

TYPICAL PROPERTIES

(To be used as a guideline only)

NUMBER OF COMPONENTS Two

MIXING RATIO PARTS BY WEIGHT
Part "A" 20
Part "B" (hardener) 5
Mixed volume should not exceed 25 grams.

CURE SCHEDULE (minimum)
65°C 1 hour
Room Temperature Overnight

PHYSICAL PROPERTIES
Color Clear
Consistency Low viscosity liquid
Viscosity (mixed)
@ 100 rpm/23°C 100 - 200 cPs
Specific Gravity
Part "A" 1.15
Part "B" 0.87
Glass Transition Temp. (Tg)
cured @ 65°C/2 hours > 65°C
Coefficient of Thermal Expansion (CTE)
Below Tg 50×10^{-6} in/in/°C
Above Tg 125×10^{-6} in/in/°C
Operating Temp. Range -55 - +125°C continuous
Degradation Temp. (TGA) 341°C
Outgas @ 200°C 0.27%
@ 300°C 0.81%
Shore D Hardness 81
Lap Shear Strength (Al to Al) 1,700 psi
Storage Modulus 327,463 psi

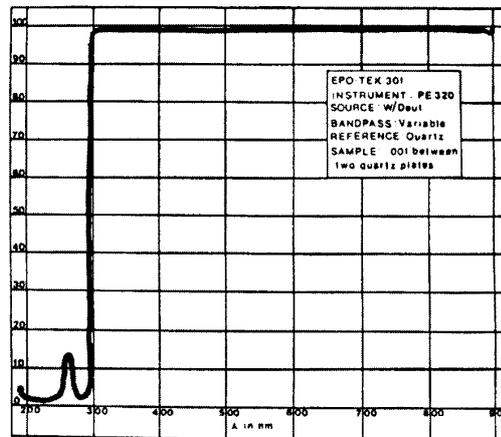
OPTICAL PROPERTIES (0.001")
Index of Refraction 1.539
@ Sodium D Line 589 nm
> 97% Transmission 320 - 900nm
> 80% Transmission 910 - 2.6 μ

ELECTRICAL PROPERTIES
Volume Resistivity 5×10^{13} ohm-cm
Dielectric Strength 440 V/mil
Dielectric Constant (1 MHz) 4.1
Dissipation Factor (1 MHz) 0.02

POT LIFE
100 gram sample 30 min.
25 gram sample 50 min.

SHELF LIFE
One year when stored at room temperature.
Keep containers closed when not in use.

REFRIGERATION NOT REQUIRED



EPO-TEK 301 is a two component, room temperature curing, epoxy adhesive featuring very low viscosity, good pot life, good handling characteristics and excellent optical properties.

Although designed primarily for optical filters, EPO-TEK 301 has found wide usage in many instrumentation applications. It is also recommended for bonding glass and plastic fiber optics.

EPO-TEK 301 has good adhesion to many different types of substrates including glass, quartz, metals and most plastics.

NONTOXIC - complies with USP Class VI Biocompatibility standards

PLASTICS WORLD

Adhesive transmits light

A two-component epoxy is being used effectively for thin-film interference filters and for the bonding of lenses and other substrates.

"Epo-Tek 301", made by Epoxy Technology, has the unique properties of being optically transparent between 3000 angstroms and 2.6 microns and bondable to most glasses, metals, ceramics and plastics. According to end user, Corion Instruments, a special advantage is gained by its having a refractive index closely matching most of the common glasses.

Several glass elements may be cemented together with the new epoxy with the total transmission being increased considerably when compared with the same elements arranged in air-gap sequence. Another noteworthy gain is freedom from yellowing in intense ultraviolet light at high temperatures.

This adhesive is useful for making microsection studies of rocks, animal tissue and various other materials because of the following properties: (a) very low viscosity, (b) room-temperature curing, (c) toughness and

(Continued)



Medical slides sandwiched between glass that is joined with "Epo-Tek 301" are hermetically sealed and protected with no reflecting interior surfaces to hamper visibility and clarity.

*Epoxy safe to use with
plastics since no
solvents are necessary*

adhesion and (d) index of refraction same as glass.

"Epo-Tek 301" has been used for replicating optical components such as mirrors because of its combination of desirable properties. Because the material is a 100-percent solids formulation, requiring no solvents, it does not attack most plastics. Its curing time is controlled accurately as a function of temperature.

Although the spectral range of the cement's transparency is very broad, its light cut-on characteristics are extremely sharp. This property is utilized in some types of Corion filters, making the epoxy perform both an optical and a mechanical function.

Corion and Epoxy Technology jointly have developed a new, optically opaque black epoxy compound. Even when applied in a thin film, it still transmits less than 0.0001 percent over the wavelength range of 3000 angstroms to 1 micron. This is used to mask out certain areas where light transmission is undesirable. The high epoxy bonding strength joins the opaque coating and the optical substrate into a single entity, with separation virtually impossible.

These achievements emphasize the benefits to be derived from joint and inter-disciplinary R&D efforts between plastics makers and product specialists. In this case, the cooperative effort was made by Epoxy Technology, a supplier of custom-formulated epoxy compounds, and Corion Instruments, which specializes in thin-film deposition of metals and other materials on glass and quartz. ☉

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Polytec GmbH

Polymer Technologien • Polytec-Platz 1-7 • 76337 Waldbronn • Germany
Tel. ++49(0) 7243 604-175 • FAX ++49 (0) 7243 604-382 • Email: pt@polytec.de • http://www.polytec.de