

Polymer Systems Technology Limited

UK & Ireland Distributor



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Unit 2. Network 4. Cressex Business Park,
Lincoln Road, High Wycombe, Bucks. HP12 3RF
Phone +44 (0) 1494 446610
Fax: +44 (0) 1494 528611
Web: <http://www.siliconepolymers.co.uk>
Email: sales@silicone-polymers.co.uk



LS-5257-10 PRELIMINARY DATA

Optical Fluid

Product Profile



NuSil Technology
Lightspan Applications Laboratory
14 Kendrick Road, Unit #2
Wareham, MA 02571
508/295-9110
508/295-9248 Fax
info@light-span.com Email
www.light-span.com

Description

- Chemically inert, optical grade fluid
- Optically clear, visible to NIR
- Low volatility
- 1.57 refractive index

Applications

- For sensitive optical assemblies
- Ionizing radiation
- Intense infrared illumination
- Resistance to extremely high temperatures
- Wafer level optical metrology
- Step index matching to semiconductors
- Coolant/optical fluid for high power laser optics
- High index microscope contact fluid
- Gap coupling between prisms and gratings
- Thermo-optic microchannel waveguides
- Thermally compensated fluid lenses
- Projection display components

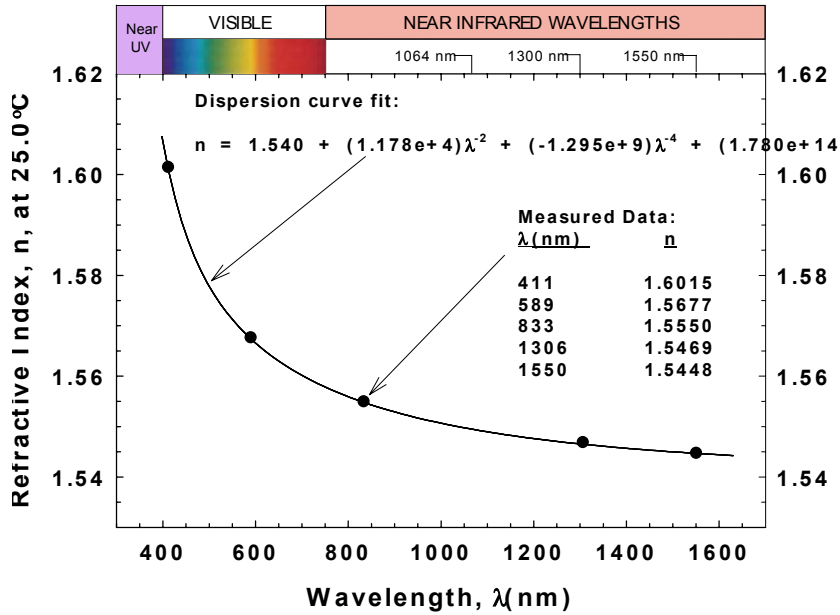
Typical Properties	Result	Metric Conv.	ASTM	NT-TM
Viscosity	1,400 cP	1,400 mPas	D1084	001
Surface Tension	30-35 dyne/cm	-	-	-
Specific Gravity	1.14	-	D1217	003
Pour Point	-20°C	-	D97	-
Thermal Expansion by Volume	5×10^{-4} cc/cc/°C	-	-	-
Evaporation Rate	0.1%	-	D972	-
TGA Take-off (1% weight loss, 10°C/min. in air)	300°C	-	-	-
Appearance	Clear	-	D2090	002
Ionics (Na, K, Ag, Cu, S, Cl)	<10 ppm, each	-	-	-
Volume Resistivity	$>10^{15}$ ohm-cm	-	D257	040
Refractive Index, 589 nm	1.57	-	D1218	018
Refractive Index vs. Temperature, 589 nm	-4.2×10^{-4} / °C	-	D1218	018
Refractive Index vs. Wavelength	See Chart	-	-	-
Optical Absorption	See Chart	-	-	-
Particle Contamination	Level 25, MIL-STD-1246C	-	-	-
Operating Temperature Range	-40 to 482°F	-40 to 250°C	-	-

Form number

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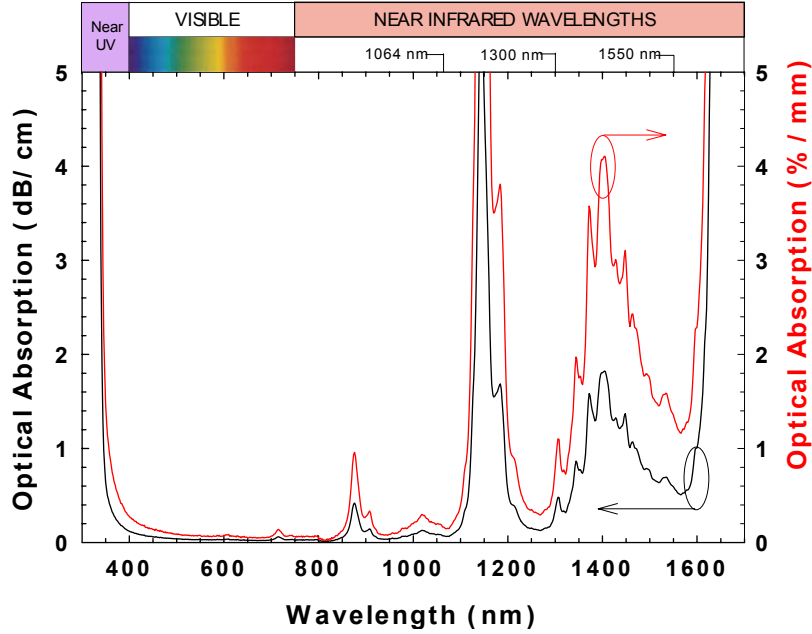
Refractive Index vs. Wavelength (25°C)

Lightspan Optical Fluid
LS-5257-10 Lot# 20919-0313



Optical Absorption vs. Wavelength

Lightspan Optical Fluid
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Instructions for Use

Deaeration

If air bubbles become trapped in the dispensed fluid volume during the dispensing process, the assembly should self-deaerate due to the product's low viscosity, as long as no pockets of air are trapped beneath mechanical parts. If accelerated deaeration is required, the assembly may be vacuum deaerated using a pressure of 635 mmHg (25 inHg) or greater. Apply the vacuum while observing the uncured fluid for presence of bubble formation and increase vacuum slowly enough to avoid rapid foaming. Hold vacuum until bubbles at the fluid surface collapse and are no longer visible.

Optical Material Compatibility

LS-5257-10 is inert and compatible with most optical plastics, glasses and semiconductors. As a rule, LS-5257-10 will not be miscible with other fluids including other Lightspan Optical Fluids. For guidance on the best choice of fluid for a particular index matching problem, for custom values of refractive index, or other technical issues, contact Lightspan Applications Laboratory.

Substrate Considerations

Substrates should be free of dust, oil and fingerprint soils. Clean substrates using suitable techniques for cleaning electro-optics. If cleaning with a hydrocarbon solvent, a final rinse with reagent grade isopropanol is recommended. If cleaning with an aqueous detergent, multiple final rinses with de-ionized water or a single rinse with reagent grade isopropanol is recommended. Always use suitable lint-free wipes when cleaning sensitive optical substrates, lenses, cover glasses, coatings, and other optical materials.

Clean-Up

Remove LS-5257-10 from surfaces by first wiping off excess fluid with a suitable dry lint-free wipe and then wiping down the surface with a lint-free wipe soaked with acetone. If the surface material is incompatible with acetone (it softens or cracks some plastics), use isopropanol. If acetone residues are undesirable, complete the clean-up process with a final rinse with reagent grade isopropanol. The user is responsible for compliance with all applicable regulations governing disposal of waste materials as indicated in the MSDS.

Warnings About Product Safety

NuSil Technology believes that the information and data contained herein is accurate and reliable. However, the user is responsible to determine the material's suitability and safety of use. NuSil Technology cannot know each application's specific requirements and hereby notifies the user that it has not tested or determined this material's suitability or safety for use in any application. The user is responsible to adequately test and determine the safety and suitability for their application and NuSil Technology makes no warranty concerning fitness for any use or purpose. NuSil Technology has completed no testing to establish safety of use in any medical application.

NuSil Technology has tested this material only to determine if the product meets the applicable specifications. (Please contact NuSil Technology for assistance and recommendations when establishing specifications.) When considering the use of NuSil Technology products in a particular application, review the latest Material Safety Data Sheets and contact NuSil Technology with any questions about product safety information.

Do not use any chemical in a food, drug, cosmetic, or medical application or process until having determined the safety and legality of the use. The user is responsible to meet the requirements of the U.S. Food and Drug Administration (FDA) and any other regulatory agencies. Before handling any other materials mentioned in the text, obtain available product safety information and take the necessary steps to ensure safety of use.

Specifications

Do not use the typical properties shown in this technical profile as a basis for preparing specifications. Please contact NuSil Technology for assistance and recommendations in establishing particular specifications.

Patent Warning

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Packaging

30cc Bottle
480cc Bottle

Warranty

3 Months

Warranty Information

NuSil Technology's warranty period is 3 months from the date of shipment when stored below 40°C in original unopened containers. Unless NuSil Technology provides a specific written warranty of fitness for a particular use, NuSil Technology's sole warranty is that the product will meet NuSil Technology's then current specification. NuSil Technology specifically disclaims any other expressed or implied warranty, including warranties of merchantability and fitness for use. The exclusive remedy and NuSil Technology's sole liability for breach of warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. NuSil Technology expressly disclaims any liability for incidental or consequential damages.