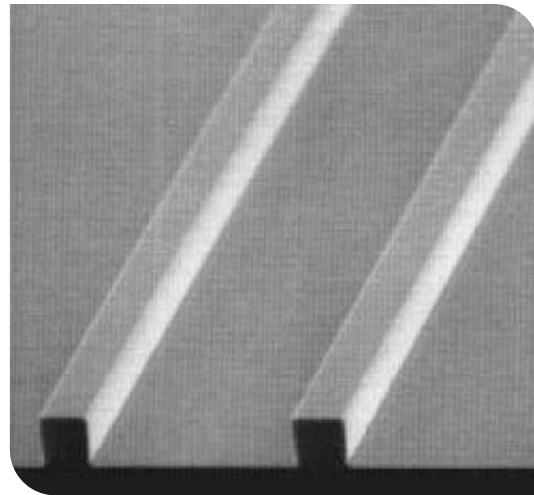


Singlemode Waveguide Resins

Optical materials, Devices & Technical services



Description

The ZPU12,13-RI and LFR series are photoactive UV curable resins based on perfluorinated acrylate. They are applicable to optical waveguide devices and optical thin film applications. These coating resins have low optical loss for optical communication wavelengths, small birefringence and excellent environmental stability.

To be used for various waveguide structures, precise and continuous control of the refractive index can be available achieved by blending technique with standard polymer solutions. To obtain the best film quality, a nitrogen environment should be recommended during the UV exposure time.

Model Number

- ZPU12, 13-RI series
- LFR series

Features

- UV curing type
- Low optical loss
- Environmental stability
- Controllable refractive index
- Low birefringence
- Good adhesion

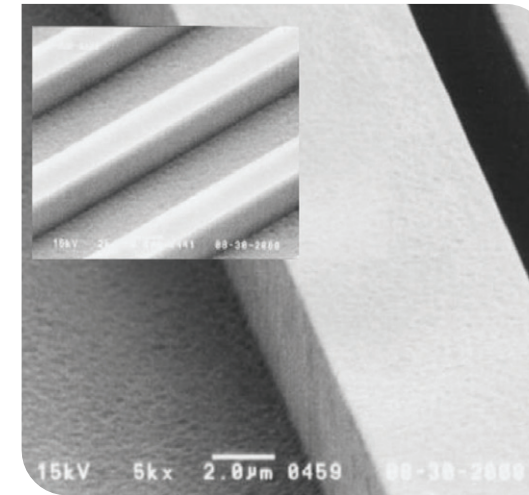
Applications

- Optical power splitters
- Variable optical attenuators
- Optical switches
- WDM related devices
- Transceiver waveguide
- Hybrid waveguide claddings

Performance Specifications

Exguide™ (UV curable)		LFR	ZPU13-RI	ZPU12-RI	
Liquide	Viscosity (cps @ 25°C)	30 ~ 60	50 ~ 200	200 ~ 350	
	UV-exposure (under N ₂)	> 3,600	> 2,500 mJ/cm ² (160 ~ 200 °C/30 min, post baking)		
Film	Propagation Loss* (dB/cm)	1.55μm	< 0.1	< 0.32	< 0.35
		1.31μm	< 0.06	< 0.1	< 0.1
	Refractive Index @ 1.55μm	1.375 ~ 1.395	1.430 ~ 1.460	1.450 ~ 1.480	
	Birefringence (n _{TE} - n _{TM})	< 0.0005 ± 0.0003	< 0.0007 ± 0.0003	< 0.0010 ± 0.0003	
	TO Coefficient (10 ⁻⁴ /°C, @ 1.55μm)	- 2.5	- 1.8	- 1.7	
	CTE (ppm/°C, by TMA)	350 ~ 450	300 ~ 400	200 ~ 300	
	Glass Transition Temp. (Tg)	Not Detectable			
Degradation Temp. (1 wt%)	300 ± 20°C				
Reliability	Refer to our website				

- *Measured from slat waveguide (prism coupling method)
- Refractive index is precisely tunable from 1.375 to 1.480 by request.



Description

ZP49 & ZP51 resins are thermally curable polymers based on highly fluorinated polyethers. They are useful for optical waveguides and optical thin film applications due to their low optical loss, high thermal and environmental stability. To be used for various waveguide structures, precise and continuous control of the refractive index can be available achieved by blending technique of with standard polymer solutions.

Model Number

- ZP-49 & ZP-51

Performance Specifications

Exguide™ resins are available in 100g and 500g quantities and should be stored in the original bottle with a tight cap in a dark and cool place at between 10 ~ 25° C. Moisture should be avoided because it may affect the product's performance.

Performance Specifications

Exguide™ (Thermal curable)		ZP-49	ZP-51
Liquide	Viscosity (cps @ 25°C)	220 ~ 280	230 ~ 290
	Curing Temp. (Tc)	250°C for 2hr @ hot plate	
Film	Propagation Loss* (dB/cm)	1.55μm	< 0.3
		1.31μm	< 0.15
Film	Refractive Index @ 1.55μm	1.4900	1.5100
	Birefringence (n _{TE} - n _{TM})	0.004 ± 0.001	
	TO Coefficient (10 ⁻⁴ /°C, @ 1.55μm)	- 0.73	- 0.65
	CTE (ppm/°C, by TMA)	93	78
	Glass Transition Temp. (Tg)	146	206
	Degradation Temp. (1 wt%)	392	444
	Reliability	Refer to our website	

- *Measured from slat waveguide (prism coupling method)
- Refractive index is precisely tunable from 1.49 to 1.51 by request.