



## Product Data

# DeSolite® 3471-3-14

### Product Description

Optical fiber primary coating

### Product Benefits

- Single layer application
- Excellent adhesion
- Low moisture sensitivity
- Patent-protected

### Characteristics

| Liquid Coating                                 | Typical Properties |
|--|--------------------|
| Viscosity, 25 °C, mPa•s                        | 10,000             |
| Density, 23 °C, kg•m <sup>-3</sup>             | 1110               |
| Liquid Refractive Index, 23 °C                 | 1.500              |
| Surface tension, 23 °C, dynes•cm <sup>-1</sup> | 25                 |

| Cured Coating* (Tested at <1% R.H.)                          | Typical Properties |
|--|--------------------|
| Glass Transition Range (DMA**), °C at E' <sub>1000 MPa</sub> | -18                |
| Glass Transition Range (DMA**), °C at E' <sub>100 MPa</sub>  | 29                 |

| Cured Coating* (Tested at 23 °C, 50% R.H.)                                      | Typical Properties |
|---|--------------------|
| Segment modulus, 2.5% strain, MPa   | 35                 |
| Elongation, %   | 60                 |
| Tensile strength, MPa   | 12                 |
| Degree of Cure (UV dose at 95% of Ultimate Secant Modulus, J•cm <sup>-2</sup> ) | 0.4                |
| Dynamic water sensitivity (150 µm films)  |                    |
| -- weight change, %   | 2.0                |
| -- extractables, %  | 1.0                |
| Refractive Index  | 1.540              |

| Cured Coating* (continued) (Tested at 23 °C, 50% R.H.)                       | Typical Properties |
|--|--------------------|
| Hydrogen generation (24 hrs, 80 °C in air, 75 µm films, µl•g <sup>-1</sup> ) | 0.2                |
| Volumetric coefficient of expansion (DMA), 500 µm films                      |                    |
| -- in the glassy region (x10 <sup>-6</sup> ), °C <sup>-1</sup>               | 50                 |
| -- in the rubbery region (x10 <sup>-6</sup> ), °C <sup>-1</sup>              | 180                |
| Adhesion to glass, per 25mm  |                    |
| -- 50% R.H. (Nx10 <sup>-2</sup> )  | 50                 |
| -- 95% R.H. (Nx10 <sup>-2</sup> )  | 5                  |
| Aging after 8 weeks  |                    |
| Thermal weight change, %   |                    |
| -- at 95 °C  | 1                  |
| -- at 125 °C   | 6                  |

\*75 µm films cured in nitrogen at 1.0 J•cm<sup>-2</sup> using one D lamp, unless stated otherwise. UV dose determined with an IL-390 radiometer manufactured by International Light, Inc.

\*\*Dynamic Mechanical Analysis (see DMA graph)



## Test Methods

Test methods available upon request.

## Filtration

DeSolite® Optical Fiber Coatings are manufactured using fine filtration techniques designed to minimize particulate matter and to ensure high strength and uniform product performance.

## Storage Conditions

Protect DeSolite® coatings from all sources of ultraviolet light, including sunlight and fluorescent light, to prevent premature curing. It is recommended that DeSolite® coatings be stored in a dry place in unopened, undamaged, original containers at temperatures between 15°C and 30°C. Storage or shipment in cold conditions may result in a phase separation which is reversible and is corrected by heating for 24 hours at 50°C. If possible, the container should be gently rolled to assure uniform dissolution during this heating process.

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## Shelf Life

DeSolite® 3471-3-14 has a recommended shelf life of 18 months from the date of manufacture, provided that the above stated storage conditions are properly maintained.

## Safety Information

This product is formulated with multifunctional acrylates which may cause skin and eye irritation and/or skin sensitization. Safety data sheets for each product are available from your Covestro sales representative. All safety and handling recommendations should be followed carefully.

## Conversions

$$\begin{aligned} N &= g \cdot f \times 9.807 \times 10^{-3} & \text{kg} \cdot \text{mm}^{-2} &= \text{MPa} \times 0.102 \\ \text{psi} &= \text{MPa} \times 145 & \text{mPa} \cdot \text{s} &= \text{cps} \end{aligned}$$

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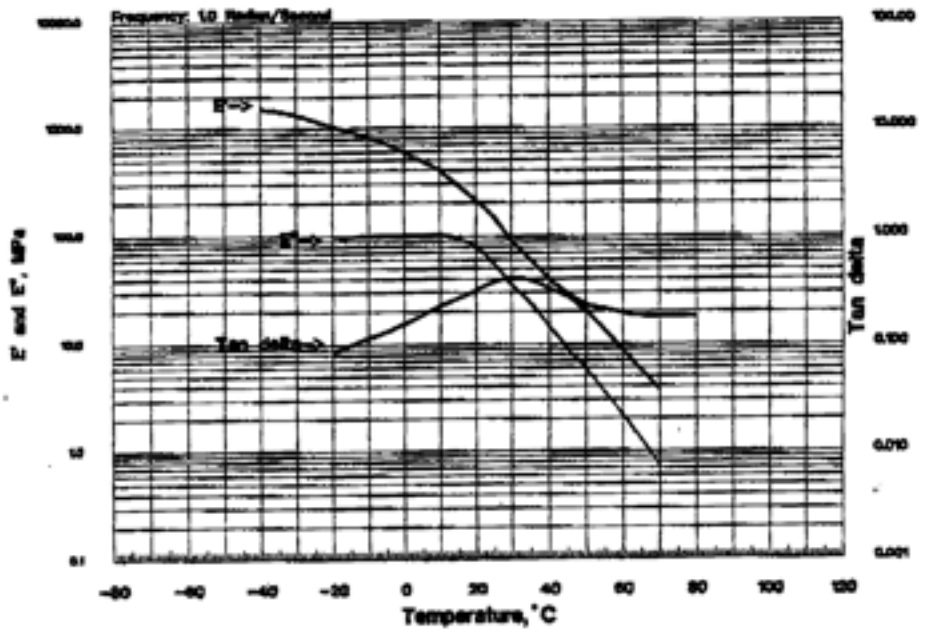
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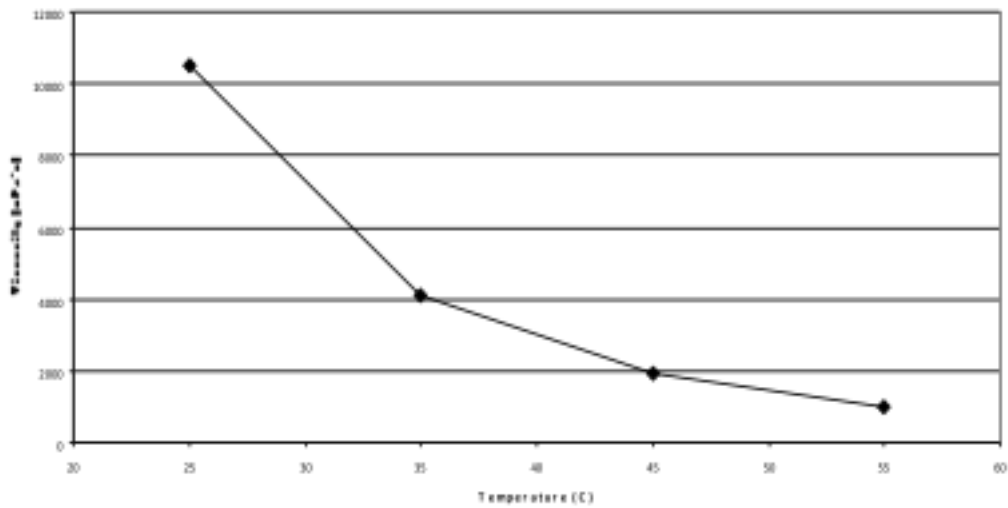
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Dynamic Mechanical Analysis (DMA)

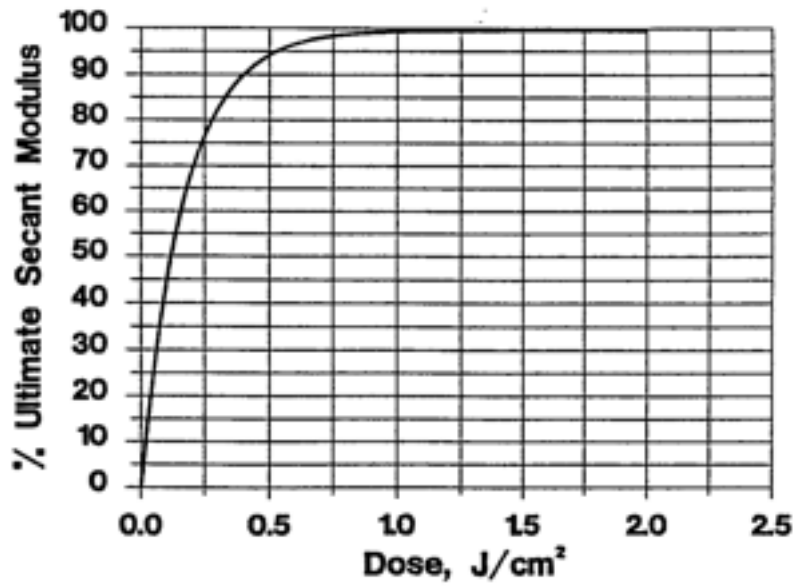


Viscosity vs. Temperature





### Cure Speed



### Accelerated Aging

