



The Chinese University of Hong Kong

Non-confidential Abstract of Technology Disclosure

Title:

Preparation and Application of Self-Cleaning, Antibacterial, and Photocatalytic Nanocrystalline TiO₂ Thin Film Coatings on Glass

CUHK Ref. No.:

02/SCI/123

Inventor(s):

Professor Jimmy YU, Department of Chemistry

Patent Status:

- ◆ Chinese Patent no. ZL03100058.4
- ◆ HK Standard Patent no. HK1063620

Non-confidential abstract:

Glass has been widely used in modern construction industry. It is used as material not only for constituting common windows and doors as well as French windows, but also for constituting walls of buildings such as housings, offices, shopping malls and hospitals. Glass is also an important media that people communicate with the Nature and with which people can view beauty of the Nature, and enjoy the sunlight under a desired and comfortable environment.

It has been known that TiO₂ thin films on substrates prepared by suitable processes have anti-bacterial and anti-virus activities. Therefore, it is desired that an optically transparent TiO₂ thin film having anti-bacterial and anti-virus activities is formed on the surface of glass used in the buildings mentioned above. It is more preferable if the thin film on glass can not only freshen air of the environment by decomposing organic pollutants existing in the environment but also kill germina and bacteria on contact attached to the glass (clean the glass itself), in view of more and more serious pollution of the environment. Meanwhile, the thin film does not reduce the transparency of the glass and visible light ray irradiation in the sunlight any more. This would greatly improve the environment of human livings.

A reverse micelle method has been developed to coat a transparent nanocrystalline titanium dioxide thin film on glass. A uniform thin film is obtained by dip coating the glass in the micelle solution. The coated glass exhibits self-cleaning, antibacterial, and photocatalytic properties.

Applications: Curtain Wall in Commercial Buildings, Shopping Mall; Automotive Glass, Indoor/Outdoor Decoration, etc.

Advantages: Long-lasting effect; Low Setup/Production Cost; Simple Manufacturing Procedures

For further queries, please contact:

Mr Billy Lam
Technology Licensing Coordinator
Tel: (852) 2609 8882
Fax: (852) 2603 5451
Email: billylam@cuhk.edu.hk

Address:
Technology Licensing Office
The Chinese University of Hong Kong
Room 226, Pi Ch'iu Bldg, Shatin, New Territories
Hong Kong SAR