

Invention relates to electrochemical methods for obtaining expanded graphite, which is used to manufacture effective sealing materials and in power equipment for chemical and petrochemical production, as well as in thermal and nuclear power plants. Method comprising the electrochemical treatment of mixture of graphite and sulfuric acid in vertical electrolytic cell with vertical membrane that separates cathode from the vertical layer of graphite-sulfuric acid mixture, separation of solid phase from solution, addition of ammonium bifluoride solution in sulfuric acid, holding at a temperature of 60-80 °C, rinsing with deionized water, drying, and heat treatment. Electrochemical treatment of graphite-sulfuric acid mixture is carried out at a current density of 1-50 mA/cm², electric charge of 90-120 A·h/kg, followed by the addition of ammonium bifluoride solution in sulfuric acid. The resulting mixture is heated for 5-10 hours, rinsed with deionized water until the pH is neutral, solid phase is separated from solution, solution of ammonia is added until an alkaline reaction is achieved, and solution of disodium EDTA is added at a rate of 5-40 g of disodium EDTA per 100 g of graphite; heated to 50-100 °C for 1-2 hours, solid phase is separated from solution, rinsed with deionized water until negative for ammonium ions, dried, and rapidly heated in a thermal shock mode to a temperature of 800-1200 °C. Technical result: an increase in the purity of the resulting expanded graphite to 99.94–99.96%.