Abstract

Vanadium, one of the main pollutants in crude oil, causes major problems in the oil refining process as it poisons the catalyst used in craking. In this paper two alternative processing methods for samples of fuel oils with high and low content of vanadium from the “Ñico López” Refinery to determine the concentration of this element by means of atomic absorption spectrometry were compared. The test were carried out in the Atomic Absorption Labs of Centro de Investigaciones del Petróleo and the “Ñico López” Refinery so as to match both results. In the equipment were enhanced the followings work parameters: lamp current, band pass, height of burner and flows of acetylene and nitrous oxide. The optimization of parameters was achieved by means of univariante study. Two methods were used for the mineralization: 1) by using an organic solvent (Yet fuel) and 2) by using a mixed digestion process (with sulfuric acid) followed incineration in the oven with the following dissolution of ashes by using nitric acid (1:1). By comparing both statistic figures the authors concluded that both methods are equivalent. However, it is recommended the direct method as it does not involve the sample processing that leads to pollution or the losing of the analyte.

Keywords

Atomic absorption spectrometry, vanadium, fuel oils.