International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Balapur P.O., Hyderabad – 500005, Telangana, India

Dual Functional (Anti-Reflective & Anti-Fogging) Coatings for Solar, Optical & Other Applications

Overview

Dual Functional (Anti-Reflective & Anti-Fogging) coatings are important for transparent materials. Anti-fogging and Antireflective coatings are now often used on transparent glass or plastic surfaces used in optical applications, such as the lenses and mirrors found in glasses, goggles, camera lenses, and binoculars. These functional coatings attracted a great attention. Dual functional coating (Antireflective with Anti-fogging properties) with high optical transmittance (> 96% on glass; >94% on optical lens), and high weather stability (> 100 h Environmental chamber test) has been successfully developed. It exhibits high super hydrophilic property < 5° or any other type of devices that require minimal reflection.

Key Features

- High transmittance (>95 %)
- Low temperature curable (<100 °C)
- Weather stable (withstands humidity > 90 %)
- Highly mechanical stable and Long durability
- Highly Super-hydrophilic (Contact Angle < 5°)

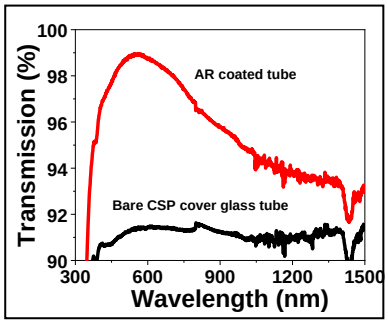
Potential Applications

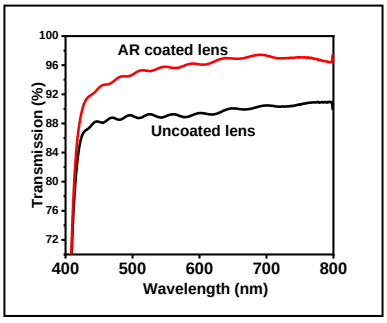
- Solar PV & CSP cover glass
- Optical lenses
- Video display panels
- Architectural glasses
- Automobile window shields

Major Patents/Publications

Indian patent application no. 2919/DEL/2013, date of filling: 3.10.2013.

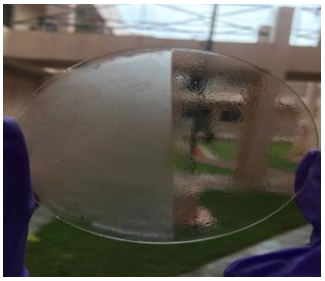
Optical transmittance of coatings on glass tube & optical lens





Antifogging coated mirror

Antifogging coated lens



Prototype Receiver Design and 1 m AR coated CSP cover glass tube

IPDI*	1	2	3	4	5	6	7	8	9	10
Activities	*Basic concepts and understanding ofunderlying scientific principles*	*Short listing possible applications*	*Research to prove technical feasibility for targeted application*	*Coupon level testing in stimulated conditions*	*Check repeatability/ consistency at coupon level*	*Prototype testing in real-life conditions*	*Check repeatability/ consistency at prototype level*	*Reassessing feasibility (IP, competition technology, commercial)*	*Initiate technology transfer*	*Support in stabilizing production*
Status										

IPDI: Intellectual Property Development Indices

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