

# Optical properties of gold alloy nanoparticles deposited on the surface of the TiO<sub>2</sub>/Mica

KANG-SUP CHUNG, HWAN LEE, YONG-JAE SUH,  
DAE-SUP KIL AND HEE-DONG JANG

Korea Institute of Geoscience and Mineral Resources,  
Daejeon, South Korea (ksc@kigam.re.kr)

Gold alloy nanoparticles(Au/Ag, Au/Cu) with variable mole ratio deposited on the TiO<sub>2</sub>/Mica(TM ; pearl pigment) powders were synthesized through chemical reduction of metal ions. The resultant metal nanoparticles having the size of ca. 10-20nm in diameter showed variable intense colors with metal amount deposited on the TM owing to absorption of surface plasmon[1] and interband transition[2,3] in the uv/visible range.

The gold alloy nanoparticle-deposited on TM powders(GAN-TM) had good dispersion and stable color in the aqueous solution or variable organic solvent for a long period of time. These physical properties of GAN-TM powders were characterized by employing various techniques such as uv-visible spectroscopy, field-emission scanning electron microscopy and x-ray photoelectron spectroscopy.

Our results could be useful in developing new pigment or catalyst utilizing noble metal nanoparticles.

## References

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