Abstract

The present invention discloses a comprehensive simultaneous regeneration and utilization method of waste phosphating slag with waste phosphorus and sulfur binary acid liquid. The method comprises the steps: (1) dissolving the waste phosphating slag with a first acid liquid and mixing with the waste phosphorus and sulfur binary acid liquid to obtain a mixed acid solution; (2) adding a second acid liquid into the mixed acid solution to obtain a fluoroaluminate product and a primary purified solution; (3) distilling the primary purified solution to obtain a distillate as a third acid liquid and a residue as the secondary purified solution, the third acid liquid is recycled to step (2); (4) filtering the secondary purified solution with a nano filter membrane to obtain a regenerated phosphorus and sulfur binary acid product and a residue as a fourth acid liquid, which is recycled to step (1). The method achieves simultaneous regeneration and utilization of the waste phosphating slag with the waste phosphorus and sulfur binary acid liquid as the metallic ions in the waste phosphating slag and the aluminium ions in the waste phosphorus and sulfur binary acid liquid are converted into aluminium phosphate product. The phosphoric acid and sulfuric acid are comprehensively recycled and regenerated, leading to simultaneous efficient recycling of the said two types of waste resources.

(Fig. 1)