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## Synthesis and physicochemical analysis of bimetalphthalocyanine pigment based on bivalent metals

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In this paper, the research on the synthesis of magnesium-zinc-phthalocyanine pigment has been carried out. It has been synthesized based on phthalic anhydride, urea, zinc acetate, and magnesium acetate. The molar ratio of the initial substances is taken in the ratio of 1:4:3, and it has been synthesized with a yield of 89.5% and the reaction carried out at 225°C. The structure of this obtained pigment has been analyzed by IR spectral analysis. Based on magnesium and zinc phthalocyanine structures, it is found that the formation of phthalocyanine rings gives a peak in the region of 744.52-792.74 cm<sup>-1</sup>, while the phenyl rings give a peak in the region of 975.98 cm<sup>-1</sup>. Its thermal stability has been measured by thermogravimetric analysis, SEM (scanning electron microscope), EDS, and elemental analysis. According to the results of the analysis, it is confirmed that magnesium-zinc phthalocyanine has been synthesized by forming phthalocyanine rings.

**Keywords:** Magnesium-zinc-phthalocyanine, Phthalocyanine rings, Thermogravimetric curve, Scanning electron microscope, Photodynamic property

Over the years, phthalocyanine's simplicity and common organic materials, which are used in various fields, have attracted significant attention.