Solid State Synthesis and Characterization of Some Novel Sodium Rare Earth Phosphates

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Recently, much attention has been paid to the rare earth phosphates because of their potential applications for optical materials, including laser, phosphors, and more recently, anti-UV materials [1]. $MOPO_4$ type materials possess properties that make them potentially useful for catalytic, electronic and ion exchange applications[2].

In this work, Ln_2O_3 (where Ln= La, Nd, Sm, Eu, Gd, Dy, Ho, Er, Yb) were used as a rare earth source, $NH_4H_2PO_4$ was used as a phosphate source and Na_2CO_3 was used as a sodium source to obtain sodium rare earth oxyphosphates. Reactants were heated at 1100 ^{0}C for 20 hours. X-ray difraction patterns, IR and Raman analysis, SEM pictures and EDX analysis were taken for characterization. According to these results, structures of these products were compared with previous ones[2-3].

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