

NEW LEGISLATION, PRODUCTS & PROCESSES TO CONSIDER

EU "REACH" LEGISLATION COMING FAST

REACH stands for Registration, Evaluation, Authorization and Restriction of Chemicals. It is a new European Chemicals regulation that was adopted in December 2006, and is to be implemented June 1, 2007.

The regulation is targeted to improve the protection of human health and the environment, while being able to maintain industry competitiveness and stimulate better innovation within the EU chemical industry.

The registration process requires manufacturers and importers to provide data on all chemical substances produced or imported into the EU in excess of one ton per year. Key is that responsibility shifts to industry from government. Registration of both old and new substances will begin with pre-registration June 2008. Animal testing is to be minimized and the innovation of safer substances is to be encouraged. Polymers are presently being exempted from registration and evaluation; however, basic component monomers are not.

REACH is currently the most ambitious chemical legislative process in the world and it is being assessed by others, including the United States. New improved standards may well impact the entire world community.

NEW TERMINOLOGIES TO CONSIDER

Two new terms are seeking attention, "sustainability" and "carbon footprint". Sustainability is defined as the making and distributing of products that do not diminish natural resources, and do not harm human life or the ecosystem. Carbon footprint refers to the amount of carbon dioxide that is emitted by agriculture and manufacturing to factor into global warming with the release of greenhouse gases.

New is a "Carbon Trust" operating in the UK, which is promoting change to a low carbon

producing economy. Some manufacturers in the UK are already labeling, indicating the amount of CO2 emitted in a products production and packaging. Businesses are beginning to compete on a carbon footprint basis. The EU and other governments are actively setting goals to reduce greenhouse gas emissions.

CORK ANNOUNCES NEW PRODUCTS

A new series of UV & water-based Ink jet receptive and Laser imprintable coatings have been developed by Cork Industries.

The CORKOTE™ LJ-1326 Series are aqueous dispersions formulated for applications on paper, vinyl, PET, and other films as high gloss LJ-1326G, or satin gloss LJ-1326S color laser printable coatings. Both coatings will resist the high >460° F fuser bar temperature, yielding images with vibrant color and excellent edge definition! The LJ-1326 series is attractive for the combined features of excellent rub, ink receptivity, adhesion, scratch resistance, and medical ID wristband applicability.



CORKOTE™ IJ-2142 is another aqueous dispersion. It too, is formulated for applications on paper, vinyl, PET, and other film products, so as to produce a high gloss, solvent inkjet receptive, water-proof polymeric coating. This coating offers combined features of excellent gloss, ink receptivity, fast drying, water, weather, and rub resistance.

CORKOTE™ IJ-2142 exhibits the highest clarity and image depth in its class, rendering

it highly desirable for use on paper or plastic film products.

CORKURE 2037HG-2TX is a unique **UV** curing textured surface coating. It is an acrylic overprint **UV** varnish with a 40 dyne/cm surface tension designed to resist >460° F color laser fuser bar, and produce photo quality prints with excellent adhesion to a variety of paper and plastic substrates. It is 100% reactive and contains no solvents.

CORKURE 2037HG-2TX gives a permanent aesthetic eye catching appearance to printed medical ID tags, badges, etc., while exhibiting a textured topographical 3D tactile feel, pleasant to the touch.

ATMOSPHERIC PLASMA FILM TREATMENT

High solids, higher viscosity flexo UV inks and coatings basically do not adhere well to some polymer based film products. This is typically overcome by the application of a surface pre-treatment to effectively raise surface tension. UV inks/coatings typically print fine line and process work well, but have difficulty with consistent solids. Pin holing is magnified with 60° engraved anilox rolls as opposed to 30° rolls.

Overcoming these issues with improved wettability is the goal of such surface treatments as corona which unfortunately has stability problems producing variable defects in print and coating quality.

Recently advancements have been reported in Plasma glow discharge treatment which is shown to yield a stable long lasting even surface tension. Previously plasma treatment was conducted in a low pressure vacuum environment. Now it has been found that atmospheric pressure plasma treatment is effective and economically attractive. Like corona treatment, a high voltage, ionized air process that increases surface tension of non-porous substrates, plasma is similar, but uses lower voltage electrical ionization of a gas to increase surface tension.

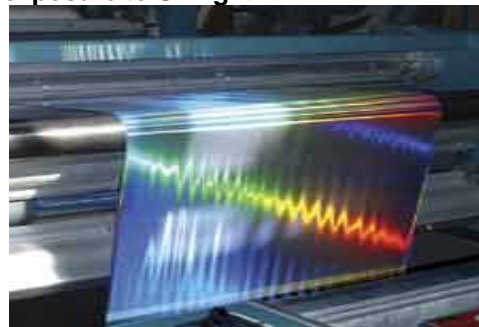
Corona treatment changes a substrate surface from a non-polar state to a polar state allowing oxygen molecules to bond to the ends of molecules in the treated substrate, thereby raising surface tension. Plasma operates similarly, except the electron bombardment is 100 times greater, raising

cross-linking, and forcing increased ion bombardment of the substrate surface.

Benefits of plasma treatment are:

- Plasma treated films hold their treatment level longer.
- Higher treatment levels allow for the treating of difficult substrates.
- Thicker substrates can be treated.

Beyond atmospheric Plasma film treatment alone, a new developing process seeks to improve ink/coating adhesion to films by combining atmospheric plasma treatment and photoinitiator film coating. In this process, after plasma treating, a proprietary solvent or water-based solution is applied in light coat weight (1gm/m²) using a flexo application process. The carrier solvent is removed by heat assisted evaporation and the reactive photoinitiator is cured onto the film surface by exposure to UV light.



The result is a uniform substrate surface tension of 52-54 dynes/cm with lengthy permanence as long as there is no additional exposure to UV light.

The Plasma treated, photoinitiator coated surface is said to be uniquely suited to receive flexo UV, solvent or water-based printing/coating, developing greatly improved adhesion and print properties.

Credit to Enercon Industries Corp.

LOOK TO CORK!..... for specially formulated Aqueous, UV & EB adhesives, top coatings, primers & varnishes to achieve the ultimate in quality.