

TECHNICAL DATA SHEET

LP-1611

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A. MATERIAL DESCRIPTION

LP-1611 is Primary coating for Glass Optical fiber. EFIRON[®] LP-1611 has suitable glass transition temperature, rapid cure property, non-yellowing, water resistance, high oxidative and hydrolytic (moisture) stability which are required by optical fiber industry application.

1. CURING CONDITION

LP-1611 has fast cure speed so it can be applied to 1,800 m/min line. The minimum UV dose for complete cure is about 0.2~0.3 J/cm² (UV-A range) under the nitrogen environment.

2. STORAGE

LP-1611 can be polymerized under improper storage conditions. Store materials away from direct sunlight and presence of oxidizing agents and free radicals. Storage temperature range is between 10°C to 30°C.

3. PRECAUTION

LP-1611 can cause skin and eye irritation after contact. Therefore, avoid direct contact with these materials. If contact occurs, immediately rinse affected areas copiously with water.

4. NOTES

The information contained herein is believed to be reliable but is not to be taken as representation, warranty or guarantee and customers are urged to make their own tests.

B. MATERIAL PROPERTIES

1. Liquid Coating

Viscosity	at 25 °C	3900 cPs
	at 35 °C	1900 cPs
Density	at 23 °C	1.04 g·cm ⁻³
Refractive Index	at 25°C	1.4832
Surface Tension	at 25°C	32 dynes·cm ⁻¹

2. Cured Coating

Test at <1% R.H

Glass Transition Temperature	
at Tan_delta Max	-21 °C

Test at 25°C, 50% R.H

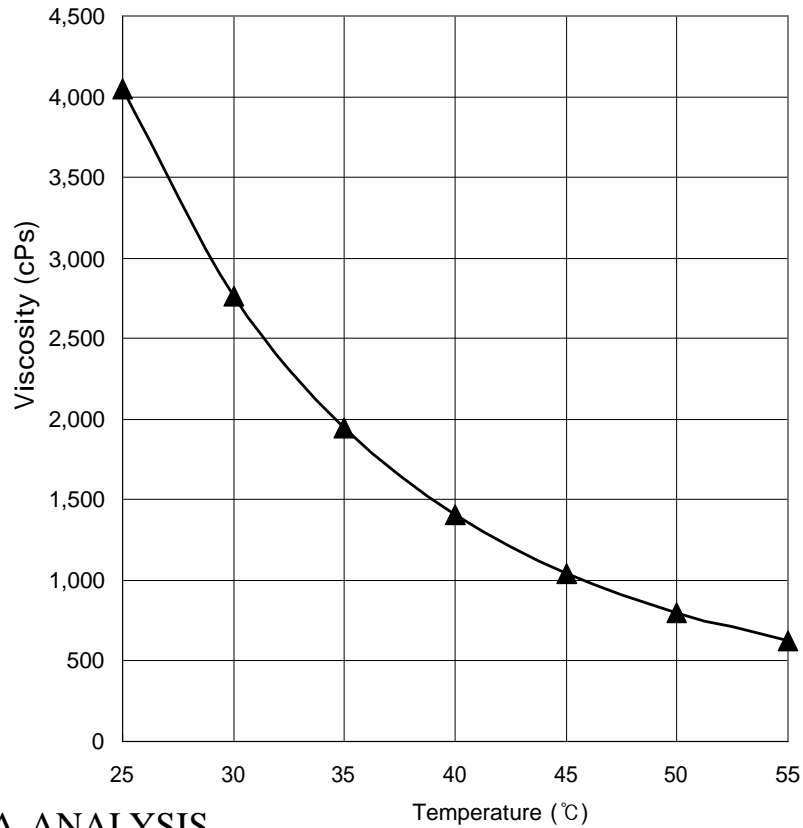
UV Dose at 95% of Ultimate Secant Modulus	0.30 J·cm ⁻²
Secant Modulus at 2.5% Strain	0.13 kg _f ·mm ⁻²
Tensile Strength	0.08 kg _f ·mm ⁻²
Elongation	110 %
Refractive Index	1.4894
Water Sensitivity, 250um film	
Absorption	1.62 %
Extractable	0.42 %
Coefficient of Expansion, 500um film	
Rubbery Region	2.662 ×10 ⁻⁴ °C ⁻¹
Glassy Region	8.459 ×10 ⁻⁵ °C ⁻¹
Adhesion to Glass, per 25mm	
50% R.H	2.00 N
95% R.H	0.99 N

* Film preparation in Test A of EFIRON® test methods :

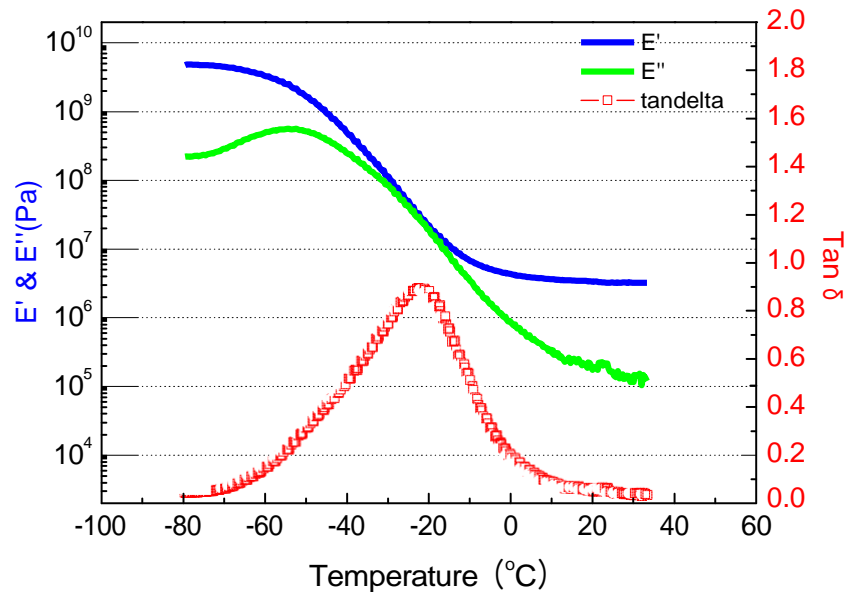
75 μm film thickness, D-bulb, 1.0 J/cm² (UV-A Range: 315–400nm) with Nitrogen Box.

C. GRAPH & TABLE RELATED DATA

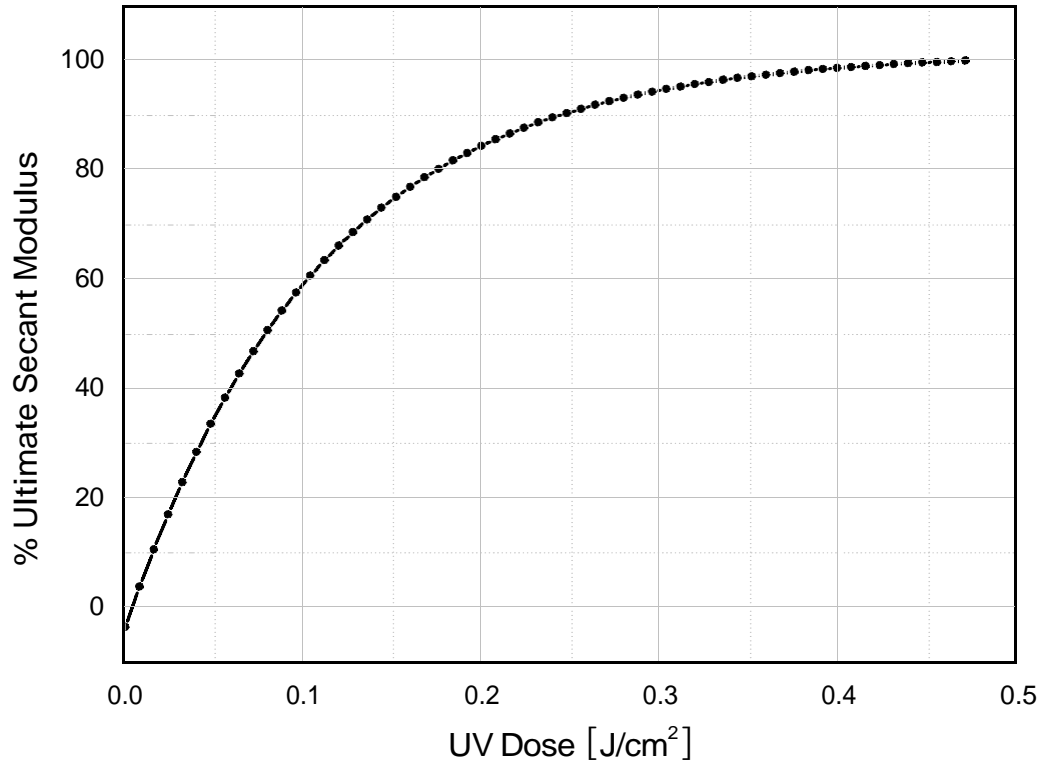
1. VISCOSITY PROFILE



2. DMTA ANALYSIS



3. CURE ENERGY



D. APPENDIX

1. TEST EQUIPMENT & Method

	Equipment	Method
Viscosity (cPs)	Brookfield DV III+	ASTM D-1084 Method B
Refractive Index	Abbe refractometer (Liquid) Prism Coupler (Cured)	ASTM D 542 – 50
Density (g/cm ³)	Pycometer	ASTM 1475
Surface Tension (dynes/cm)	KRÜSS K100 Tensiometer	ASTM D-1331-56
Secant Modulus (kg _f /mm ²)	Instron 5543 UTM	ASTM D-638
Elongation (%)	Instron 5543 UTM	ASTM D-638
Tensile Strength (kg _f /mm ²)	Instron 5543 UTM	ASTM D-638
Adhesion to Glass (N)	Instron 4443 UTM	ASTM D-1876-72
Thermal Expansion Coefficient (°C ⁻¹)	TMA	-
Tg (°C)	DMTA	-

2. Unit Conversion

$$N = \text{kg}_f \times 9.807$$

$$\text{kg}_f/\text{mm}^2 = \text{MPa} \times 0.102$$

$$\text{cPs} = \text{mPa}\cdot\text{s}$$

$$N = \text{lb}_f \times 4.448$$

$$\text{Psi} = \text{MPa} \times 145$$