

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

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



Solar Control Coatings on Glass

Overview

Sun control films have been banned from usage in the automobile windows and windscreens since May 2012. Due to this, especially the interiors of the automobiles get very much heated up during summer because of which, the load on the air conditioners increases. Increased fuel consumption is an additional indirect effect. The same is in case of buildings that use large glass sheets as windows. Sol-gel derived fully dielectric solar control coatings that are transparent (> 70% Visible light transmittance) and have UV and NIR blocking capacities can be applied on automotive and architectural glasses to decrease the load of air conditioners inside the automotive and the buildings. A simple and cost-effective process that can generate fully dielectric solar control coatings and possessing sufficient scratch resistance has been developed.

Key Features

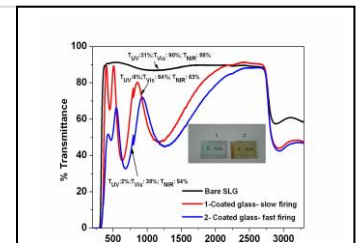
- Visible light transmission -35-65% vis-a-vis 90% for bare glass
- UV transmittance - 2% vis-a-vis 30% for bare glass
- NIR transmittance - 55% vis-a-vis 85% for bare glass

Potential Applications

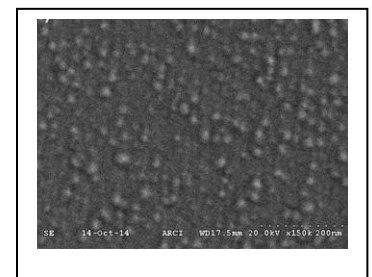
- Architectural window glass
- Automobile side window glass/windshields

Intellectual Property Development Indices (IPDI)

- Performance and stability are validated at laboratory scale
- Proof of concept successfully completed and scale-up can be demonstrated based on the market demand



Transmittance spectra of fully dielectric solar control coating heat treated under different conditions



SEM image of solar control coating

Status	1	2	3	4	5	6	7	8	9	10
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Major Patents / Publications

1. An improved process to make coating compositions for transparent, UV blocking coatings on glass and a process of coating the same, Indian patent application number 1152/DEL/2014 dtd 29-04-14
2. S. Manasa, R. Subasri, Effect of heat treatment on the optical properties of sol-gel derived, fully dielectric solar control coatings on glass, J. Coatings Technology and Research 13 (2016) 623-628.

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