

## **Sepiax Ink Technology, water-based yet for outdoor signage**

In late March about two years ago HP introduced its HP latex ink at a huge international event in Israel. Then at FESPA Digital 2008 in Geneva another water-based ink was introduced, by Sepiax, a company in Austria.

So all of a sudden, eco-solvent ink had two competitors: latex ink (from HP), and an independent Sepiax water-based ink.



Here is Nicholas Hellmuth analyzing the sample from Sepiax. In this photography you can see that they used the Polyester chrome film material for this sample.



Dr. Nicholas Hellmuth holding the complete sample.



Nicholas in NUR ink lab on one of his four visits to Israel high tech companies.

### **Sepiax Ink Technology compared with HP latex ink**

Checking their web site, “weather resistant, abrasion resistant” this sounds like qualities offered by the HP latex ink. I have also heard of an earlier DuPont ink that had similar qualities to latex ink (in addition to the unfortunate VinylJet ink (made by DuPont for Kodak VinylJet, but in part due to problems with Encad, this early non-solvent ink failed utterly).

Since HP has spent so many millions and millions of dollars building a printer to work with the unusual requirements of the latex ink chemistry, I was naturally curious to compare the pros and cons of Sepiax Ink Technology with those of HP latex ink. One fact is that Sepiax ink is formulated for piezo printheads (naturally since virtually all current signage printers use Epson, Xaar, KonicaMinolta, or Spectra printheads).

In distinction, the HP latex ink is not intended to be an after-market ink; the HP latex ink is exclusively for thermal printheads.

### **Sepiax compared with bio-solvent inks**

First VUTEK InkWare produced a bio-solvent ink. Then Mutoh built a printer that used this bio-ink. Neither was successful (neither the printer nor the first generation(s) of the ink. So then that flatbed printer was replaced by a different Mutoh flatbed based on the ValueJet platform. The original ink formula was not successful but after three or four generations the current MuBIO ink is better than two years ago. Plus the Mutoh ValueJet was slightly tweaked to better handle the special requirements of MuBIO ink.

But both Sepiax and Kiian inks print on substantially more materials than any bio-solvent (and Sepiax is completely water-based).

### **New Sepiax and HP latex inks compared with Epson's new ink**

The new HP latex ink and the new Sepiax ink will challenge Epson's new eco-solvent printer, GS6000. Solvent ink is gradually being replaced all over the world. Epson would have done better to have switched to an ink like Sepiax or tried to make a printer to handle Kiian of Lumocolor ink from Staedtler. But Epson policy is to not allow any outside ink to be successful with Epson printheads unless the ink company pays a hefty price to Epson. Most ink companies, naturally, refuse to be forced to pay this ink "tax" to Epson.

### **Sepiax ink compared with Kiian's alcohol-based magical ink**

At SGIA 2008 there was an exhibit of samples from an ink that could "print on everything." The range of samples in the Manoukian booth was impressive, but there was almost no information.

The same Kiian ink, this time with a prototype printer, was exhibited at VISCOM Italy 2008. This time a brochure was available but it had no specific information on the ink: only normal specs on the modified Roland printer (flatbed, modified with heaters). This ink has no specific name, and was conspicuously absent at the large Kiian booth at FESPA 2009.

In the US it is supposedly distributed by TW Graphics. But their booth at SGIA 2009 had zero information. The Kiian ink seems to have totally evaporated. What a change in one year: a huge booth at SGIA 2008 and then nothing whatsoever in 2009.

The complexity of which company does which in the Manoukian Argon conglomerate makes it a challenge to know who to speak with, and where to go to test the ink.

SepiAx ink company is easier to deal with. Their headquarters are in the most beautiful part of southern Austria, less than 2 hours drive from Ljubljana, Slovenia (where FLAAR does many of its lecture programs).

It was possible to spend two days testing the SepiAx ink on PVC, aluminum foil and diverse other materials. This page is being updated as soon as I get more feedback from beta-testing. But suffice it to say, SepiAx ink is worth looking at. Presently it works on Epson printheads. You can use SepiAx ink in any Roland, Mutoh, or Mimaki printer: does not require any special additional heaters. The ink does not require primer or post treatment on most materials.



SepiAx Ink Technology company.

Ideally it would help to have a bit more uumph in the heaters (but you do not need a furnace as is required by latex ink). So you need to print at the high quality modes as the fast draft modes don't allow enough time to allow the water to evaporate (remember, this is not a solvent ink, and needs no curing by any UV lamp).

GraphicsOne is the master distributor in the USA; a very clever coup on their part, as SepiAx ink may do better than Kiian, Staedtler Lumocolor, "Magic Ink" of Eastech, and other inks that have claimed to print on everything.

### **FLAAR interest in inks in general**

I have visited the Triangle ink company US headquarters in California. I have been hosted for a week's inspection of two ink labs in Israel: NUR (before they were bought by HP) and an unrelated after-market ink company. Earlier I had been guest of Sun LLC ink in Novosibirsk, Russia. In 2008 it was possible to visit Sensient ink in Switzerland, to inspect their water-based UV-cured ink for printing on fabrics. These visits tend to be hosted as an international consultant.

In 2010 I spent several days in India to learn about AT Inks and I have an appointment in Singapore with SAM Ink for later this Spring (2010). The way I learn about an ink is to visit the company and then visit end-users who actually use the ink.

I look forward to visiting ink companies in Korea and Japan as soon as opportunities present themselves.

FLAAR special interest in innovative inks that will change our world

Most current FLAAR research is dedicated to UV-cured printers, inks, and related substrates. We also study textile printing and the at least five inks that are specially made to print on fabrics.

But a primary interest in recent and current years is to find the inks that will revolutionize the inkjet printing industry. Offset, flexo, and screen printing are stuck with printing processes of the past century: they will not disappear, but clearly are not expanding and much of their previous output is moving to digital in general and to inkjet in particular.

UV-cured inkjet ink was in beta stage by the late 1990's and was viable several years later. Since DRUPA 2004, UV-cured inkjet printers have been king. Eco-solvent and mild-/lite-solvent ink came out after UV and also took several years before they were usable: the third generation eco-solvent ink was significantly better and current eco-solvent ink is increasingly popular (until HP latex ink came out). Actually mild-solvent ink of Seiko is one of the most colorful, highly-pigmented ink available today (and is still popular).

But clearly there is a rising interest in inks that are significantly different: less odor and more adhesion to diverse surfaces. So FLAAR has an inherent interest in new inks such as Sepiax. Mimaki, Mutoh, and Roland were caught totally unprepared for Sepiax and were still in shock from the launch of 42" and 60" latex ink printers in 2009. Plus, there are presently several additional new inks in Asia that show possible potential. So 2010 will be a good year for new inks.



FLAAR testing and evaluation of Sepiax water-based ink on uncoated DuPont Tyvek and on PVC in demo room of Sepiax Ink Technology in Austria. Karl Ebner (Sepiax), Nicholas Hellmuth, Franz Aigner (Sepiax) and Tina Kosir, University of Ljubljana, Slovenia, assisting FLAAR at FESPA and on digital imaging projects.

### **Challenge to more than latex ink: challenge to all UV-cured printers**

The one thing that will save UV-cured flatbeds is that Epson corporate politics will never allow a successful non-Epson ink to be used officially. Epson politics (the demand for an ink “tithe” for any ink that flows through an Epson printhead) has stifled printer and ink development for years. This policy is short-sighted and doomed to continue to cause Epson lost revenue: ink companies either stop making their inks or switch to other printheads. If Epson had cooperated with Staedtler and worked with them to build a printer specifically for the needs of that ink, then Lumocolor would still be selling Epson printhead machines today. But no, so now Epson is selling close to zero heads for that ink. A rather backward manner of doing business.

Thus we hope that the Sepiax ink can be developed for KonicaMinolta, Ricoh, Xaar, and Spectra printheads in the future. Though for the first year Sepiax ink can be used as an after-market alternative to eco-solvent since there are thousands of Roland, Mimaki, and Mutoh printers already out there. Many of these models have the specific model of Epson heads that Sepiax ink is made for (Sepiax itself can tell you specifically which models of Epson printheads their inks work best with).

But whichever clever printer manufacturer develops special heating and drying for Sepiax ink with Epson printheads will produce the most successful printer of 2010, one that will be still selling well for years and years (UV-cured printers have been sold now for over a decade!). Imagine how improved a Sepiax printer will be once an innovative manufacturer breaks the mold and does something more innovative than merely to produce another UV-cured printer.

As more feedback comes from end-users, you can look forward to more to come from FLAAR Reports. Just realize that any new ink has surprises. FLAAR is gathering information and will have special publications on Sepia ink and on HP latex ink during March.