

Product Data

DeSolite® DP-1004

Product Description

Primary coating for glass optical fiber.

Characteristics

Liquid Coating	Typical Properties
Viscosity, -- at 25°C, mPa·s	4300
-- at 35°C, mPa·s	1900
Density, 23°C, kg·m ⁻³	1038
Liquid Refractive Index, 22°C	1.485
Surface tension, 23°C, dynes·cm ⁻¹	34

Cured Coating* (Tested at <1% R.H.)	Typical Properties
Glass Transition Range (DMA**), °C at E' 1000 MPa	-49
Glass Transition Range (DMA**), °C at E' 100 MPa	-36

Cured Coating* (Tested at 23°C, 50% R.H.)	Typical Properties
Segment modulus, 2.5% strain, MPa	1.3
Elongation, %	130
Tensile strength, MPa	0.8
Degree of Cure (UV dose at 95% of Ultimate Secant Modulus, J·cm ⁻²)	0.3
Dynamic water sensitivity (150 µm films)	
-- peak absorption, %	2.2
-- extractables, %	0.6
Refractive index	1.497

Product Benefits

- Excellent processing
- Good n-values
- Fast cure
- Wet-on-wet or wet-on-dry
- Patent-protected

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)	0.4
Coefficient of expansion (TMA), 500 µm films	
-- in the glassy region (x10 ⁻⁶), °C ⁻¹	165
-- in the rubbery region (x10 ⁻⁶), °C ⁻¹	680
Adhesion to glass, per 25mm	
-- 50% R.H. (Nx10 ⁻²)	50
-- 95% R.H. (Nx10 ⁻²)	30

*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)

Updated: 3/07

Test Methods

DSM Desotech's booklet titled, "Test Methods for DeSolite® UV Curable Fiber Optic Materials" should be referenced for abstracts of test methods used to establish the data presented herein. Detailed test methods may be obtained through your Desotech sales representative.

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® DP-1004 has a recommended shelf life of 12 months from the date of manufacture, provided that the above stated storage conditions are properly maintained.

Safety Information

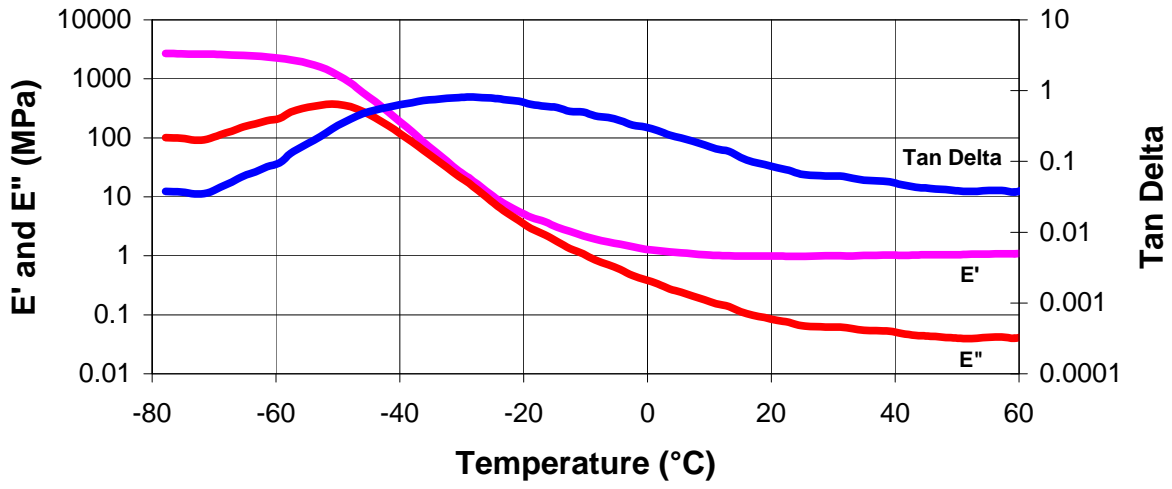
This product is formulated with multifunctional acrylates which may cause skin and eye irritation and/or skin sensitization. DSM Desotech makes available a booklet titled, "Safe Handling of UV-Curable Materials" which describes the proper use of its UV-curable products. This booklet may also be found online at www.dsmdesotech.com. Material safety data sheets for each product are also available from your DSM Desotech sales representative. All safety and handling recommendations should be followed carefully.

Conversions

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

DeSolite[®] DP-1004

Dynamic Mechanical Analysis (DMA)



Viscosity vs. Temperature

