



Manufacturer:
ÅngströmLink™

Product Name:
ÅngströmLink™ AL-2264 High Refractive Index Optical Coating (100ml Bottle)

Manufacturer Part Number:
AL-2264-100CC



▶ [Click here for more details on the ÅngströmLink™ AL-2264 High Refractive Index Optical Coating \(100ml Bottle\)](#)

ÅngströmLink™ Optical Polymers AL-2264 High Refractive Index Optical Coating for Photonic Applications

ÅngströmLink™ Key Features

- 1.64 refractive index
- No Metals or Nanoparticles
- No High Temperature Processing
- Chemically Resistant

ÅngströmLink AL-2264 is a high purity, transparent polymer coating designed specifically for coating of optical and photonic components. The product is a polymer suspended in an evaporative solvent; evaporation of the solvent leaves behind the amorphous coating. This coating contains no metals or nanoparticles, and does not require any high temperature sintering to achieve high refractive index. The coating may be applied by dip coating, draw down, printing, or casting on a substrate. The refractive index of the dried coating layer is 1.64.

AL-2264 comes in one standard concentration which can be diluted to achieve lower viscosities/thinner coating layers. ALS-2264 (the AL-2264 solvent, sold separately) may be used to dilute the standard concentration of AL-2264. Typical coating thicknesses range from sub-micron to tens of microns.

Maximum operating temperature is 115°C. AL-2264 is packaged in UV protected bottles; standard amount is 100ml.

Applications

- Hard, high refractive index (1.64) coatings
- Optically clear barrier film, chemically resistant
- Emissive displays
- Optical sensors
- Integrated optical circuits
- LEDs and photo detecting devices

Benefits

- High refractive index
Enables light gathering/emitting
- Liquid form
Allows easy application by casting, dip-coating, spray-coating or various ink-printing processes
- Slow solvent evaporation rate
Improves concentration stability of open coating baths
- High solvent boiling point (~160°C)
Eliminates cratering and pinholes in finished coating

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Contact the professionals at Fiber Optic Center for a quote or to get more details.

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Property (at 25°C unless noted)	Test Method	Typical Value
Deposition Processing Characteristics		
Standard Coating Viscosity 165-170 cst		165-170 cst
Carrier Solvent Specific Gravity 0.94		0.94
Carrier Solvent Boiling Point ~160 °C		~160 °C
Percent Solids 20%		20%
Maximum Particle Size 0.5 μ		0.5 μ
Dried Mechanical Properties		
Tensile Strength	ASTM D-1708	77 MPa
Flexural Modulus	ASTM D-1708 2620 MPa	2620 MPa
Flexural Strength	ASTM D-1708 120 MPa	120 MPa
Specific Gravity	ASTM D-1217	1.22
Pencil Hardness		F
Max temp.		115°C
Water Absorption		0.21%
Dried Thermal Properties		
Glass Transition	DSC 132°C	132°C
Linear Thermal Expansion	TMA 7 x	7 x 10 ⁻⁵ /°C, est.
Dried Optical Properties		
Appearance	visual	Optically clear
Refractive Index, 589 nm	ASTM D-1218	1.64 (chart)
Refractive Index vs. Temperature	prism coupler	(chart)
Refractive Index vs. Wavelength	spectrophotometer	(chart)

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Substrate Compatibility and Preparation

The solvents in AL-2264 have some ability to dissolve some plastics. If working with a plastic substrate it is recommended to check the compatibility of these solvents with the plastic being used (refer to tables of solvent/plastic compatibility), or plan on verifying this compatibility with your own experiments. Refer to the SDSs for AL-2264 or ALS-2264 for specifics on the chemicals involved.

Substrates should be free of dust, oil, and fingerprint soils. Clean substrates using suitable techniques for cleaning optics. If hydrocarbon solvent cleaning is used, a final rinse with reagent grade isopropanol is recommended. If aqueous detergent cleaning is used, multiple final rinses with de-ionized water or a single rinse with reagent grade isopropanol is recommended.

Deposition Processing

AL-2264 is filtered prior to packaging, to a maximum particle size of 0.5 μ . AL-2264 may be applied to a substrate by casting, spin-coating, dip-coating, draw down, spray-coating, or various ink-printing processes. The coating can be dried by baking at 100°C for 15 minutes. Higher temperatures are not recommended for reasons of softening the polymer coating and boiling of the solvent, which can cause pin holes and craters in the finished coating. Complete removal of the carrier solvent is essential to achieve the final material properties indicated in the material properties table.

The standard polymer concentration gives a layer thickness of 1 to 5 μ using a draw down technique. Dip coating gives a ~10 - 30 μ coating thickness. If thicker coating layers are desired they should be made by applying multiple layers of AL-2264. For deposition processes using multiple coats it may be desirable to use a post processing annealing step, cycling the temperature slowly to ~130°C and then back down, in order to remove interlayer stresses and prevent the formation of fracture lines. For thinner layers see the section on SOLVENT DILUTION. For processing purposes, keep in mind that solvent removal (drying of the coating) from thin layers will happen much quicker than thicker layers.

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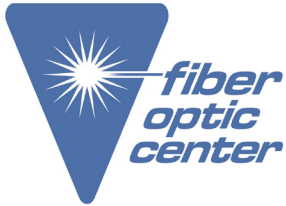


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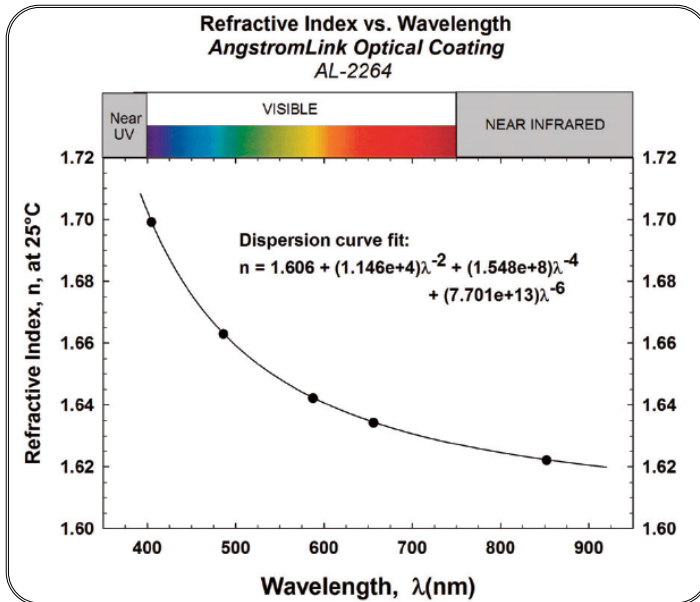
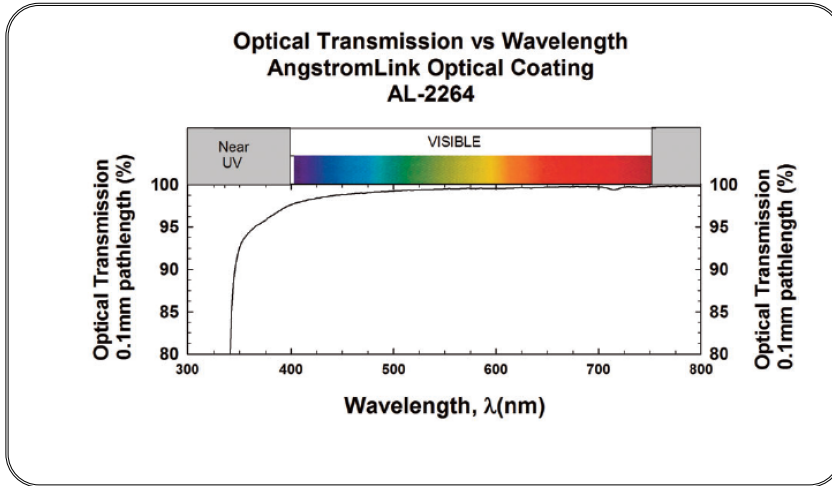
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Solvent Dilution or Concentration

The standard concentration of AL-2264 is 20%, which is near the upper concentration limit for this solvent/solute system. In the event that the user requires a more dilute concentration, Fiber Optic Center offers the solvent, ALS-2264, separately. It is easy to dilute, by weight, and maintain track of the % concentration of solute. Depending on the coating method, one can adjust the AL-2264 concentration to repeatedly achieve the final coating thickness desired with a single coating application.

Concentration of the original AL-2264 solution for thicker layer thicknesses is not recommended. If thicker coating layers are desired, application of multiple layers of AL-2264 is recommended.

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Cleanup

Wet or partially dried portions of AL-2264 may be removed from surfaces by first wiping off excess material with a suitable link-free paper or cloth wipe and then using a wipe soaked with a suitable reagent grade solvent – acetone, toluene, MEK. Fiber Optic Center offers ÅngströmLink ALS-2264, the solvent system for AL-2264, also for this purpose. Dried AL-2264 coatings can be removed using toluene, MEK or ALS-2264. Use a suitable soaked wipe and allow time for the solvent to dissolve the coating. The user is responsible for compliance with all applicable local, state, and federal regulations governing disposal of waste materials as indicated in the SDS.

Packaging

AL-2264 comes in UV protected bottles. The standard size is 100ml, but other size options, i.e. 50ml, 200ml and 500ml, are available upon request.

Shelf Life and Storage

AL-2264 is an inert composition with no intrinsic shelf life limitations. Due to the evaporative solvent, the bottle must be tightly sealed at all times. It should also be stored away from light at typical room temperature, and not be contaminated with other fluids, or particles of dust or dirt.

Specifications

The typical properties quoted on this product data sheet should not be used as a basis for preparation of product specifications. Consult Fiber Optic Center for assistance with establishing specification limits and test conditions.

Warranty

AL-2264 is sold without warranty, express or implied. Fiber Optic Center expressly disclaims any liability for incidental or consequential damages resulting from use of this product.

Safety

Consult the Safety Data Sheet (SDS) for AL-2264 before use. AL-2264 is an industrial product, designed for use only by qualified laboratory or production personnel.

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For Special Quotes and Technical Consultations Please Contact:
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