

TECHNICAL DATA SHEET  
LPCVD LOW PRESSURE  
CHEMICAL VAPOR DEPOSITION



### PRODUCT DESCRIPTION

Deposition Sciences' exclusive *IsoDyn*<sup>™</sup> low pressure chemical vapor deposition (LPCVD) coating technology is a thermally driven organo-metallic process that is configured to deposit single layers of aluminum oxide and multi-layers of silicon dioxide and tantalum pentoxide. LPCVD is a high-temperature process (475°C) that provides extremely conformal and seamless coatings on a wide variety of substrates including glass, ceramics, and metals.

The unique aspect of the LPCVD process is its capability to uniformly coat all surfaces, even the most complex shapes, with a high quality multi-layer optical coating. Deposition Sciences' *IsoDyn*<sup>™</sup> ultra-durable optical coatings also feature laser damage threshold (LDT) levels as high as 25 MW/cm<sup>2</sup>. These are ideal for use in laser and other high-energy systems such as gas, diode and diode-pumped solid-state (DPSS) systems.

### APPLICATIONS

Deposition Sciences *IsoDyn*<sup>™</sup> coatings are used in a multitude of industries. Applications that require high durability, seamless and conformal deposition on highly curved surfaces are supported utilizing our LPCVD process.

- Telecom
- Medical Devices
- Imaging Systems
- Laser Systems
- Wafer Level Testing
- Complex Geometries
- Curved Surfaces
- Barrier Coatings
- Domes

### FEATURES & BENEFITS

Spheres, Tubes, Fibers, Domes:

- Multi-layer coating capability provides broad band AR coatings (e.g. 1310/1550 dual band). Dual band coatings allow one lens to be used for either wavelength, reducing lens inventories.
- Wide choice of lens materials which allows maximum freedom of optical design and minimizes cost.
- Hard, scratch resistant coatings (passes 20 eraser rub).
- Coating deposited on entire surface.
- Orientation of spherical lenses in your device is not required (uniform coating over the lens surface), reducing device assembly costs.



ISO 9001:2015 Certified  
ITAR Registered and Compliant

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#### STANDARD SPECIFICATIONS

- Optical: Single wavelength coating insertion loss < 0.022dB (T > 99.5%) at wavelength of interest.
- Dual wavelength coating insertion loss < 0.044 dB (T > 99%) at wavelengths of interest.
- Spectral range 0.35 – 5 microns

#### ENVIRONMENTAL TESTING

Environmental Testing can be performed in accordance with various military specifications, including MIL-C-48497 and MIL-F-48616.

- Humidity
- Salt Fog
- Abrasion
- Temperature Cycle
- Adhesion
- Solubility
- Cleanability

#### COATING MATERIALS

- Ta<sub>2</sub>O<sub>5</sub>
- SiO<sub>2</sub>
- Al<sub>2</sub>O<sub>3</sub>

#### COMMON COATED OPTICS

- Indices from 1.44 to 2.15 at 1550 nm
- Optical Materials – ceramics, sapphire, fused silica, glass, cubic zirconia, metals.
- Geometries up to ø8.5" x 24"
- Sphere diameters from 0.2mm to 10mm+
- Fiber diameters from 0.08mm to 1.0mm+
- Many grades of lenses available to fit your budget or technical needs.

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