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Non hygroscopic superphosphate fertilizer from apatite and hydrochloric acid

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Abstract. A method is described for the production of a nonhygroscopic fertilizer from apatite by treatment with hydrochloric acid .

Apatite is acidulated with HCl to the stoichiometric level needed for generating dicalcium phosphate. The reaction product when mixed with ammonium sulphate sufficient to double-decompose calcium chloride and dicalcium phosphate yields a nonhygroscopic product containing almost all phosphorus in the water-soluble form. Results of laboratory experiments conducted to determine the optimum conditions for the process, chemical properties of the material and its agronomic effectiveness are described. The studies were carried out with the intention of utilizing the reserve of apatite at Eppawala in Sri Lanka using indegenous raw materials.