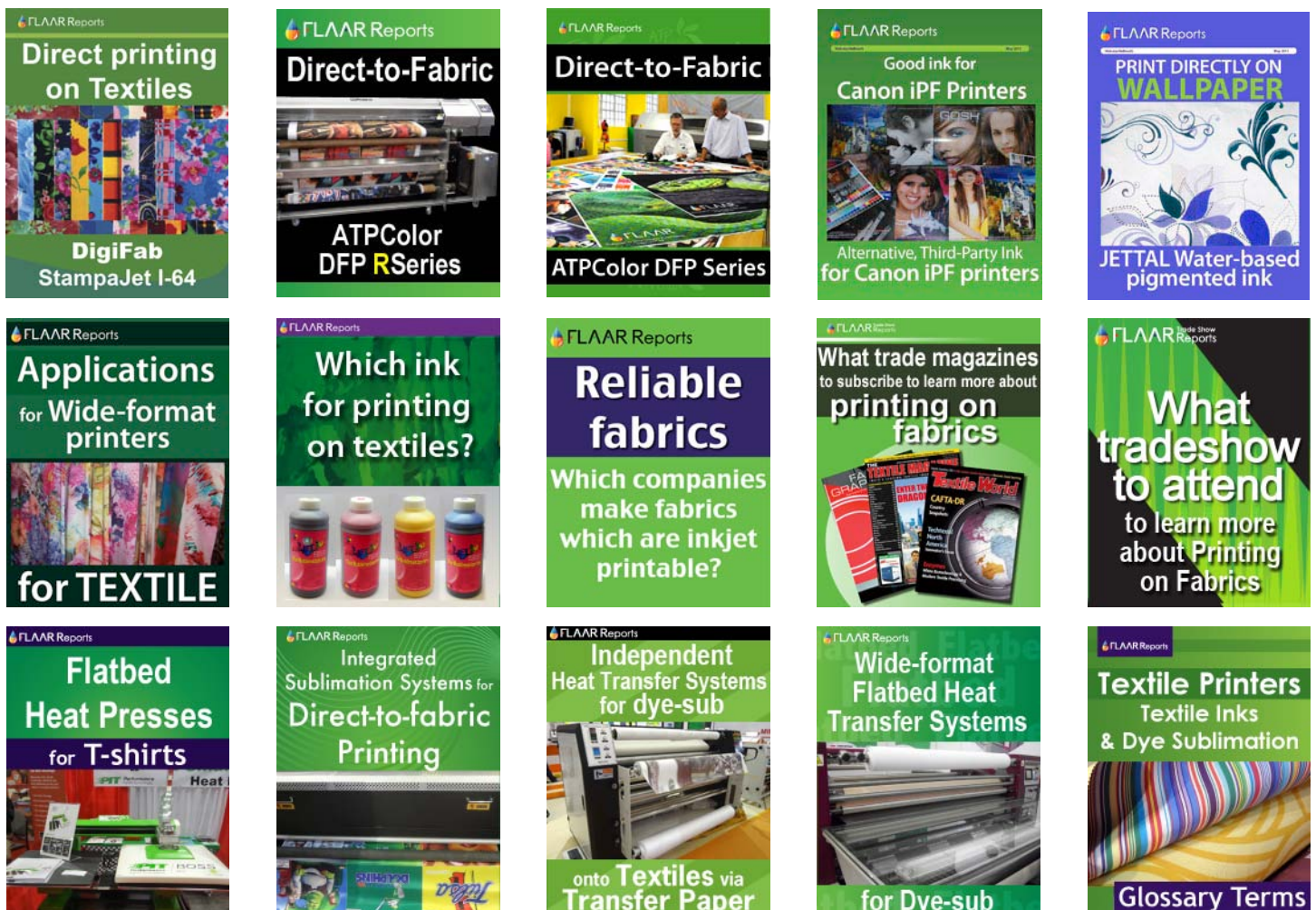


Dr. Nicholas Hellmuth with Mr. Guosheng Qin, (CEO) at the headquarters of Hongsam.

FLAAR Reports on Textile Printers for 2013



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