



## Trace elements balance in a refinery

Claudia Irina KONCSAG\* and Anca Iuliana DUMITRU

*Ovidius University of Constanta, Department of Chemistry and Chemical Engineering, 124 Mamaia Blvd,  
900527 Constanta, Romania*

---

**Abstract** The trace elements balance is performed whenever the refinery processes a new type of oil. The goal of the balance is to find the distribution of the trace elements in the products and residues for the market. Also, the balance can warn about the accumulation of metals in the catalysts, this affecting their activity in time. This work presents the case study of a refinery processing a light and sulphurous oil with a medium concentration of trace elements. The study highlighted the following: the highest levels of concentration in feed and products are for Na and Si; in general, trace elements concentrate in heavier fractions and residues and especially in the coke as a product or as deposited on catalysts; following the balance, heavy metals concentrate in the coke deposit on FCC catalyst in range of 53% for V to 83% for As; heavy metals concentrate in the gasoline hydrotreating catalyst in range of 7% for Ni to 87% for V.

*Keywords:* crude oil, trace elements balance, ICP-MS

---