

Technology Awards for Innovation: Fungi, Heart Patches, Cell Phone Displays, Carbon Steel, and a Geriatric ER

RadTech, the Association for UV and EB Technologies to Recognize Advancements

“How did we go from the clunky first touchscreen devices to the sleek designs of today’s smartphones?” The answer in part, is due to the development of ultraviolet (UV) technology, according to a recent blog posting by Jabil-Green Point, one of the winners of this year’s upcoming UV and EB (electron beam) emerging technology awards, presented by RadTech at their upcoming conference in Chicago, May 12-14 (www.radtech2014.com).

UV and EB are super fast, clean technologies already used in a wide variety of processes that enable the precise, safe use of advanced materials in applications including printing and packaging; metals and plastics; wood and building materials; and electronics. According to Jabil-GreenPoint, a global manufacturer with over 180,000 employees in 33 countries, UV curable materials also provides additional protection against dust and water penetration and allows manufactures to produce sleek and elegantly designed mobile devices. In addition to Jabil, 2014 award winners include:

Heart Patches

Doctors at Harvard-affiliated Children’s Hospital Boston and Brigham and Women’s Hospital and the Massachusetts Institute of Technology (MIT) have developed a bio-inspired adhesive they say can rapidly attach biodegradable patches inside a beating heart undefined in just the places where holes occur in conditions such as ventricular heart defects. The adhesive is activated with ultraviolet (UV) light, providing an on-demand, anti-bleeding seal within five seconds of UV light application when applied to high-pressure large blood vessels and cardiac-wall defects. UV light enables a fast activation of the adhesive minimizing the time of the surgical procedure. Gecko Biomedical, a company in Paris, is bringing this bioinspired innovation to several clinical settings.

Fungi as a replacement for MDF, and engineered wood materials for furniture-type applications

A Formaldehyde-free, sustainable alternative for engineered wood is being developed by Ecovative Design in Green Island, NY. This novel sustainable material and process uses biologically inspired resins with the core material comprised of lignocellulosic agricultural byproducts bound cohesively into designed shapes by filamentous fungal tissue (mycelium). UV-cured vegetable oils provide the surface finish aesthetics that have the unique benefits of being able to specifically tune to incorporate faster cure time, coloration, texture, gloss, and antimicrobial activity. Rather than using high-embodied energy processes and finite resources to manufacture materials, the Ecovative process takes advantage of regionally sourced agricultural waste to grow the biological resin, which binds the desired product in a self-assembling process. Fungal vegetative tissue (mycelium) propagates and binds to the agricultural fillers as it grows into an interconnected fibrous network.

Carbon Steel Pumps

IDEX, headquartered in Illinois, is a global multi-national manufacturer leader serving high growth specialized markets in fluidics. The company manufactures carbon steel pumps and was seeking a coating that can cure rapidly, withstand the elements, achieve anti-corrosion, strong adhesion, and other specialty mechanical properties. IDEX found just a coating with UV technology. A study performed by IDEX engineers states: “Current State: 12,000 seconds or 3.3 hours before the parts can be packed to ship out to customers. Future State [with UV]: 1,200 seconds or 0.33 hours per piece with UV Paint Technology.” IDEX will achieve a 90% time savings without sacrificing performance.

Hospital Floors

St. Joseph's Regional Medical Center in Paterson, NJ, like many hospitals and emergency facilities is faced with excessive costs due to the high level of maintenance. Traditionally floors in these facilities require daily cleaning for sanitary reasons as well as aesthetics. Caustic strippers, acrylic floor finishes and the residue created contain high levels of possible contaminants. Using a UV cured coating offers several advantages, most notably the ability to allow the facility to use the floor immediately after the finish is cured. Harmful emissions from the process are near zero with UV, and the coating is virtually impervious to Betadine®, a serious problem in healthcare environments. St. Joseph's Regional Medical Center has now had the finish in use for 1½ years with no recoats, only cleaning.

UV LED curing for Wood

Sweden's BJS Group is among the first to use UV LED technology in a high volume wood manufacturing plant. According to the company, low curing temperatures make it possible to cure materials such as pine and other resinous woods with significantly lower reject rates. Coupled with consistent curing this translates into a better end product since there is less temperature stress on the boards and there are no longer any areas of uncured board. Currently used in production at the company's plant in Humpolec, Czech Republic, BJS Group clients include a major European furniture retailer.

Clean Rooms

IPRS Limited in Ireland is one of the only companies in the world that specialises in carrying out clean-room and food-safe cladding repairs/refurbishment works in-situ on site, and is working towards the use of UV materials to offer "next generation" services to its clients. The fast paced business climate of today does not allow time consuming maintenance shutdowns, and IPRS is looking to UV technology to address this concern, with the potential to save millions of euro/dollars, for loss of production. Expected clients include: Pharmaceuticals, Food Technology, Healthcare, Industrial & Commercial, and IT and telecommunications. According to IPRS, the advantages of UV include: greater efficiency, maintenance works at any time, including urgent or short notice; no expensive shut downs or loss of production; and eliminates most concerns over contamination, harmful chemicals.

RadTech 2014 features over 100 speakers including from companies such as Boeing, Nestle, Conforming Matrix, JMC Steel Group, Motorola, American Trim, Helios, Idex, and many more. RadTech, the non-profit trade association dedicated to UV and EB technologies, is sponsoring this cutting edge event and awards ceremony featuring conference programming, short courses and exhibits. For more information, please visit www.radtech2014.com.



Contact Information

Mickey Fortune

RadTech International North America

<http://www.radtech.org>

(240) 497-1242