

**SYNTHESIS AND CHARACTERIZATION OF TRANSITION METAL -
SUBSTITUTED MAGNESIUM OXIDE COMPOUNDS**

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ABSTRACT

SYNTHESIS AND CHARACTERIZATION OF TRANSITION METAL – SUBSTITUTED MAGNESIUM OXIDE COMPOUNDS

Chromium substituted of magnesium oxide compounds ($\text{Cr}_x\text{Mg}_y\text{O}$) were prepared via sol-gel method using magnesium acetate tetrahydrate and chromium(III) nitrate nanohydrate as starting materials and oxalic acid as gelating agent. The characterization of $\text{Cr}_x\text{Mg}_y\text{O}$ was analyzed by using Thermal Gravimetric Analyzer and X-Ray Diffractometer. The results show that the chromium ion (Cr^{3+}) was not successfully incorporated into the MgO crystal lattice. These occurred maybe because weak reducing agent used to reduce Cr^{3+} to Cr^{2+} . It will be easier to incorporate if the ions charge is the same. Besides, chromium has bigger atomic size make it uneasy to enter the smaller atomic size of MgO. Therefore, the substitution of chromium into MgO was not accomplished.