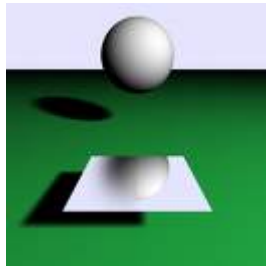


10/06

SPECIALTY COATINGS – RANGE FAR FROM JUST GLOSS

Specialty coating's, aqueous, energy curing Ultraviolet (UV), Electron Beam (EB) and adhesives is our business at Cork Industries. Cork thrives on its ability to formulate novel, different coating products that offer the specialty coatings user, an advantage.

Coating's, typically are thought of as contributing **protection and enhancement** to improve the performance characteristics of a product. Many of us, when we think of coating, think initially of what is patently visible, **"GLOSS"**. But gloss, is literally only what we see on a products surface.



Many other attributes of specialty coatings lie hidden within and under that surface facing us.

Aside from gloss, visual product enhancements of other sorts are possible from the range of specialty coatings that are offered. For example, visual enhancement can be gained from finishes producing matte, semi-gloss, satin, glitter, pearlescent, glow-in-the-dark, and color, including fluorescent and phosphorescent effects. Fluorescents are able to glow under UV light, while providing the usual bright color effect when normally viewed. Specialty phosphorescent's are able to produce an after glow after being illuminated and the light source is extinguished. Another capability is seen in the use of bi-chromatic's, which are pigments that can produce different color effects when introduced into specialty coating formulations. These, when viewed at different

angles, produce a different look showing a shift to two or three colors.

Specialty coatings are also offering special effects that are **tactile**, attempting to be appealing to the touch and feel of the consumer. These are demonstrated by specialty coatings that are textured or soft and smooth. Smell is another consumer sense being exploited with scratch-and-sniff combination products.

So called doming coatings have also been commercialized. These feature the capability of curing and swelling to produce a raised and/or textured surface. Thermo-chromatic effect pigments offer another effect being able to produce a color change upon exposure to temperature change. The change can be reversible or irreversible. One application warns that a product is too hot to use i.e.: **a too hot cup of coffee**.

Another use is found on portable propane tanks where temperature indicates the level of fuel remaining.



The surface of specialty coatings additionally has traditionally offered product protection in the form of scratch resistance, controlled COF (coefficient of friction), heat, moisture, grease, alkali and chemical resistance.

Specialty coatings are also offering functional properties that allow the production of secondary products through the use of heat seal, cold seal, release coatings and laminating coatings and adhesives.

Beyond the look and feel of specialty coatings, new coatings are constantly being developed to offer the user extended benefits through new capabilities

Beneath the visible surface of specialty coatings lie an almost infinite range of functional possibilities. Recent efforts have commercialized coatings with improved food barrier properties, insect and, corrosion resistance, anti-microbial and anti-static properties.

Many packaging applications call for barriers to water and air. Often glass is used to serve this requirement. Currently it is thought that the addition of nano-particles of the proper type could produce a specialty coating formulation that would replace glass in some applications, and be lighter and not as fragile.

Smart coatings are receiving great attention in R & D labs. A smart coating is defined as one that has to be able to be active by demonstrating a capability of responding to changes in the conditions of its environment.

Nano-technology, self-healing, self-assembling systems, conductive materials, micro-encapsulation, photo-catalysis are some of the new technologies being utilized to take the capabilities of coatings way beyond gloss and simple protection.

Nano-technology promises to lead to improved barrier and smart coatings, some of which will find their way into packaging applications. Applications are already seen in anti-bacterial, easy clean, anti-fogging, scratch and mar resistance and eye wear hard coatings.

Conductive inks and possibly coatings are in the forefront of the swiftly moving commercialization of RFID (radio frequency identification). Additionally, conductive polymers are being used to build products featuring luminescence and electro-conductivity properties.

Beyond the graphic arts market many exciting specialty coating are developing.

In automotive finishes, iridescent colors are coming on strong. These coatings impart a finish that offers



a wide range of shades that vary depending on the viewing angle.

Coatings that can conserve energy are also developing for the housing industry. These coatings applied to window glass offer a high degree of visible light transmission, while its solar control non-mirror like reflective tint limits IR transmission.

Another product developed for the housing industry are cool coatings for exterior building walls that reflect IR and effectively lower wall and interior temperatures. This application uses the same technology that is being used by the military to reduce the heat signature of vehicles and planes.

Anti-fouling coatings have been developed that react with ions in saltwater so that a thin soluble layer is produced that self-polishes, releasing a biocide. There are also fire proofing coatings for steel that swell, reacting to heat, yielding a protective insulating layer.

Photo-catalysis properties are showing up in a number of nano-materials where ambient light can be used as an energy source. This technology is enabling the development of coating products that can deodorize, purify water, and improve the environment removing pollutants such as sulphur and nitrogen dioxides. Further, photo-catalysis is demonstrating a capability to make coatings that are super-hydrophilic giving anti-microbial and self-cleaning properties.

Keep your eyes on specialty coatings for a truly remarkable future.

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Whatever your processes-

LOOK TO CORK!

For **Corkote Aqueous**, and **Corkure UV** and **EB** coatings, varnishes and **adhesives**.