

## Mo recovery from spent hydrofining catalysts I. The choice of the extraction method

Lăcrămioara ISTRATI<sup>a</sup>, Maria HARJA<sup>b</sup>, Gabriela CIOBANU<sup>b</sup> and Lucian GAVRILĂ<sup>a</sup>

<sup>a</sup>*Faculty of Engineering, University of Bacau, 157 Mărășești street, 600115, Romania*

<sup>b</sup>*Faculty of Industrial Chemistry, Technical University "Gh. Asachi" of Iasi, 71D. Mangeron Blvd. 700050, Romania*

---

**Abstract** Metals like Ni, Mo, Co, Rh, Pt, Pd, etc., are widely used as catalysts in the chemical and in the petrochemical industries. The disposal of such catalyst materials, which contain appreciable amounts of heavy metals, is environmentally hazardous. Therefore, a suitable and economically viable method is required for the recovery of metals and in the same time, the method should not pose the risk of environmental hazard. The spent catalysts Ni-Mo/Al<sub>2</sub>O<sub>3</sub> proceed from the hydrofining process of petroleum fractions and from the technological process of pit gas primary purification at ammonia manufacturing. These spent catalysts contain 10-14% MoO<sub>3</sub>. This paper presents the research performed for the choice of Mo extraction variant. The trials had as a goal the settling of the analytical method and of the extraction method. Three extraction methods were tested here: selective, alkaline and acid.

*Keywords:* recovery, industrial waste, spent catalyst, Ni-Mo/Al<sub>2</sub>O<sub>3</sub> catalysts, hydrofining process.

---