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## **ANALYTICAL FORM OF SILICA MODIFIED BY XYLENOL ORANGE FOR THE DETERMINATION OF VANADIUM(V)**

*Silica gel based sorbent (SG) sequentially modified by polyhexamethylene guanidine (PHMG) and xylene orange (XO) was obtained. It is found that XO quantitatively recover from solution in a wide range of pH 3-7, which corresponds to its presence in solution in anionic form. Fixation of XO on SG-PHMG-surface is realized due to electrostatic interaction between guanidine groups of the sorbent surface with sulfo- and carboxyl groups of the dye. Quantitative desorption of XO occurs in the dynamic conditions by 0.1 M HCl. Sorption of vanadium (V) occurs in the form of anion  $VO_3^-$ . Reduction of contents of this form, which occurs in subacid and alkaline conditions, leads to a decrease in the degree of extraction of vanadium. Quantitative sorption of vanadium in dynamic mode occurs in the range of pH 3.5-6 whereas in static conditions, maximal sorption observed at pH range of 4-5 and is only 77%. Distribution coefficient in optimal pH conditions for dynamic sorption is  $2.3 \cdot 10^4 \text{ cm}^3/\text{g}$ .*

*Desorption of vanadium from the surface of the sorbent using 1M HCl in static conditions is quantitative and allows to conduct its further determination by spectrophotometric method.*

*Characteristics of the obtained sorbent is not inferior chemically modified silica with iminodiacetic acid groups, however, has a significant advantage in simplicity and environmental security of synthesis, low cost and availability of consumables and the possibility of determination of vanadium(V) directly after desorption by spectrophotometric method.*

*Keywords: sorption, silica gel, xylene orange, vanadium.*