



DOI: **10.5958/2249-7137.2021.00693.5**

CHEMICAL COMPOSITION OF SINGLE-SIDED PHOSPHORIC FERTILIZERS OBTAINED FROM BALANCED PHOSPHORITE ORE OF CENTRAL KYZYLKUM BY PHOSPHORIC ACID ACTIVATION WITH SULFURIC ACID ADDITION

Ortikova Safie Saidmambiyevna* ; Toshtemirov Husniddin ; Khojimatova Ehtiotkhon****

*PhD, Associate Professor,
Department of Chemical Technology, Fergana Polytechnic Institute,
Fergana, UZBEKISTAN
Email id: ortikova.sofiya@mail.ru

** Master's Degree student,
Department of Chemical Technology,
Fergana Polytechnic Institute,
Fergana, UZBEKISTAN

ABSTRACT

In this study, the process of activation of off-balance phosphorite ore of the Central Kyzylkum desert (14,33% P₂O₅) by extraction phosphoric acid (14,32% P₂O₅) with the addition of sulfuric acid (93%) at 75 °C, reaction time 30 min. at different mass ratios P₂O₅P_{AE}: P₂O₅FC and P₂O₅P_{AE}: H₂SO₄mg. It is shown that the addition of H₂SO₄ significantly intensifies the process of phosphoric acid activation of the phosphate mineral of the raw material. The water-insoluble part of the products of phosphoric acid activation with the addition of sulfuric acid has been studied. It has been shown that both the fertilizer itself and its water-insoluble part contain a significant amount of the P₂O₅ form assimilable for plants.

KEYWORDS: *Off-Balance Phosphorite Ore, Phosphoric And Sulfuric Acids, Activation, Single Phosphorus Fertilizers, Water-Insoluble Part.*

REFERENCES

1. Sadykov, B. B., Sokolov, V. D., Ibragimov, G. I., & Beglov, B. M. (2005). Phosphorites of the Central Kyzyl Kum: their characteristics, enrichment and processing. *Chemistry and Chemical Technology*, (2), 12-23.
2. Beglov, B. M., Ibragimov, G. I., & Sadykov, B. B. (2005). Unconventional methods of processing phosphate raw materials into mineral fertilizers. *Chemical Industry*, 82 (9), 453-468.
3. Romodina, L. V. (1981). Partially decomposed phosphorite, its properties and application (Doctoral dissertation, Moscow Order of Lenin and Order of the Red Banner of Labor Agricultural Academy named after KA Timiryazev).
4. Ostanin, A.I. (1987). Agrochemical substantiation of the production and use of phosphorus fertilizers of reduced solubility (Doctoral dissertation, Abstract of the thesis ... doctor of agricultural sciences).
5. Ortikova, S.S., Alimov, U.K., Namazov, Sh.S., Seitnazarov, A.R., & Beglov, B.M. (2016). Phosphoric nitrogen-phosphorus-calcium fertilizers obtained by phosphoric acid processing of off-balance phosphorite ore of the central Kyzyl Kum. *Chemical Industry Today*, (11), 13-21.
6. Pozin M.E. *Mineral salt technology. Volume 2. - L. : Chemistry, 1970, 1558 p.*
7. Shapkin, M. A., T. I. Zavertyaeva, Zinyuk, R. Yu., & Guller, B. D. (1987). *Double Superphosphate: Technology and Applications. Chemistry. Leningrad. separation.*
8. Nuts, I.I. (1975). Some ways to intensify the process of decomposition of natural phosphates by phosphoric acid. *Technology of inorganic substances.-Leningrad: Publishing house of Leningrad State University, 43-49.*
9. Safiye O. et al. (2016). Water insoluble part of ammophosphate based on decomposition of off-balance ore in neutralized phosphoric acid. *European research.. №. 10 (21).*
10. Orekhov, I.I., & Stepanova, N.I. (1971). Obtaining double superphosphate by decomposition of phosphorite with a mixture of phosphoric and sulfuric acids. *Chemical industry (Moscow)*, (2), 113-115.
11. Vinnik, M.M., Erbanova, L.N., & Zaitsev, P.M. (1975). Methods for the analysis of phosphate raw materials, phosphorus and complex fertilizers, feed phosphates. *M. : Chemistry, 218, 205-208.*
12. GOST 21560.2–82. *Mineral fertilizers. Test methods. - M. : Gosstandart, 1982, 30 p.*
13. Taddesi, R.G. (1988). The effectiveness of the use of sulfur for cotton, depending on the level of mineral nutrition. *Intensive technology of cotton cultivation in the UzSSR: Proceedings of the Tashkent Agricultural Institute.*
14. Sobirov, M., Nazirova, R., Hamdamova, Sh., & Tadzhiev, S. (2020). Intensification of the process of obtaining complex suspended fertilizers with insecticidal activity. **MONOGRAPH.**