United States Patent [19]

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Villarejos et al.

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[54] **SELECTIVE SOLVENT EXTRACTION OF SULFATE IMPURITIES FROM PHOSPHORIC ACID**

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[52] **U.S. Cl.** **423/321**

[51] **Int. Cl.**[2] **C01B 25/16**

[58] **Field of Search** 423/320, 321, 167

[56] **References Cited**

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[57] **ABSTRACT**

While it is known that substantial amounts of the sulfate and fluorine impurities present in phosphoric acid can be concurrently extracted from the acid by treating it with a water immiscible amine enriched extractant, it has now been found that most of the sulfate can be extracted without concurrently extracting large amounts of the fluorine in the acid if a certain combination of treatment conditions is observed. Thus selective sulfate extraction surprisingly occurs when 35 to 44% P_2O_5 acid is treated with a water immiscible extractant containing about 1 to 3 moles of a tertiary organic amine per mole of sulfate in the acid. With the present invention, virtually all the sulfate present in the acid can be extracted while concurrently extracting only 25% of the fluorine. Selective sulfate extraction is an advantage whenever it is desirable to separately recover the fluorine in the acid in the conventional fluorine recovery systems of phosphoric acid manufacturing processes.

18 Claims, 2 Drawing Figures