

### Effect of organic-inorganic materials composite upon thermal performance of cool paints

조진영<sup>1,2</sup>, 정국현<sup>1,3</sup>, 유중환<sup>1,\*</sup>

<sup>1</sup>한국세라믹기술원; <sup>2</sup>고려대학교; <sup>3</sup>인하대학교

(jwyoo@kicet.re.kr\*)

Many regions around the world often reach or exceed 40°C during summer. So we often expend substantial amounts of energy to reduce the interior temperature of the building, e.g. air conditioning. One way to reduce energy consumption is to employ energy-saving paints on the building's exterior.

In this paper, we have tried to improve thermal performance of cool paints, which were made by mixing paint with modified ceramic materials with organic compound and high refractive materials such as ZnO and TiO<sub>2</sub>. The high refractive materials give role of high reflectivity of infrared radiation and the organic compound floats the ceramic materials on the painted sample surface. The samples surface temperatures of our cool paints were reduced about 13~15°C compared with conventional paints at same conditions. The painted samples were characterized by reflective index, thermal image, cross-section SEM and FT-IR to explain enhancing cool paints performance.