

**Piocel** Adhesives/Coatings for Optical Devices are highly specialized optically clear adhesives offering excellent optical properties and adhesion to various types of transparent substrates. Piocel Adhesives/Coatings are 100% solids and cure in seconds upon exposure to UV light.

## DESCRIPTION

**Piocel** offers wide range of UV light curing adhesives/coatings for variety of applications for bonding, coating, encapsulating, and sealing.

**Piocel** Adhesives/Coatings has rapid cure property, non-yellowing, thermal resistance, high oxidative and hydrolytic (moisture) stability, which are required by optical devices industry applications, displays, touch panels and others requiring an optically clear bond.

## FEATURE and BENEFIT

- Acrylate copolymer
- Heat resistance / Non-Yellowing
- Rapid UV curable
- Excellent boiling water resistance
- Excellent chemical resistance

## PROPERTIES

### THERMAL PROPERTIES:

<b>Glass Transition Temp. (Tg)</b>	55 ~ 65 °C
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### LIQUID PROPERTIES:

<b>Appearance</b>	-	transparent
<b>Refractive Index</b>	@589nm	1.48 ± 0.01
<b>Viscosity</b>	cPs @25°C	1,800 ~ 2,300
<b>Density</b>	g/cm <sup>3</sup> @25°C	1.1 ± 0.1

### CURED PROPERTIES:

<b>Refractive Index</b>	@589nm	1.50 ± 0.01
<b>Elongation</b>	%	140 ~ 180
<b>Tensile Strength</b>	MPa	25 ~ 45
<b>Modulus</b>	MPa	400 ~ 700
<b>Shore Hardness</b>	D	> 70
<b>Transmittance</b>	% @850nm	90 ~ 92

## HOW TO USE

1. Carefully clean and dry all surfaces to be bonded (coated).
2. Apply this adhesive (coating) to the prepared surfaces, and gently press these surfaces together. Contact pressure is adequate for strong, reliable bonds; however, maintain contact until adhesive is completely cured.
3. UV Curing Condition.  
Minimum UV dose of this product for complete cure is **1,500 mJ/cm<sup>2</sup> under a nitrogen environment**. However, the minimum dosage is dependent upon the thickness of the coating/bonding layer.
4. Thermal Curing Condition. (optional)  
Organic peroxide (t-Butyl peroxy 2-ethylhexanoate) and AIBN (Azobis iso butyro nitrile) are recommended for thermal initiator that need about 10 min at 100°C may be necessary.

## GENERAL INFORMATION

The required intensity and cure time should be determined during the initial process validation stage. Factors that should be considered during process validation which can affect the adhesive cure rate and depth of cure include, but are not limited to, the part geometry, bond-gap size, percent light transmission through the substrate, distance from the light source to the adhesive/coating area, UV light intensity and spectral output of the light source, the desired margin of safety to be built into the process, and minimum and maximum exposure times.

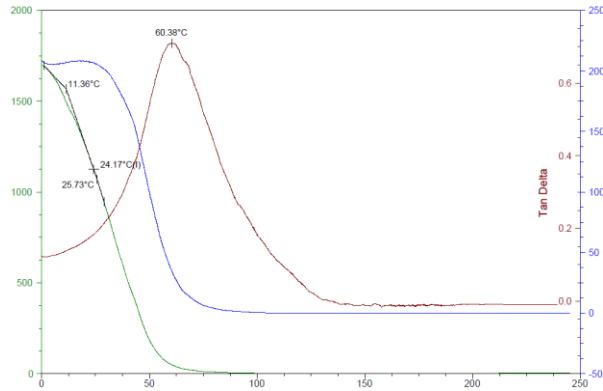
For safe handling information on this product, consult the Safety Data Sheet, SDS.

## STORAGE

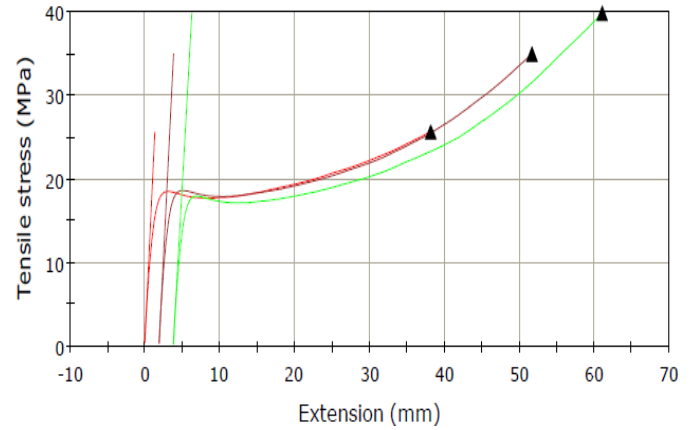
Products should be stored unopened in dry place out of direct sunlight. **Products should be kept at room temperature (20~25°C) away from direct light.** Protect from extreme heat or cold, do not refrigerate.

## Analysis Data (Thermal and Mechanical)

### DMA data



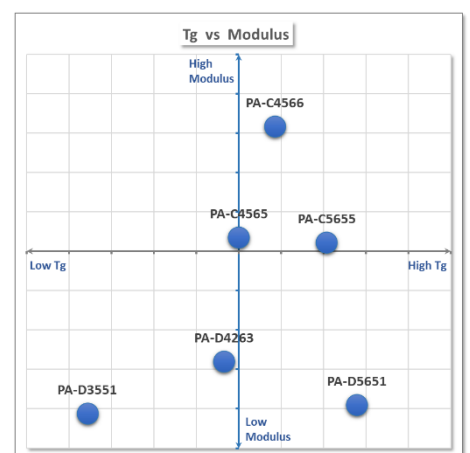
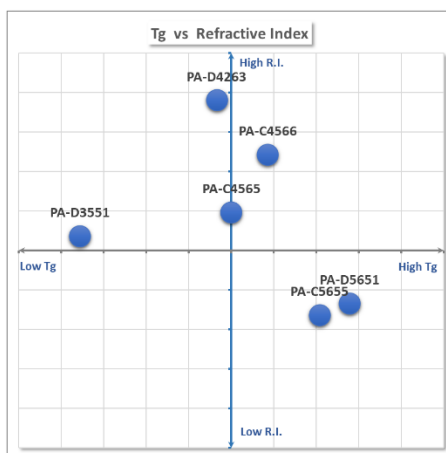
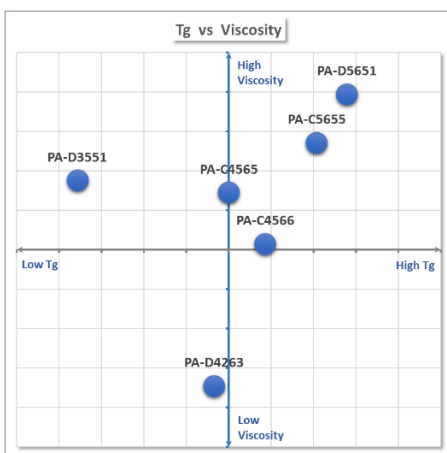
### UTM data



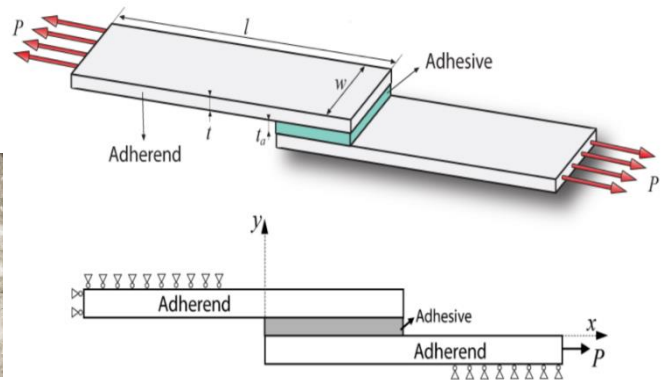
## PA-series Properties Data

Properties	PA-C4565	PA-C4566	PA-C5655	PA-D3551	PA-D4263	PA-D5651
Glass Transition Temp.	45 ~ 55	50 ~ 60	55 ~ 65	30 ~ 40	45 ~ 55	60 ~ 70
Viscosity	1,500 ~ 2,000	1,000 ~ 1,500	1,800 ~ 2,300	1,500 ~ 2,000	100 ~ 200	2,000 ~ 2,800
Refractive Index	1.51 ± 0.01	1.52 ± 0.01	1.50 ± 0.01	1.51 ± 0.01	1.53 ± 0.01	1.50 ± 0.01
Modulus	450 ~ 650	700 ~ 1000	400 ~ 700	1 ~ 20	100 ~ 250	20 ~ 60

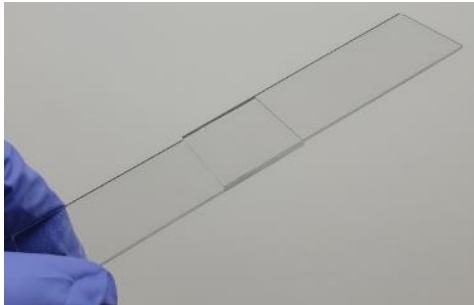
## PA-series Chart



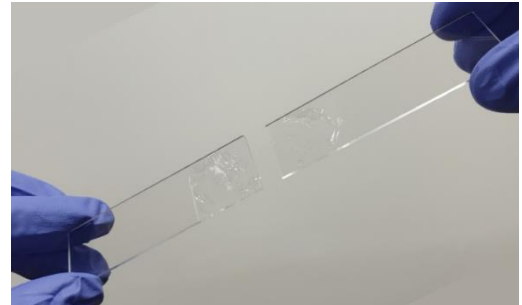
## Adhesion data after PCT (Pressure Cooker Test / 121°C, 2atm)



**Before  
(Pass)**



**After  
(Fail)**



### Test Method

1. Specimen : Slide Glass (75mm \* 25mm \* 1mm) \* 2ea
2. Adhesion area : 25mm \* 25mm
3. PCT condition : 121°C, 2atm
4. Check the adhesion of specimen by 1000gf weight every 24Hrs
5. Check the number of surviving specimens among 10ea of each type.

### Adhesion data after PCT (121°C, 2atm)

