ANALYSIS ON DEGREE OF CRYSTALLINITY OF \( \alpha\)-\text{Al}_2\text{O}_3 AND AMORPHOUS GLASS MIXTURES

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ABSTRACT
In this research, XRD data analyses on the crystallinity of \( \alpha\)-\text{Al}_2\text{O}_3 (corundum) and amorphous glass mixtures have been done mainly to compare the effectiveness of HighScorePlus (HSP) and Rietica softwares. Six compositions were prepared, ie. 0\%, 10\%, 20\%, 30\%, 40\% and 50\% glass content by weight. Comparing the analyses results from powdered mixtures and heated at 1000°C for 2 hours was also attempted. XRD data for the powders showed that in general corundum intensity decreases and ‘hump’ pattern is more profound with increasing glass content. Analyses using the softwares demonstrated that HSP is more effective than Rietica when accuracy (99.2\% compared to 97.6\%) and practical aspect were inspected. The results for the heated samples were more complicated and needed further analyses since new phases formed.

Keywords: amorphous glass, degree of crystallinity, Rietica, HighScorePlus