UV Glue Curing

UV Glue Curing Provides Unbreakable Liquid Plastic Bond

Reflected to as liquid glue, UV glue curing is a superior bonding method although this is really a polymer, rather than a glue. This polymer is often in a silicon glue form, an epoxy, polyurethane, or other polymer that will dry clear only when exposed to UV light. The UV wavelength is a catalyst for a photochemical reaction which causes the polymer to harden, almost instantly. In most cases, the polymer will harden when exposed to UV light for only three seconds, although some applications may recommend exposure for ten to fifteen seconds providing optimum bonding adhesion. This is still considerably less time required for curing polymers than other methods, providing maximum efficiency in several adhesion processes.

UV glue curing is gaining popularity over other methods of bonding such as drying or exposure to chemicals, growing at a rate of 10% per year. Bonding with heat or drying works by evaporation, which can be inconsistent and can also take time for the inks to dry. Chemical treatment can be costly to purchase materials, and may expose employees to harmful inhalants or respiratory contaminants. UV glue curing is quick and consistent, providing and instant hardened surface with no harmful chemical exposure.

UV Glue Curing – A Powerful Photochemical Reaction

Whatever the polymer used, the glue will not harden until exposed to UV light. This is advantageous over substances such as instant super glues that can stick to fingers or other areas not meant to be bonded together. With UV polymer or glue curing, the bonding area is targeted, drying instantly only in the area meant to be bonded. The photochemical reaction occurs when the polymer, or glue, is exposed to UV light at particular wavelengths occurring between 240 Nanometer (nm) and 270 nm and 350nm to 380 nm.

In some cases, a second layer can be applied, providing even more strength for an unbreakable bond. This UV glue curing process can be used on almost any substrate, bonding plastic, glass, metal and wood, and even glass to glass, or any variation imaginable. This versatile process can even be applied to three-dimensional parts, saving time and money with quick all over curing.

Where is UV Glue Curing Used?

UV curing of glues and polymers is used in a vast number of commercial, industrial and even residential applications. Some applications that utilize UV glue curing include:

- Decorating of plastic and glass
- Graphic Arts
- Printing
- Electronics
Some common examples in commercial applications would be windshield repair or fixing leaking pipes. Manufacturing processes include assembly lines with parts undergoing UV glue curing in automotive applications such as curing inks on knobs or buttons for interior visual parts. The gloss provided by the UV process is superior to none, providing clear and shiny print that is resistant to scratching and staining or fading. The ability to apply this process to three-dimensional parts is advantageous providing speed and efficiency to many manufacturing assembly lines in the automotive and electronics industry.

Endless Options with UV Curing Finishes

One big advantage to the finishes with UV curing is that it dries clear, allowing multiple layers if need be while sanding down the finish will provide an invisible ‘liquid plastic’ unbreakable bond. Paint or stain can be applied to the finish, giving endless options for applications with various products.

Benefits of UV Glue Curing

The benefits of UV glue curing are evident just from the increased productivity. The speed at which parts can be cured is a huge benefit, as increased efficiency equals increased profits. Products speeding by on a conveyor belt undergoing a superior bonding process while on their way to a packing or inspection station is a big timesaver over a lengthy chemical treatment or drying station, thus reducing labor or additional process stations.

Reduced labor is an advantage, along with reduced set up time and reduced clean up time. A UV polymer curing station would carry a small footprint, not taking nearly as much space as an alternative curing station. Combined with the high yield enjoyed with this process, the efficiency of UV curing pays with a quick return on investment.

Improved quality is one of the biggest benefits realized with UV glue curing over other methods, as a consistent process equates to improved quality. With UV curing there is no loss of volume or thickness as with drying methods causing evaporation. The more consistent UV curing process also means reduced scrap, which is another goal for improved quality.

Stronger parts, with improved scratch resistance and enhanced gloss are also additional benefits with this enhanced curing process. UV glue curing provides an unbreakable bond, with improved part visual appeal and functionality. All of this happens with an environmentally friendly process and no harsh chemicals.

LightSources – Experts on All UV Glue Curing Processes

LightSources is the global leader in all aspects of the lighting industry, providing UV bulbs for any and all UV curing processes. We have the knowledge and experience to provide best in class products, proven for effectiveness and delivering the exact output required for your system. We can provide various sizes and shapes of lamps, with specialty phosphor blends, and custom ceramic bases for your new UV curing system, or adapting to an already existing UV system.

The experts at LightSources have developed patented and proprietary products, delivering innovative lighting solutions for a vast array of uses including UV curing lamps, UV germicidal lamps, lamps for phototherapy, water and air purification, tanning lamps, neon signs, computer backlighting, mini-fluorescent lamps, even lamps
used in the NASA Space Shuttle, the list is endless. Each of these applications require high performance lamps designed to deliver the optimum wavelength of ultraviolet light, providing proven, effective solutions.

With our world-wide locations and numerous partnerships around the globe, LightSources has the resources available to satisfy demanding requirements, with proven UV solutions to meet stringent quality and delivery specifications.

LightSources and our affiliated companies represent the leading high-tech designers and manufacturers in the lamp industry today. Our products are used world-wide in a multitude of applications and industries such as our UV glue curing lamps that offer patent-protected, OEM-oriented solutions. Please contact us to learn more about our large selection of specialty custom and standard lamps.