

## **Rock beneficiation of the Nepheline Syenite from Bonair, Khyber Pakhtunkhwa, Lesser Himalayas-Pakistan**

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The paper concentrates on the rock beneficiation of nepheline syenite from Bonair, Khyber Pk, Lesser Himalayas-Pakistan. These rocks are widely distributed in the Bonair district and adjoining areas with high potential of industrial exploitation in glass, ceramics, steel casting and chemicals industry. Their reported huge reserves in this area amount to six thousand million tons. The host area is easily accessible from Swabi via Chingalai, from Mardan via Rustam, and from Mingora, Karar Kandao and Daggar. The only problem found in their industrial utilization, particularly in the glass and ceramics industry as an alternate of feldspar, is the presence of unacceptable high iron content. The conventional rock beneficiation method was taken on in PCSIR Laboratories Complex, Lahore, during 1980s to remove this undesirable content. However, results were not promising along with disappointing cost/product ratio. With the vision to explore other options acid leaching technique was attempted by the present authors at bench scale for the preparation of industrial chemicals. The technique proved to be encouraging, simple and particularly low cost. The major thrust of this research work is the successful breaking of complex silica bond. The comparative and critical review of the discussed rock beneficiation techniques revealed that the acid leaching of nepheline syenite rocks is more appropriate and economical for optimum industrial utilization of these rocks. Development studies at pilot plant and industrial scale are recommended.