

Cool paints prepared with modified mica using high refractive materials for energy saving

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High rates of urbanization have resulted in drastic population growth and artificial facility increases. This caused the Heat Island Effect, a phenomenon that central area temperature of city is higher than the surrounding area. Because of the Heat Island Effect, substantial amount of energy is expended to reduce interior temperature of buildings. To prevent this problem, cool paint is considered to lower energy consumption used in reducing interior temperature of building.

In this study, we proposed the modified mica with high refractive materials such as TiO_2 , ZrO_2 , ZnO , and Fe_2O_3 as thermal insulation materials. This modified mica has the high reflectivity and large plane of incidence area, so it could reflect the incident light effectively. Modified mica was prepared by impregnation of metal oxides and characterized by reflective index, SEM images to confirm the reflective ability and particle shape. The cool paints also prepared by mixing with modified mica. The painted samples were characterized by reflective index, cross-section SEM to identify the role of modified mica and insulation ability is also measured by designed equipment.