STANDARDIZATION IN PHOTOCATALYSIS: A TOOL FOR DISSEMINATION OF NEW FUNCTIONAL MATERIALS

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Abstract

During the last two decades, photocatalysis based on semiconductor titanium dioxide (TiO2) has been sought for environmental uses. New applications include passive air purification, antibacterial and self-cleaning in the environment. Although there were few competing technologies for these functions, photocatalytic materials were not able to expand their market. The biggest reason may be that we cannot see the effects immediately. We started standardization of the test methods ten years ago, for promoting the development of more efficient materials, for removing fake materials and eventually for protecting consumers. The domestic committee consists of leading members from academy, industry and users. International standardization was discussed at ISO/TC 206 (Fine Ceramics), because TiO2 is a typical ceramic material and there was no TC for photocatalysis. To date 11 Japanese Industrial Standards (JIS) have been enacted and 8 ISO standards have been published. Based on the standards, the Photocatalysis Industry Association of Japan (PIAJ), the manufacturer’s association, sets the performance criteria for practical products, as well as the certification and labelling systems. Owing to these efforts, the sales of photocatalytic products are gradually increasing in Japan. PIAJ even starts to talk with similar associations in China, Korea and Taiwan for future unification of the systems, to facilitate international trade of such products. Now the standardization activity shifts towards the test methods for photocatalysis under visible light. Besides, photocatalysis uses nanoparticles whose toxicology has been of great concern. Recent topics including these will be reported at the conference.

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