

[54] **SINGLE FLOAT STEP PHOSPHATE ORE BENEFICIATION**

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[57] **ABSTRACT**

A flotation process is taught for beneficiating phosphate ores containing, as impurities, silica and alkaline earth metal carbonates, particularly dolomite. Using a single

flotation stage, the phosphate values are recovered in the overflow and quite unexpectedly both the siliceous and the carbonate gangue minerals are simultaneously removed in the underflow. Prior to flotation, surfaces of the minerals in the phosphate ore are selectively sulfidized with an insoluble copper-containing metal sulfide, permitting use of sulfide mineral collecting reagents such as alkyl xanthates in the flotation step to achieve a high degree of selectivity.

**23 Claims, No Sheets Drawing,
31 Pages Specification**

The file of this unexamined application may be inspected and copies thereof may be purchased (849 O.G. 1221, Apr. 9, 1968).