

Fraunhofer Institute for Applied Optics and Precision Engineering IOF

Antireflection coatings with antifogging properties

Multiple functions for optical surfaces



Antireflection coatings with antifogging properties

Multiple functions for optical surfaces

Nowadays there is a great demand for combined antireflective (AR) and antifogging (AF) properties, e.g. for LiDAR-systems. Nanostructured layers can generate an AR effect from the VIS to NIR spectral range. Hydrophilic nanostructures can be produced using the AR-plas[®] / AR-plas2 technologies. The coatings can be realized cost-effectively in a commercial PVD coating chamber.

Patents

US9039906B2, EP3011370B1,

US20220363915A1

Our solution

- Super hydrophilic SiO₂-double-structures provide excellent AF-properties on glasses and all kind of other substrates.
- For plastics, the first structure can be etched directly into the polymer.
- Water-absorbing polymers are particularly advantageous for the first structured layer.

Our offer

- Optimization of design and functionality for your application
- Sample coating and small specialized production
- Transfer and licensing



Super hydrophilic SiO₂-double-structure on glass



AR-plas2 on glass: broadband AR measured at 0°, 45° and 60° angle of incidence.

Cover: Antireflective-antifog coating based on nanostructuring. Microscope image of (A) small water droplets caused by fogging and (B) no fogging

Top: Wetting properties of a glasssubstrate with AR-AF-structure (A) and without functionalization (B)

Contact

Department Functional Surfaces and Coatings

Head of Department Dr. Sven Schröder

Scientific Group Coating of Plastic Optics Dr. Astrid Bingel Phone +49 3641 807-279 astrid.bingel@iof.fraunhofer.de

Fraunhofer IOF Albert-Einstein-Strasse 7 07745 Jena Germany www.iof.fraunhofer.de



