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DETERMINATION OF GOLD IN ROCKS BY NEUTRON ACTIVATION ANALYSIS

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ABSTRACT

Determination of gold in rocks by instrumental neutron activation analysis (INAA) and by radiochemical neutron activation analysis (RNAA) was studied. The geological reference standards GXR-1 and W-1 with certified values for the concentration of gold, were analysed.

INAA consisted in the irradiation with thermal neutrons followed by high resolution gamma ray spectrometry. RNAA was based on partial destruction of the irradiated rock with aqua regia, coprecipitation with tellurium and measurement of the gamma ray activity.

By using INAA, reliable results depended on the concentration of gold and on interferences such the case of europium. RNAA presented good precision and accuracy (being the relative error lower than 5%) what can indicate good possibilities for other platinum group elements.