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ACIDULATION STUDIES ON EPPAWALA APATITE

Part I

THE CONVERSION OF EPPAWALA APATITE TO A CITRATE SOLUBLE FERTILIZER USING PARNTHAN *HYDROCHLORIC ACID*

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Eppawala apatite has low water and citric acid solubilities and therefore it cannot be directly applied as a phosphotic fertilizer. Thus this rock phosphate has to be converted to a form with a high water or citric acid solubility. In this work, conversion of Eppawala apatite to a water insoluble but citric acid soluble product has been studied.

Pure and commercial samples of Eppawala apatite were treated with Paranthan hydrochloric acid and the pH of the resultant slurry adjusted to abont 7 in order to precipitate dicalcium phosphate, $CaHPO_4$. The acidulation was studied under different conditions of acid strengths and molar ratios. 2% citric acid solubilities of the products thus obtained were determined by a method suggested by Amarasiri and Ambepitiya. (1)

Acidulation of pure apatite : HCl : : 1 : 4 yielded a product with about 22% weight P_2O_5 (2% citric acid) solubility. Change in acid strength or molar ratio did not show any significant changes in conversion, But the commercial apatite showed a lower reactivilty towards hydrochloric acid. In this case the In this case the 2% citric acid solubility obtained was found to depend on the molar ratio of 1: 8, the product with a 2% citric acid solubility of 18% weight P_2O_5 wos obtained.

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References

(i) Amarasiri, S. L. and Ambepitiya, V.H; Evaluation of Eppawala apatite by chemical analysis, S. L. A. A. S. annual sessions, 1976.

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