

Preparation of Graphene/TiO₂/Ag Nanocomposite Aerogel and Its Application for Gas-Phase Photodegradation of Volatile Pollutants

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Graphene aerogel is attracting increasing attention due to its 3D porous structure, high surface area and its excellent electrical, mechanical and thermodynamic properties. On the other hand, TiO₂ displaying unique optical and electronic properties, biocompatibility, chemical stability, has been widely employed in the area of sustainable energy and environmental remediation. Here, a progressive self-assembly process is developed to prepare Graphene/TiO₂/Ag nanocomposite aerogel. GO nanosheets are first in situ deposited with TiO₂ nanoparticles, then Ag nanoparticles are decorated on the surface to improve quantum yield. The hybrid is assembled to be a bulk gel by a mild chemical reduction, followed by Sc.CO₂ drying. The as-prepared aerogels are characterized by XRD, SEM, TEM. The application of them for photocatalytic degradation of volatile pollutants such as volatile aromatic compounds under visible light has been investigated.

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