

Effect of K_2CO_3 Fluxing Agent on the $Al_{18}B_4O_{33}$ Chemical Synthesis

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Abstract The present study attempts to determine the experimental parameters and conditions of chemical synthesis of an aluminum borate compound. The $Al_{18}B_4O_{33}$ was synthesized starting from: aluminum sulphate and boric acid. In order to obtain the atomic ratio B/Al of 2/9, materials were accurately weighed in proper amounts. The fluxing agent, K_2CO_3 , was used in 25% and 50% amount. The synthesis temperature of 1000°C was found to be optimum with respect the formation of $Al_{18}B_4O_{33}$. The investigation techniques were X-ray diffraction, FT-IR spectroscopy and TEM.

Keywords: aluminum borate, fluxing agent, ceramic material, XRD, TEM
