IMPACT: International Journal of Research in Applied, Natural and Social Sciences (IMPACT: IJRANSS)
ISSN(E): 2321-8851; ISSN(P): 2347-4580
Vol. 2, Issue 1, Jan 2014, 85-90

YTTRIUM ALUMINUM MONOCLINIC (YAM) SYNTHESIZED BY HIGH ENERGY BALL MILLING

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ABSTRACT

The structural of the mixture of Y_2O_3-Al_2O_3 has been studied using X-ray diffraction and ^{27}Al MAS NMR. The sample was synthesized by high energy ball milling process. The polycrystalline YAM powder was form together with impurity YAP and $Y_2O_3$when heated at 1100^{o}C as confirm by XRD and NMR. Increasing heating temperature up to 1400^{o}C did not seem enough to completely transform Y_2O_3 and α-Al_2O_3 into YAM phase as the grain growth occur and increase the diffusion distance in solid state reaction.

KEYWORDS: $Y_4Al_2O_9$, High Energy Ball Milling, XRD, ^{27}Al MAS NMR