

# IRIS 3030 – A UV LIGHT CURING ADHESIVE

UV curables provide distinct advantages in applications, such as high-speed laminating, where performance and assembly efficiency are critical. In addition, UV curables are an adhesive option that minimizes impact on the environment. This is a reference guide to many of the frequently asked questions regarding this innovative adhesive option.



**FIELD**CO  
ADHESIVES

1957 Pioneer Road, Huntingdon Valley, PA 19006

(800)825-7156 • (215)674-8700 • Fax: (215)674-1712 • email?@fielco.com • www.fielco.com

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## HOW UV CURED ADHESIVES WORK

UV cured adhesives and coatings absorb a specific frequency of UV light causing a very fast curing reaction. Adhesives can be adjusted to optimize cure rate, curing frequency, specific substrate adhesion and flexibility with low shrinkage.

## WHY USE UV CURED ADHESIVES?

- Cures almost instantaneously
- One-part systems do not require mixing
- Long shelf-life stability
- Long pot-life on line
- Low to zero V.O.C and H.A.P. emissions
- Reduced operation and improved efficiency derived from:
  - Reduced energy costs
  - Smaller manufacturing footprint
  - Increased product turn around
  - Waste reduction
- Improved quality control
- Large temperature service range
- Chemical and corrosion resistant
- Low out-gassing
- Can be custom formulated for specific applications

## APPLICATION AREAS FOR UV CURED ADHESIVES

UV Cured Adhesives can be effective in coating and bonding a wide range of metals, plastics and wood for:

- Electronics fabrication
- Automotive components
- Packaging using film, foil and paper
- Medical devices
- Composite cylinders, pipes and aircraft components
- Cabinet and furniture manufacturing
- And many more

## NEW ADVANCES

- Deep cross section curing in excess of 0.5"
- Processing of heavily pigmented formations
- Composite processing for:
  - Filament winding
  - Pultrusion
  - Molding
- Dark curing epoxy adhesives allowing for print cure and nip of UV opaque materials
- Bio-degradable and environmentally sustainable raw materials becoming available
- Curing of 3-dimensional surfaces



We required a very unique UV curable adhesive. Fielco took the time to learn about our process and our requirements and then developed an adhesive which satisfied our technical needs and was also very user friendly and efficient for our production staff. Where our previous supplier failed, Fielco succeeded.”

BRUCE SCHURMANN, SENIOR TECHNICAL SPECIALIST, QUALITY ASSURED LABEL

## A SCIENTIFIC EXPLANATION OF HOW THE IRIS 3030 UV ADHESIVES BOND TO UV OPAQUE MATERIALS

When UV cured epoxies are exposed to light of a specific UV frequency, a cationic photoinitiator in the adhesive generates a Lewis Acid. This super acid then reacts with the epoxy rings and other reactive elements in the formulation to form a cross-linked network causing the adhesive to cure. The ring opening reaction of the epoxy, combined with long chain length di-functional reactants, greatly reduces shrinkage in the adhesive.

Unlike free radical cured formulations, cationic cured epoxies continue to react after exposure to UV light is terminated. As with conventional two-part Lewis Acid cured adhesives, the UV light generated super acid in Iris 3030 remains active, allowing the adhesive to continue to cure once exposure to UV light has ceased. The reaction rate can be accelerated with heat, or the reaction process can be slowed down by adding components that temporally tie-up the super acid.

Utilizing the properties of cationic cured epoxies makes lamination of UV opaque films via the print, cure, and nip process possible. Metalized films, PET (polyethylene terephthalate), and opaque PP (polypropylene) can be bonded using this UV curing process. The adhesive is applied to one film and exposed to UV light. The adhesive is transformed into a tacky PSA (pressure sensitive adhesive). The second film is bonded to the adhesive coated film. If necessary, the laminate can be die cut. After 24 hours at room temperature, the tacky adhesive continues to cure, forming a tack-free bond.

Iris 3030 UV cured epoxies can also be used in the bonding of metal, glass and plastic components utilizing either automatic and/or manual systems. The cure rate can be dialed into a specific application's requirement. In some manual operations, a secondary thermal cure may be required.



**CONTACT US TODAY  
TO LEARN MORE!**



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