DeSolite®
Optical Fiber Coatings

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^{-3}	1110
Liquid Refractive Index, 23°C	1.500
Surface tension, 23°C, dynes•cm^{-1}	25

Cured Coating* (Tested at <1% R.H.)	Typical Properties
Glass Transition Range (DMA**), °C at E'$_{1000\ MPa}$	-18
Glass Transition Range (DMA**), °C at E'$_{100\ MPa}$	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-2)	0.4
Dynamic water sensitivity (150 µm films) -- weight change, % -- extractables, %	 2.0 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-1)	0.2
Volumetric coefficient of expansion (DMA), 500 µm films -- in the glassy region (x10^{-6}), °C^{-1} -- in the rubbery region (x10^{-6}), °C^{-1}	 50 180
Adhesion to glass, per 25mm -- 50% R.H. (Nx10^{-2}) -- 95% R.H. (Nx10^{-2})	 50 5
Aging after 8 weeks Thermal weight change, %, -- at 95°C -- at 125°C	 1 6

*75 µm films cured in nitrogen at 1.0 J•cm^{-2} 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)

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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.

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

$N = g \cdot f \times 9.807 \times 10^{-3}$ $kg \cdot mm^{-2} = MPa \times 0.102$

$psi = MPa \times 145$ $mPa \cdot s = cps$

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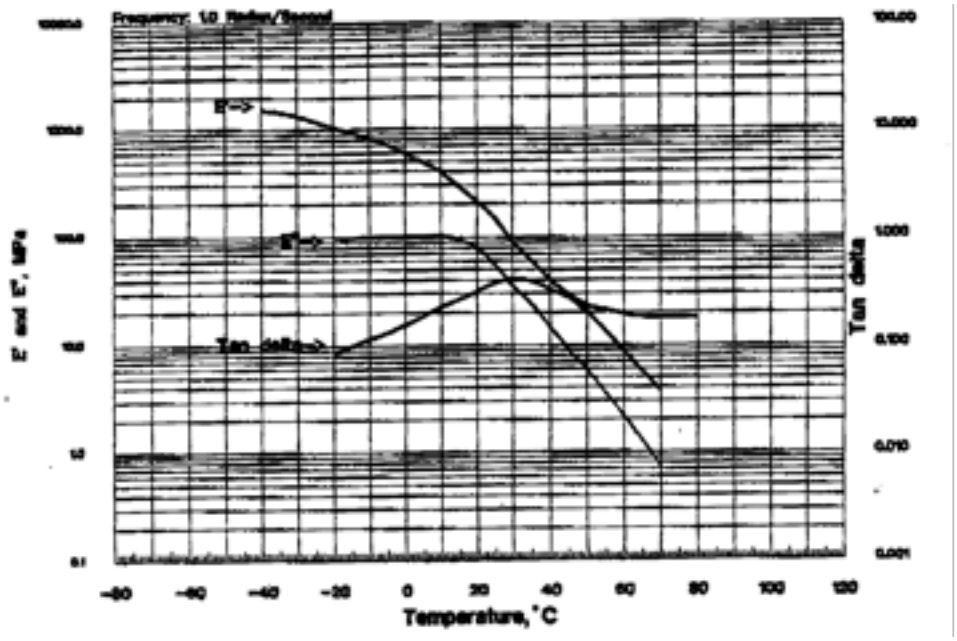
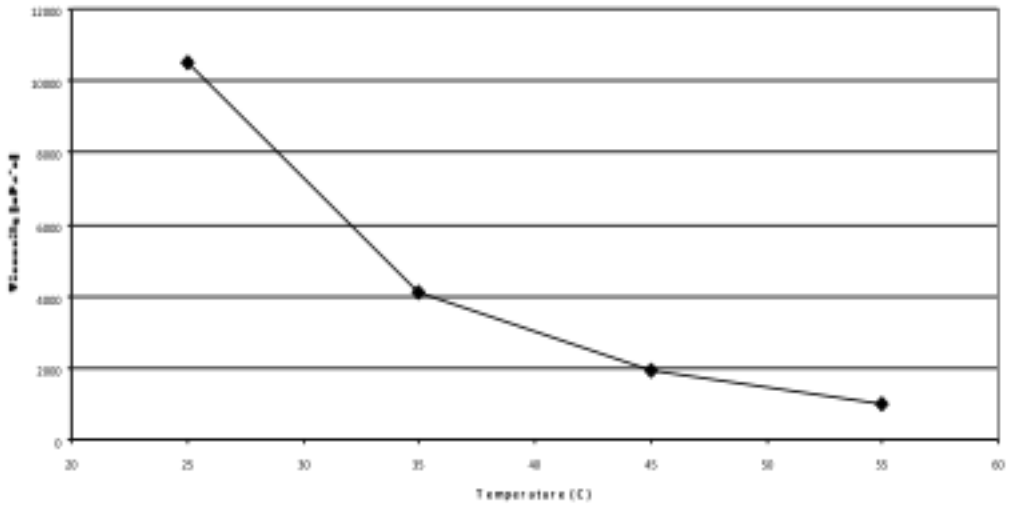
UPDATED 21-March-2022

DeSolite® 3471-3-14

Dynamic Mechanical Analysis (DMA)

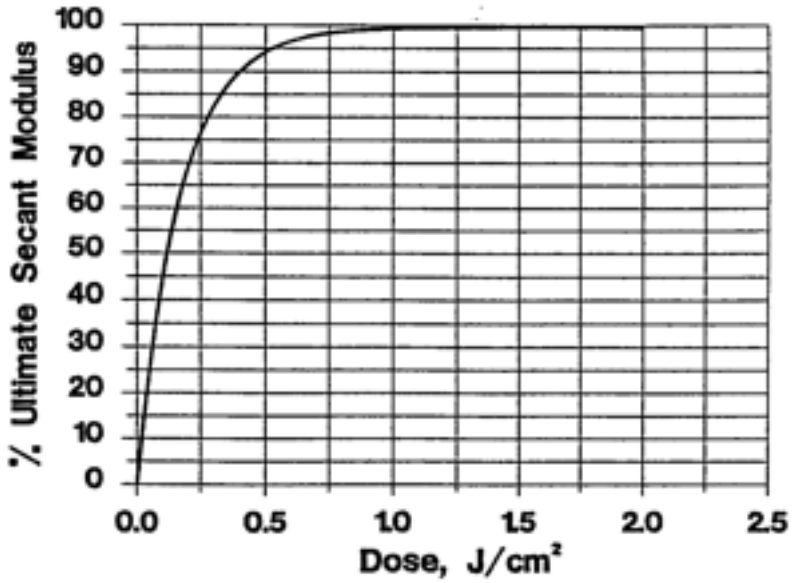


Viscosity vs. Temperature



DeSolite® 3471-3-14

Cure Speed



Accelerated Aging