PENCHEM®
BONDING TECHNOLOGIES TOGETHER

TÜVRheinland CERTIFIED
Management System
ISO 9001:2015
ISO 14001:2015
IATF 16949:2016
www.tuv.com
ID 9105064144

Shadow Curable UV Adhesive

In a variable application for electronics component, bonding has become more important due to light-weight construction, miniaturization, and multi-material design.

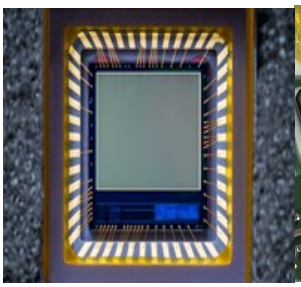
For productivity reasons, most manufacturing companies prefer light-curing adhesives to achieve high productivity levels. Light-curing adhesive plays an important role to provide high positioning accuracy, as components can be initially fixed on demand.

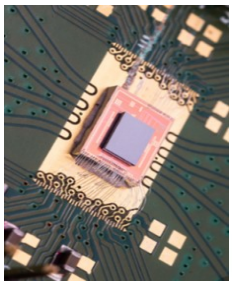
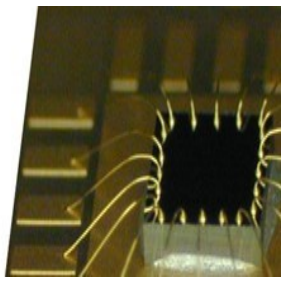
Once applied, the adhesive does not flow, which can happen when using heat-cured products in the oven. Nonetheless, UV adhesive are subject to limitations. UV adhesive can be cured in seconds if fully exposed under high intensity UVA light source, but the challenge is always the shadowed areas. Many of today design with PEI, Nickel, Kovar, Gold, Alumina, Aluminum, Standard Steel, Silicon are not UV light penetrable.

Penchem has focused on pushing these limits further by developing several dual-curing products which able to resolve the UV shadow cure issue. This enhanced dual-curing adhesives offer the benefits of light-curing systems even under a UV shadow cure condition will not compromise on reliability, bond strength, and processing quality. Penchem's technologies has ensure that the adhesive in the finished product is fully cured and also permit maximum bonding precision in complex modules. Aside from light, a second heat curing mechanism is used so that adhesives can bond reliably and complete the cross-link, even in shadowed areas. This is widely been applied for different industries, such as semiconductor, telecommunication, automotive, electronics, and mechanical engineering.

Special Features

- UV254-1 is UV or/ and heat curable epoxy system.
- Glass, Nickel, Ultem to metal substrates.
- Viscous adhesive.
- Heat curable without UV.
- Relatively moderate CTE.
- Dual cure (UV/heat curable) systems.
- Comply to RoHS and REACH requirements.



PENCHEM TECHNOLOGIES SDN BHD (767120-A)
1015, Jalan Perindustrian Bukit Minyak 7, Kawasan Perindustrian Bukit Minyak, Mk.13, 14100 Penang, Malaysia.
T: +604-501 5973, 74, 75, 76, 77, 78, 79 E: enquiry@penchem.com W: www.penchem.com

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Product Selector Guide

Parameter	Unit	UV739-1	UV254	UV254-1	UV254-1
Special Features	-	UV Shadow Curable Thermally Conductive Non-flowable structural adhesive High Adhesion strength to Alumina and Aluminum High Tg	UV Shadow Curable Clear appearance High Tg Long Pot life RI 1.51 matching	UV Shadow Curable Non-flowable structural adhesive High adhesion strength to Nickel Low Temperature Curable	UV Shadow Curable Flowable adhesive Relatively low CTE Low Temperature Curable
Pot life at 25°C	**Hours**	72	72	56	33
Curing Profile	-	Pre-curing condition Wavelength 365nm Intensity: 2W/cm2 for 30s Post curing condition Optimum 125°C for 1 hour	Pre-curing condition Wavelength 365nm Intensity: 2W/cm2 for 15s Post curing condition 100°C or above for 1 hour	Pre-curing condition Wavelength 365nm Intensity: 2W/cm2 for 15s Post curing condition Min 80°C for 2 hours Optimum 120°C for 1 hour	Pre-curing condition Wavelength 365nm Intensity: 2W/cm2 for 15s Post curing condition Min 80°C for 2 hours Optimum 110°C for 1 hour
Chemical Type	-	Epoxy	Epoxy	Epoxy	Epoxy
Color & Appearance	-	Off white	Transparent clear	Translucent white	Translucent white
90° incline flow test, 25°C, 10 mins	**mm**	Slight-flowable	Flowable	Non-flowable	40
Viscosity @ 25°C	**cP**	70,500	481	7,913	14,620
Refractive index, 589 nm	-	NA	1.51	NA	NA
Coefficient Thermal Expansion, CTE1	**ppm/K**	33	59	38	**21**
Glass Transition Temperature	**°C**	159	**165**	111	96
Die shear strength_ Nickel to glass UV + Heat Cure	**Kgf/cm²**	65 (SS) 271 (Alumina)	57	**105**	45
Die shear strength_ Nickel to glass Heat Cure Only	**Kgf/cm²**	68 (SS) 161 (Alumina)	59	48	57

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Manufacturer of High Performance Polymers
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