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Research Article

# Preparation and properties of novel infrared low-emissive coating of acrylic resin/flake copper composites"

**Ebtesam E. Ateia** , **M. Abd Elhay Metwaly** & **Hesham R. Tantawy**

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## ABSTRACT

Low infrared emissivity composite coatings comprised of organic binders and inorganic pigments have attract more attention due to their widespread applications as energy conservation in industry and camouflaging military equipment. The present study provides a simple and effective way to decrease the emissivity of the coating. Low emissivity coatings were synthesized by using flake copper(Cu) particles and

acrylic resin as pigments and binders, respectively. The ball milling was utilized via two different approaches. In the first approach, the ratio between Cu and balls during the

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approach is based on the change of this ratio to reach flake and high flake micro shape Cu powder. The technical parameters of high micro/nano sizes flake Cu powders are characterized by Scanning Electron Microscope(SEM) , X-Ray diffraction (XRD), Transmission electron microscopy (TEM), and Energy Dispersive X-Ray Analysis (EDX).

**Q KEYWORDS:** Charge carrier density IR emission Copper acrylic resin Grain Size Irregular size

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## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Compliance with ethical standards

Conflict of interest, the authors declare that they have no conflict of interest.

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## Additional information

### Notes on contributors

**Ebtesam E. Ateia**

**Prof. Ebtesam Ateia** Former Vice Dean for Education and students Affairs,

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faculty of science, Cairo University since 10 years. Her research work focus on Ferrites and Multiferroic materials, Polymer Blends, energy storage system, Physical properties (electrical, mechanical, magnetic, structural, optical, thermodynamics properties of solid, nano composites, Graphene science and technology. Over 90 research papers of her work published in international journals. She is an editorial Board member of Materials Science Research India, American journal of modern and physics and Advanced journal of Chemistry. She has supervised over 30 M.Sc and 25 Ph.D theses. Prof. Ebtessam also visited France, China, and Spain for collaborative Research and conferences papers presentation and invited talks.

### **M. Abd Elhay Metwaly**

**Mr. Mahmoud abd Elbary Eissa Metwaly** researcher at Technical Research Center , Cairo Egypt. Graduated from Faculty of Science Tanta University, Physics Department 2010 with very good grade. His research interests focus on synthesis and characterization of nano copper/Al powder and investigating their effect for lowering infrared emissivity. Synthesis and characterization of nano metal oxides/ magnetic ferrites.

### **Hesham R. Tantawy**

**Dr. Hesham Ramzy Tantawy** is working as a Associate Professor in

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Egypt. His research work focus on synthesis and characterization of

nanomaterials, Polymer, Ferrite, Graphene and their hybrid composites. In

addition the recent work focus on metal organic frameworks (MOFs) and

energetic materials. Targeting different applications such as

electromagnetic shielding, photocatalysis and chemical sensors. He also

taught for the undergraduate and postgraduate students. Over 22

research papers of his work published in national and international

journals . He has supervised 8 M.Sc. and 2 Ph.D



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