

Award Winning Avatrex™ Technology

Tom Snooks, Director of Avatrex Commercial Sales, S-One Holdings (USA)

Abstract

Utopia Digital Technologies, a New Berlin, Wis.-based division of S-One Holdings Corporation, has developed a transportable image receptive coating which incorporates both ink receptor and adhesive properties on one side and an inherent print protective layer on the other side. This patent-pending technology is called Avatrex™.

A significant functional solution of this technology is the ability to print on bonded leather and produce custom hard covers for photo books and photo albums using equipment that exists in most print shops.



Other applications can include art and photography displays and exhibits, home décor and personalized photo products. Unusual and unique photo applications can now be achieved with previously unprintable or difficult to print materials such as:

- Leather
- Metals or metallic papers
- Glass
- Canvas
- Ceramic tiles
- Wood
- Handmade papers

The invention that enables this type of imaging is a nano-metallic transportable graphic system with a metallicly infused target surface adhesion layer thermally bonded to a metallicly infused protection layer. The metal nano-particles create a nano-

ionic bond force field which enables the nano-metallic graphic apparatus to adhere to any substantially uniform surface capable of forming a uniform surface bond.

Essentially, this “graphic apparatus”, called Avatrex, is the first printable laminate that is not PVC and not a film, but a composite of three different water-based coating layers based on a Synergistic Layering Process.

Release on Demand Surface (RDS)		
Dimensional Polymer Surface (DPS)		
Image Interface Surface (I ² S)		
RDS >Release on Demand >Release across any temperature >Non-migratory, 100% stays with carrier	DPS >Custom engineered for functional performance >Can be modified	I²S >Functional, bonding, printable surface >Apply thermal, PSA, nano-suction or laminate >Print + Function

These layers of coating become a very thin and highly flexible material that, by way of a carrier (RDS), can be fed through a printer or press and upon which an image is printed to the I²S layer. The I²S layer (print) stays with the DPS layer (protection) and releases cleanly from the RDS layer (carrier) after printing.

Images are printed in reverse, and once printed the image is transportable to be attached to virtually any surface. The image is applied to the surface, print/image side down thus aligning the DPS layer on top.

True to its name, Avatrex’s further significance lies in an avatar-like ability to take on the look, color and texture of whatever surface it is applied to, to disappear into that surface and essentially become part of that surface.



Using the Avatrex technology for canvas imaging eliminates the need to use inkjet coated canvas, top coats or laminates, which are essential in direct-to-canvas printing.



Textured Paper

Extremely conformable, Avatrex can be applied to many highly textured surfaces using a thermal laminator, vacuum press or mechanical press, forming a thermal bond; for items that cannot be laminated an adhesive or primer with heat applied will form a chemical bond.



Pounded Metal



Tile

Simultaneously, the DPS layer contains UV inhibitors and additives to protect the image from UV light, water, fingerprints, handling and light cleaning solvents so that in most cases no further protection is required.

This protective laminate layer also provides either a gloss finish or a “fractal” matte finish. Unlike traditional mattes, made with matte particles or embossing to create a light-scattering effect, “fractal matte” is comprised of repeating patterns of mathematically similar shapes at a microscopic level. A fractal matte surface scatters light and creates a “matte” appearance while not blocking light. This results in high light translucence without distortion to achieve richer colors and deeper blacks.



Fractal Matte

Avatrex can be printed by virtually all digital and traditional methods. The digital platforms include latex, solvent, low-solvent, and aqueous inkjet, UV and HP Indigo and dry toner systems. Traditional methods include offset, flexo and screen printing. The Avatrex technology is applicable to industrial, commercial and consumer print applications.

Of environmental significance, Avatrex coatings are all water-based with no VOCs. In most cases a separate laminate is not required, thereby cutting down on unnecessary materials and processing.

Utopia Digital Technologies (UDT) is the research and development division of S-One Holdings Corporation, a leading global supplier of digital printing solutions to the printing industry. UDT has expertise in polymer sciences, adhesives, top coatings, print enhancement additives, and the processes required to create value added solutions.

Tom Snooks has over 20 years experience in the digital print industry as an application specialist and in product development. Over the past two years, Tom has managed the technical efforts in advancing the Avatrex technology for S-One Holdings.