



## Korea's patented manufacturer of UV Curable Polymer Cladding

### Primary/Secondary Coating(4 patents in Korea)

10-1018357, "Photo-curable coating composition having improved hot water resistance", KR  
 10-1006989, "UV curable coating composition having improved water resistance and optical fiber...", KR  
 10-1021577, "Radiation curable composition", KR  
 10-1001656, "Radiation curable resin composition and optical fiber made by using thereof", KR

### Low RI Polymer Cladding(3 Patents in Korea and 1 in USA)

10-0500191, "UV-curable resin composition for cladding layer of optical fiber", KR  
 10-1003002, "Resin composition for cladding layer of optical fiber", KR  
 10-1051287, "Radiation curable oligomer, radiation curable resin composition comprising...", 10/KR  
 10/527,372, "Radiation curable oligomer, radiation curable resin composition for optical fiber", USA

### Ribbon Resin(2 Patents in Korea, 1 in USA)

10-0579007, "Photo-curable and antistatic resin composition for optical fiber coating", KR  
 10-05714575, "Photo-curable resin composition for coating optical fiber ribbon". KR  
 09/69027, "Resin composition for manufacturing optical fiber ribbon and method for preparing resin for...", USA

### UV curable Ink(2 Patents in Korea)

10-1025721, "Non-Solvent Type, UV-Curable White Ink Composition", KR  
 10-0586492, "Photo-curable polymeric resin composition for optical fiber in-line coating", KR

### Functional Polymer Materials(8 Patents in Korea, 1 in USA)

10-0498189, "Method for producing a preform for graded-index optical fiber by high speed revolution.", KR  
 10-0610230, "Fabrication of polymer waveguide using UV-Molding method", KR  
 10-0487025, "Photo-curable resin composition for optical waveguide and Type, UV-Curable White Ink...", KR  
 10-0387535, "Optical adhesive composition comprising colloidal silica filler and method for preparing the same", KR  
 10-0387536, "Optical Adhesive composition for manufacturing optical adhesive filler and a method for...", KR  
 10-0502993, "Optical Adhesives for optical transmission parts", KR  
 10-0348702, "A method for preparation of transparent conductive thin-film by rapid thermal annealing...", KR  
 10-0401134, "Methods for preparing organic-inorganic hybrid, hard coating liquid comprising the hybrid...", KR  
 10/515,574, "Methods for preparing plastic optical fiber preform", USA



**EFIRON®**  
 Korea's patented manufacturer of  
 UV curable PC and coating for Optical Fiber

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# FOSPIA

## Optical Solution Provider

Fast UV-curable / Low Refractive Index

Primary & Secondary Coating Resin

Low Refractive Index Polymer Cladding Resin

UV Curable Adhesive material for Film and Glass

Ribbon Matrix Resin / Cable

UV Curable Ink

High Refractive Index UV-Resin



## About us

Fospia stands at the exciting forefront of developing next generation materials in optics and photonics as well as in optical solutions that support medical, sensing, strikes, missile defense, display, 3D printing and etc. We aim to build a brighter future through better optical solutions.

Fospia takes pride in developing the world's highest performing UV coating materials at the mass production scale. Approved by the Korean government, Fospia's R&D center is equipped with state-of-the-art facilities that include the full line of measurement and characterization tools and production facility. This includes a cleanroom that is maintained at 1,000pcs. Our highly motivated and skilled labor force with decades of experience guarantee customers' satisfaction along with the most effective and efficient business management.

In meeting industrial development and production demands, we work closely with our customers to embody their experiences and challenges, to accommodate their specific requirements. Our dedication to excellence brings the world's finest portfolio of standard and customized optical materials.

Your trust will undoubtedly motivate Fospia to endeavor to develop the world's most reliable products with the highest quality.

Fospia welcomes your optical material challenges and requests.

Please, do not hesitate to contact us.



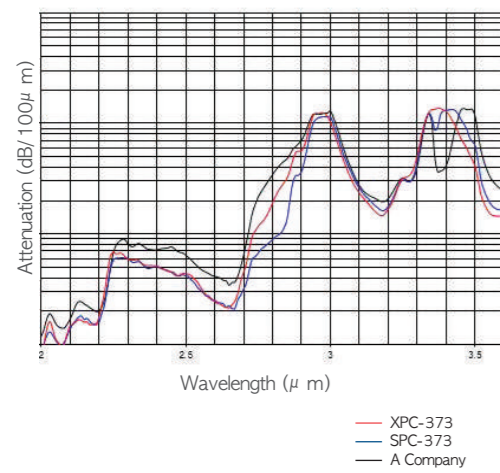
## Low refractive index Polymer Cladding resin

### XPC Series

High Thermal Resistance  
High Glass Adhesion

- High thermal and high power resistance
- Enhanced endurance and moist resistance, and excellent adhesion to silica.
- Optical Applications :
  - High Power Laser Fiber
  - High Temp. Thermoplastic Coated Specialty fibers

### Fospia shares some of the customers' feedbacks for XPC!



EFiRon XPC has the fastest curable properties (0.5J/cm<sup>2</sup>).

EFiRon XPC has high modulus allowing and high temperature high optical power (400~1,000 watt) with a proper cooling device.

EFiRon XPC has a low attenuation (20~30% lower than major competition) in high pressure, high temperature and corrosive environment.

EFiRon XPC has excellent a high power resistance, showing 1.5 times higher maximum pump than other competing polymer resins. EFiRon XPC is suitable for high power single coating application due to no stickiness on the surface after cured, resulting in no need to overclad

the fiber. EFiRon XPC-373 was referenced in a customer's research paper (the CLEO paper by Fiber Optics Research Center of the Russian Academy of Sciences, Moscow): the estimated pump power density on the surface of the XPC-373 cladding exceeded 630 W/mm<sup>2</sup>, the highest value ever reported and 1.5 ~7 times higher than that of five other coating methods tested. The long-term reliability of the device was tested for 170 hours of continuous operation.

### SPC Series

Environmentally  
Non-hazardous

- PFOA and PFOA Precursor Free, satisfying the Environmental regulations by EPA.
- Environment friendly Plastic Optical Fiber (PMMA), Plastic Optical Fiber, HPCS, Specialty Fiber
- Optical Applications : Biomedical Fibers, Medical Device and etc.

EFiRON SPC can ensure meeting environmental requirements for both manufacturers and end users in specialty optical fibers, along with various biomedical applications

## Low refractive index Polymer Cladding resin

### HDC Series

Silane Technology  
Super Adhesion  
Humidity Endurance

- High Adhesion in Hot water
- Formulated with newly developed silane technology
- Optical Applications : Medical Device and etc. requiring endurance in high moist environment.

### APC Series

Silane Technology  
Super Adhesion  
Thermal Resistance

- High Adhesion and high modulus for water / thermal resistance application.
- Formulated with newly developed silane technology.
- Optical Applications : Special Optical Fiber, High Power Fiber Laser, Fiber Recoating, PCF, POF, PMMA, Large Core Fiber and etc.

## Single Coating Resin

### SC Series

One-stop Coating On Fiber  
Good Peeling Off Properties

- The remarkable combination of flexible Primary and protective Secondary minimizes light loss and maximize durability.
- The lower sensitivity to micro bending is excellent for the development of special optical fibers

## High refractive index Resin

### HRI Series

PTI : Display

- High refractive index of 1.55 ~ 1.62.
- Formulated for 3D printer  
UV Ink for Display

## 3D Printing Resin

FOS-1000 is the fastest UV curable resin applicable to 3D printers of Sterolithography (SLA) type and DLP type. Our products come in both Hard and Soft types, and in various color.

- Curable at wavelengths of the UVA, UVB, UVC.
- Extremely low shrinkage percentage after cured.

## Primary & Secondary Coating Resin

Fospia's Fast UV curable coating products are suitable even for harsh environment including colder regions. The coating resin has high-quality homogeneity and clarity along with the distinctive properties;

Primary Coating : High Elongation and Adhesion to glass and Low modulus and Tg providing high flexibility and minimizing the potentials for production complication.

Secondary Coating : High modulus and Tg providing high protection



## UV Curable Ink

UV ink is optimized for coloring of optical fibers, high solvent resistance, good adhesion and optimal viscosity along with rapid cure property.

- Fospia UV ink has the fastest curing rate (line speed can be applied to 3000mpm).
- Its vividness in color and excellent properties yield 15%~30% less dosage, resulting in cost reduction.
- It creates less dark fume reducing maintenance expenses and production problems.
- Its high Tg adds a protective character



## Ribbon Matrix

UV curable polymer matrix material for fiber ribbons uniformly coats fiber ribbons.

- Excellent adhesion and striping breakout capability
- High speed spooling
- Optimized Young's modulus for post process
- High chemical and water resistance