

**X-RAY FLUORESCENCE (XRF) AND INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS (INAA) FOR THE GEOCHEMICAL ANALYSIS OF ROCKS, PRESENTED ON IN-HOUSE CONTROL SAMPLES**

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After more than two decades experience in major and trace element analysis of rocks using wavelength dispersive X-ray fluorescence analysis at the Department of Lithospheric Research (University of Vienna) the laboratory was upgraded by the installation of a PANalytical PW2404; the preparation lab got a PANalytical EAGON2 fusion system replacing the formerly used Philips PerLX3 fusion bead machine.

The aim of the presented study is the production of in-house control samples for geochemical analysis at the Department of Lithospheric Research for monitoring analytical processes and also for the teaching of students. Therefore three different rock types (acidic, basic, ultramafic) from Austrian localities were selected for the analyses by XRF and INAA; those were sampled in larger quantities, crushed, homogenized and splitted to equal sub-samples.

Major elements were determined on fused beads, trace elements on pressed powder pellets; a description of the used method in WDXRF is given in DUBOC et al. (2019). The analytical methods of INAA is described in MADER & KOEBERL (2009).

The comparability of sub-samples was checked by repeated measurements and statistical evaluation; by comparing the results of XRF and INAA it could be shown, that both types of analysis can complement each other sufficiently in geochemical whole rock analysis.

The selected rock samples can be used for teaching and research purposes and for monitoring the processes following the laboratories' SOP.

For the future it is planned to expand the suite of available in-house control samples by adding some sedimentary rock types (e.g. carbonate, shale, sandstone).

DUBOC, O., ROBBE, A., SANTNER, J., FOLEGNANI, G., GALLAIS, P., LECANUET, C., ZEHETNER, F., NAGL, P., WENZEL, W.W. (2019): *Environ. Sci. Technol.*, 53, 5359–5368.

MADER, D., KOEBERL, C. (2009): *Appl. Radiat. Isot.*, 67, 2100–2103.