

What to expect

When you visit Sun Innovations, world headquarters



Part I:

Ink R&D and Ink Factory

Here in this report I will not repeat what you can already find and read on their own web site, www.sun-nsk.ru/en/. Instead I will give my initial impressions based on my lengthy inspection visit (April 2012).

I first noticed Sun Innovations at the Print & Pack expo in Dubai, 2006. Canon Middle East had flown me there to lecture on wide-format inkjet (giclee and fine art applications). Today a printer manufacturer would tend to exhibit in Dubai at the Sign & Graphics Imaging expo, but it happened to be the Print & Pack expo six years ago.

Within a few months I was asked to lecture at a conference on wide-format inkjet printing, organized by Sun Innovations. So I came to Novosibirsk circa 2007 to visit the company, visit their ink factory, and inspect their printers. Several initial publications were issued as a result of this visit.

During subsequent years I kept abreast of progress at Sun Innovations by visiting their booth at various VISCOM and an occasional Reklama Moscow trade show. By 2010 I was aware that Sun had received significant investment from partners, including the government. These investments allowed several significant changes:

- A new factory for assembling the LED curing printers
- Adding new products to their portfolio
- Adding new Director and new top managers

So with Drupa 2012 coming up, a one-week visit was arranged to catch up with the new ink chemistries and engineering achievements of Sun Innovations. The purpose was to get initial comments available for the audience which would visit their booth in May 2012 over the two weeks.

What we saw and experienced at ink labs and factory, SunFlower ink

I am interested in ink because ink is the key to printing. A printer is simply a machine that uses firmware and RIP software to handle the ink. The chemistry of the ink is what makes our printing world go round.

With a background in archaeology, art history, and architecture, I am interested in inks that print on materials more than just signage. So inks that can print on glass, ceramics, metal, wood, and stone are inks I like to study. I appreciated the hospitality of Matveev Anatoly and his staff in the ink development facilities.

SunFlower ink is available for

- solvent printers,
- UV-cured
- Metallic conductive ink
- Water-based for home and office printers
- Photoluminescent Quantum Dot technology
- Primers
- Inks for triplex glass
- Metallic conductive ink
- Colorants for PET preformed containers
- Ceramic frit ink (for ceramics and for glass)

My immediate interests are in the following:

- For printing on PE
- Ceramic frit ink (for ceramics and for glass)
- Photoluminescent Quantum Dot technology
- UV-cured, for LED curing
- primers

I am also keeping an eye open on metallic conductive ink and inks for triplex glass, but for Drupa 2012 I prefer to concentrate on the five chemistries in my short-list above.



Ceramic frit ink (for ceramics and potentially also for glass)

I have seen ceramic frit ink at international trade shows on glass in Europe and USA. This is the only non-solvent ink which (so far) can hold up to sunlight more than the limited two to four years outside for normal UV-cured inks.

At a fine art giclee and décor expo in New York, the owner of a giclee atelier told me “I can’t sell to architects because UV-cured ink simply gradually fades outdoors after a few years.... But, if there was an ink that printed on wood, stone, glass, ceramic tiles, which lasted 7 to 12 years, I could make a million dollars easily!”

Normal ceramic frit inks, used by million-dollar glass printing machines, do not offer a full range of colors whatsoever. You only get grays, some blues, a few other sort of wimpy pseudo-colors. So I was incredulous when I saw a fully CMYK photograph printed (on ceramic tile, not glass) with ceramic frit inks in the R&D labs of Sun Innovations.

Since I am not a chemist by training, I will let their university-trained chemists explain how and why their ink has so much vibrant color, but comparable color is utterly missing in ceramic frit inks (on glass) that I have seen elsewhere. Perhaps the other inks on glass offer another feature that you don’t achieve if you have glorious color. But frankly, as a designer I VOTE FOR COLOR.

Be sure to notice that the full color spectrum I saw was on a ceramic tile. I will need to see related inks print on glass before I can issue my final comments. The point is that here is an ink company which is innovative, and offering an ink for the fastest growing applications are of wide-format inkjet: decorating of ceramic floor and wall tiles.

Photoluminescent Quantum Dot technology

This technology is for security documents and a multitude of other industrial applications. It’s tough to photograph since the light beam on one side can’t be captured easily (without overexposure) with a single digital photo. And since the printer is moving, it’s hard to do HDR technique photography. So best if you visit a demo center, or visit Sun directly yourself. This is my second week-long visit to Siberia and I am fully content here: local hospitality, local culture (such as the house architecture with such pretty painted window surroundings), and excellent food.

The point of mentioning their photoluminescent Quantum Dot ink technology is to document that here is a company whose ink chemists are doing a lot more than “just making after-market solvent and water-based inks.”

Ink for PE, polyethylene

Polyethylene as a technical textile has the potential to replace PVC vinyl for signage, especially billboards, building wrap, truck-side advertising, and anywhere you need kilometers of brightly colored printers (but at low low cost).

I am a consultant for the largest factory for PE technical textile in China, so I know the material, and its potential. Precisely the point is that the surface of PE is tough to print with solvent inks, and not easy with UV-cured inks either. Latex ink will work on some PE coated material.

So far, all the PE factories have been laboring on tweaking their coatings. But Sun Innovations reached the clever realization: change the ink, not the coatings. So now SunFlower ink is far advanced in an ink for PE technical textiles: in short, an ink to replace full solvent ink, plus that is specifically geared for printing on PE.

Since this is a really new development, I will report on these advances in future FLAAR Reports. But it is crucial to point out again: here is an ink company not just cranking out third-party after-market inks: they are creating inks that have an instant need, around the world.

UV-cured inks, specifically for LED curing

Primers are high on my “important to study” list, but are not very photogenic, so I will finish this brief discussion with mentioning the core competency of Sun Innovations and their ink section, Sun-Flower ink: namely their UV-cured inks specially for LED curing.

Most printer manufacturers buy their curing lamps on the open market. Normally relatively generic products.

Most printer manufacturers buy their ink on the open market. 80% of the major printer manufacturers do not, whatsoever, manufacture their own ink (no matter how much they claim that they do).

Sun develops their own ink chemistry. Sun manufactures their own ink chemistry. And Sun engineers the electronics that control the LED curing. Obviously the LEDs themselves come from standard sources (most curing is done with LED from Japan). But Andrey Dyachenko and his R&D teams have been working on LED curing for year after year after year. This is their core competency.

The result is that today you get curing speeds which are significantly less slow than in earlier years. Plus the LED actually cures the ink. Why? Because the same ink chemists and lighting engineers are all in the same company.

I will spare the reader the list of LED-curing printers whose output is so uncured that if you make the mistake of stepping on a print from their printers, your shoe will stick to their prints. As soon as I can, I will do my two tests: put my palm on the print and see if my hand feels tacky ink. And then walk on the print to see if my shoe sole sticks to the uncured ink.

