Jewelry and Watches

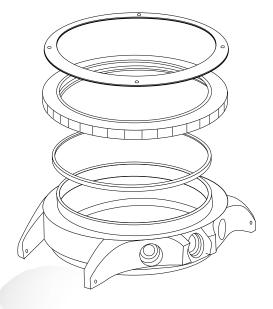
Why use Epoxies in your Jewelry and Watch Assembly?

Epoxies are well suited for many demanding applications, such as jewelry and watches. They have a high bond strength to a wide variety of substrates including: ceramics, glass, sapphire, quartz, and metals, such as stainless steel, gold, and platinum. The high-performing mechanical and physical strength properties of epoxies make them the ideal choice for an adhesive.



What are some Typical Applications?

- Component bonding (quartz, batteries, piezos, etc.)
- · Assembly of bezel insert, bezel and circlip into case
- Component bonding of the various elements onto the bezel insert
- Quartz crystal oscillator circuit assembly
- Glass/Sapphire bonding
- · Component bonding, such as rubies, in movements
- · Bonding of watch crown
- · Bonding of various decorative pieces onto face of the watch
- · Bracelets and necklaces



What types of EPO-TEK® Products are Best Suited in Jewelry and Watch Assembly?

EPO-TEK	Key advantages/ Characteristics									
301	Very low viscosity, room-temperature curing									
301-2	Low viscosity, room temperature curing, long pot life (8 hours)									
301-2FL	More flexible version of EPO-TEK® 301-2, low stress									
310-2FL-T	Slightly thixotropic version of EPO-TEK® 301-2FL									
310M/310M-1	Flexible, low viscosity									
353ND	High temperature and moisture resistance									
H20E/H20S	Silver-filled, high electrical conductivity and short curing cycles									
OE145-4	Low viscosity, excellent water, chemical, and solvent resistant properties									
OG142	UV-curable epoxy, medium viscosity, high strength, high Tg									
T7109	High performance, thermally conductive									
T7110	Low viscosity, thermally conductive, electrically insulating epoxy, low temperature cure									

All products are also available as single components, premixed in syringes.





How Do The EPO-TEK Properties Compare?

T7110	T7109	0G142	0E145-4	H20S	H20E	353ND	310M-1	310M	301-2FL-T	301-2FL	301-2	301	EPO-TEK®
Two	Two	0ne	Two	Two	Two	Two	Two	Two	Two	Two	Two	Two	NO. of COMPONENTS
Grey/Grey	White/White	Clear/ Colorless	Light Yellow/ Yellow	Silver/Silver	Silver/Silver	Amber/Dark Red	Clear/Light Yellow	Clear/ Colorless	Clear/ Colorless	Clear/ Colorless	Clear/ Colorless	Clear/ Colorless	COLOR Before/ After CURE (thin film)
150°C – 15 min 23°C – 3 days	150°C – 10 min 80°C – 8 hours	100mW/cm² for >2 min @ 240-365 nm	65°C – 3 hours 80°C – 24 hours	175°C – 45 seconds 80°C – 90 min	175°C – 45 seconds 80°C – 3 hours	150°C – 1 hour 80°C – 30 min	65°C – 2 hours 23°C – 24 hours	65°C - 2 hours 23°C - 24 hours	80°C – 3 hours 23°C – 3 days	80°C - 3 hours 23°C - 3 days	80°C – 3 hours 23°C – 2 days	65°C – 2 hours 23°C – 24 hours	CURE TEMPERATURE (minimal)
1,400 - 2,200 cPs @ 100 rpm	14,000 - 20,000 cPs @ 20 rpm	9,000 - 15,000 cPs @ 20 rpm	683 cPs @ 100 rpm	1,800 - 2,800 cPs @ 100 rpm	2,200 - 3,200 cPs @ 100 rpm	3,000 - 5,000 cPs @ 50 rpm	315 cPs @ 100 rpm	450 - 850 cPs @ 100 rpm	300 - 600 cPs @ 100 rpm	100 - 200 cPs @ 100 rpm	225 - 425 cPs @ 100 rpm	100 - 200 cPs @ 100 rpm	VISCOSITY @ 23°C
≥40°C	≥45°C	≥95°C	59°C	≥80°C	280°C	≥90°C	28°C	≥30°C	≥40°C	≥45°C	≥80°C	≥65°C	GLASS TRANSITION TEMPERATURE (Tg)
≥10 kg/3,400 psi	≥15 kg/5,100 psi	≥4 kg/1,360 psi	22 kg	≥5 kg/1,700 psi	>10 kg/3,400 psi	≥15 kg/5,100 psi	7.3 kg	≥2 kg/680 psi	≥5 kg/1,778 psi	≥10 kg/3,400 psi	≥15 kg/5,100 psi	≥10 kg/3,400 psi	DIE SHEAR STRENGTH @ RT (80mil x 80mil)
N/A	N/A	≥97% @ 660 - 1,640 nm ≥92% @ 440 - 620 nm	≥95% @ 500-1,600 nm	N/A	N/A	≥50% @ 550 nm ≥98% @ 800 - 1,000 nm ≥95% @ 1,110 - 1,600 nm	≥98% @ 360 - 1,660 nm	≥97% @ 400 - 1,300 nm ≥90% @ 1,400 - 2,200 nm	≥97% @ 380 - 2,100 nm	≥97% @ 1,000 - 1,600 nm ≥99% @ 400 - 1,000 nm	≥94% @ 300 nm ≥99% @ 400 - 1,200 nm ≥98% @ 1,200 - 1,600 nm	≥99% @ 382 - 980 nm ≥97% @ 980 - 1,640 nm ≥95% @ 1,640 - 2,040 nm	SPECTRAL TRANSMISSION
314°C	377°C	421°C	363°C	414°C	425°C	412°C	300°C	397°C	336°C	325°C	360°C	430°C	TGA DEGRADATION TEMPERATURE
31 X 10 ⁻⁶ 142 X 10 ⁻⁶	46 X 10 ⁻⁶ 239 X 10 ⁻⁶	56 X 10-6 109 X 10-6	N/A	31 X 10-6 120 X 10-6	31 X 10 ⁻⁶ 158 X 10 ⁻⁶	54 X 10 ⁻⁶ 206 X 10 ⁻⁶	60 X 10 ⁻⁶ 229 X 10 ⁻⁶	78 X 10 ⁻⁶ 222 X 10 ⁻⁶	N/A	56 X 10 ⁻⁶ 211 X 10 ⁻⁶	61 X 10- ⁶ 180 X 10- ⁶	39 X 10-6 98 X 10-6	CTE Below Tg/ Above Tg (in/in/°C)
3.5 hours	4 hours	N/A	2 hours	3 days	2.5 days	≤3 hours	2 hours	2.5 hours	5 hours	10 hours	8 hours	1-2 hours	POT LIFE (@ room temp.)
1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	SHELF LIFE (@ room temp. unless noted)

N/A - not available/applicable

All products are also available as single components, premixed in syringes



adhesives for your specific technical challenges at: techserv@epotek.com. Please consult our Application Experts at Epoxy Technology to find the most suitable



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