

1012T5

UV- heatcuring bonder

General Information

1012T5 is a heat curable epoxy bonder with initial UV curable property. It is one component, solvent free epoxy. It has clear and black version, specially designed for CCD/CMOS and VCM Assemblies which need low curing temperature for heat sensitive components. It can be cured by UV light, which can provide an initial fixed bond strength. It has excellent bond strength after heat curing on LCP, PC, PPS,PBT,Metal etc..

Uncured Properties

Chemical Type	modified epoxy resin	-
Appearance	milky translucent	AKT1.1
Viscosity@25° C (CAP2000 SP4 10rpm)	2150cP	AKT1.6
Specific Gravity	1.35	AKT1.5
Solubility	Alcohols/Acetone/EA	-
Flash Point	>93°C /200°F	ASTM D92
Thixotropy Index	4.5	AKT1.7

Curing Schedule

With UVA light (320nm ~ 390nm)
 UVA @ 365 nm, 1500mJ/cm² (Typical Bonding Requirement)
 Fully cure can be determined by curing at different times and intensities, and then measuring the corresponding change in cured properties such as adhesion and hardness, etc. Or can be determined by FTIR. Full cure is defined as the point at which more light exposure no longer improves cured properties.

Heat cure is a must after UV curing.

60 minutes @ 80 °C bondline temperature

* The curing parameter should be obtained from the specific application.

Cured Properties

Shore Hardness	D90	AKT 5.1
Elongation at Break	10%	AKT 5.3
Tensile at Break	90Mpa	AKT 5.2
Young's Modulus	2500Mpa	AKT 5.4
Boiling water absorption	1.2%@2H	AKT 4.2
Water absorption 25°C	0.5%@24H	AKT 4.3
Linear shrinkage	0.2%	AKT 4.4
Glass transition, Tg	100°C	AKT 4.5
CTE α1, ppm/K	61.8	AKT 4.6
α2, ppm/K	91.2	AKT 4.6

Shearing Strength

Heat Cured by 60 minutes @ 80 °C

LCP-PC	3.8Mpa	AKT 6.1
PC-PC	5.0Mpa	AKT 6.1
PBT-PC	4.4Mpa	AKT 6.1

Aging Decreasing

Heat Cured by 60 minutes @ 80 °C

85°C/85% @168H	88%	AKT 7.1
85°C30min/-40°C30min 100 Circles	No Cracking	AKT 7.2

Directions for use

- This Product is light sensitive. Exposure to ambient and artificial light should be kept to a minimum during storage and handling.
- The product should be dispensed from applicators with black pipes and needles with UV block property.
- For best performance, all surfaces in contact with the material should be clean and free from flux residue, grease, mold release, or other contaminants prior to dispensing the material.
- Apply adhesive to one of the bond surfaces and assemble immediately.
- Crystalline and semi-crystalline thermoplastics should be checked for the risk of stress cracking when exposed to liquid adhesive.
- Excess uncured adhesive can be wiped away with organic solvent.
- Curing speed is dependent on lamp intensity, distance from light source, depth of cure needed or thickness, and percent light transmission of components between the material and light source.
- Oxygen may inhibit surface cure. Surfaces exposed to air may require high-intensity UV light to produce a dry surface cure. Flooding the curing area with an inert gas, such as nitrogen, can also reduce the effects of oxygen inhibition.
- Cooling system should be provided for temperature sensitive substrates such as thermoplastics.
- Bonding parts should be allowed to cool after cure before testing and subjecting to any loads or electrical testing.

Storage

Store the material in cool ($\leq -18^{\circ}\text{C}$), dark place when not in use.

Shelf life: ($\leq -18^{\circ}\text{C}$) 6 months.

Pot life: (Room Temperature @ 25°C) 4 days.

Dispensing Setting

This material can be dispensed with a variety of manual and automatic applicators, such as needle valve and jetting valve. The detail dispensing parameter should be obtained through experiment on the actual parts and process requirement.

Health and Safety

This material is intended for industrial use only. Keep out of the reach of children.

Hazard statement(s)

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H402 Harmful to aquatic life.

Precautionary statement(s)

P201 Obtain special instructions before use.

P280 Wear protective gloves.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313 IF exposed or concerned: Get medical advice/attention.

Please refer to MSDS for more detail safety information.