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Photocatalytic activities and chemically-bonded mechanism of SiO_2@ TiO_2 nanocomposites coated cement-based materials

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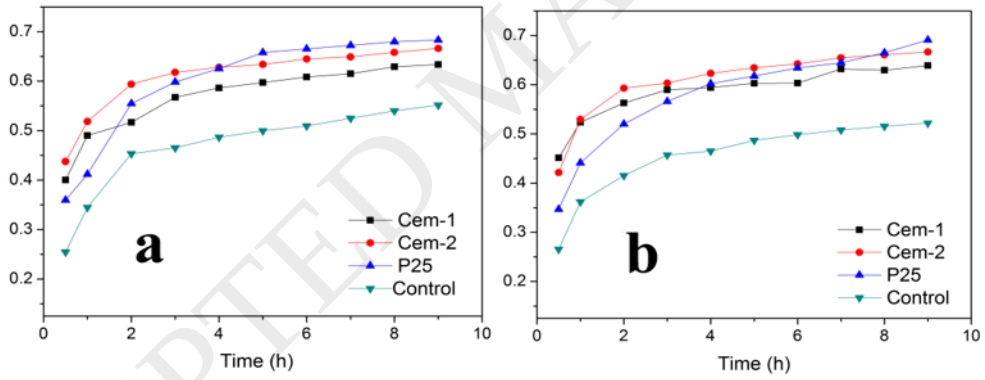
Graphical abstarct



Two SiO_2@TiO_2 core-shell nanocomposites (sample 1 and 2) were synthetized and coated cement-based materials (cem-1and cem-2) which show excellent photocatalytic activity. Reaction productions of samples and cement pastes have no negative effect on rhodamine B removal.

Highlights

● Two samples have different deposited density of TiO_2 nanoparticles on each SiO_2 nanosphere, which depend on the difference of the water dosage.

● When the curing time is 28 days, water adsorption rates of mortar-2 at 270 min have