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## Mercury in Bach Ho crude oil of Vietnam as determined by $k_0$ -based instrumental neutron activation analysis

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The  $k_0$ -based instrumental neutron activation analysis ( $k_0$ -INAA) using the Dalat research reactor of 500 kW nominal power with a thermal neutron flux about  $3.5 \times 10^{12} \text{ cm}^{-2} \cdot \text{s}^{-1}$  has been studied and developed in order to determine Hg (total) in Bach Ho crude oil of Vietnam. Both radionuclides  $^{197}\text{Hg}$  (2.7d half-life, 77.3keV gamma-line) and  $^{203}\text{Hg}$  (46.6d, 279.2keV) were used with different irradiation and measurement modes in order to calculate the concentration of the element. An evaluation of the limit of detection, precision and accuracy as well as convenience in the use of the two radionuclides was performed. The corrections of spectral interferences by  $^{75}\text{Se}$  (119.8d, 279.5keV) on  $^{203}\text{Hg}$  and the deconvolution of complex multiplets in region of 70-85 keV for  $^{197}\text{Hg}$  and the problem of Hg loss during irradiation were considered. The mean concentration and range of concentrations of Hg in Bach Ho crude oil of Vietnam were obtained through the analysis of 90 samples and the statistical processing.

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