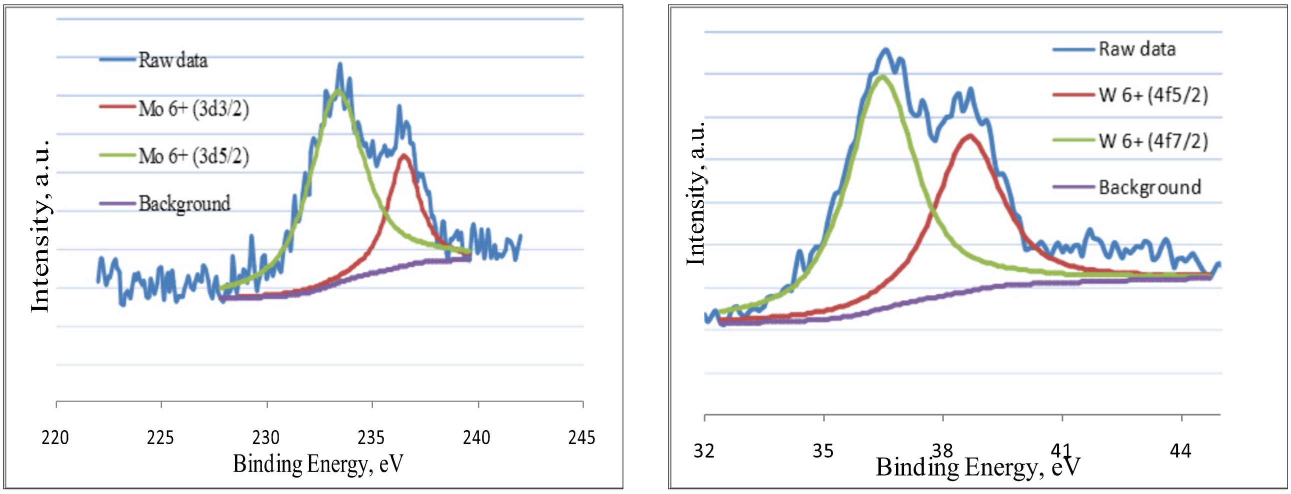

Figure 3 – XPS spectra of the catalyst 1Mo1W@Taizhuzgen

To determine the nature of the compounds, X-ray structural analysis of the catalyst was performed and the full spectra of molybdenum and tungsten were collected (Figure 3). The results of the XPS analysis determined the oxide forms of Mo and W metals in the structure of the catalysts. In the XPS 1Mo1W@ Taizhuzgen spectra, two peaks refer to the Mo^{6+} oxidation of molybdenum and two peaks to the W^{6+} oxidation of tungsten. These peaks are for MoO_3 (3d3/2 and 3d5/2) and WO_3 (4f5/2 and 4f7/2).

Conclusion

To date, the most effective processes for processing rubber and polymer waste is the process of thermocatalytic hydrogenation. This is, for the purpose of searching for alternative sources of hydrocarbons for oil and natural gases, secondly, allows these processes to be carried out with the participation of cheap and effective catalysts and in soft conditions. For the resource-saving technology of thermocatalized hydrogenation of polymer waste on liquid motor fuel, a catalyst was developed with the method of impregnation of 1.0% molybdenum ion and 1.0% tungsten ion on non-acid activated Taizhuzgen zeolite, and demonstrated the activity of a new composite catalyst. In addition, it was shown that modification in combination with zeolite salts of molybdenum and tungsten salts has different effects on the catalyst morphology and on the yield of the hydrogenation process of thermocatalytic treatment of hydrocarbons and the chemical composition of liquid fractions. On the basis of physical and chemical studies of the products of the process of hydrogenation of plastic waste in the presence of a new composite catalyst, the possibility of implementing a resource-saving technology for the process of recycling waste into synthetic motor fuels is shown.

Conflict of interest

All authors have read and are familiar with the content of the article and have no conflict of interest.

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