

## THE POSSIBILITY OF SORPTION SEPARATION OF MOLYBDENUM FROM TUNGSTEN

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Molybdenum and tungsten are important strategic metals that are used in military equipment, aircraft engineering, and mechanical engineering. In molybdenum deposits, tungsten and impurities in the form of other elements such as calcium, rhenium, vanadium, and iron are found in the composition of ores. To date, the problem of separation of Mo and W. has not been solved. The purpose of this work is to find optimal sorption conditions for the separation of molybdenum and tungsten, as well as to select the most acceptable sorbents. During the study, weakly basic synthetic sorbents based on styrene with groups of secondary, tertiary amines PA830, PA1111, PMTS9570, MTA5013SO<sub>4</sub>, D301 were used. Sorption was carried out at room temperature, in the range from ten minutes to 24 hours, with an acidity of the medium pH 1÷5, S÷L→1÷100. The sorption time was investigated and the optimal sorption time for Mo was 180 minutes, the efficiency was 93.36%, and for W the optimal sorption time was 240 minutes, the efficiency was 80%. An increase in the sorption time did not lead to a change in the results of the study. The influence of the acidity of the medium has been studied. For Mo, the sorption efficiency at pH = 4 was 99.36%, and for W at pH = 1, the efficiency was 65.87%. After conducting experiments to determine the optimal sorption parameters of Mo and W, a series of model solutions in different ratios of the two metals was developed. The ratio of molybdenum to tungsten (1:1; 1:2; 1:3; 1:4; 1:5) it is composed in accordance with the composition of tungsten-molybdenum ores. During the sorption of metals D301, the degree of separation was in the range  $\alpha = 1.28\div 1.45$ , which makes it possible to separate molybdenum from tungsten.

**Keywords:** sorption, molybdenum, tungsten, sorbents, separation, spectrophotometry, sorption efficiency, pH, concentration, separation coefficient, desorption

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# Certificate of Presentation

This is to certify that

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