MÖSSBAUER, XRD, NAA AND XRF STUDY OF ARCHAEOLOGICAL SLAG

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In 1960, remains of four furnaces from Early Medieval Age were excavated in Nitra. Because a lot of glass–like findings were found on this site the function of furnaces was considered as being used for production of glass even though no analytical tests were performed. These dig-outs were divided into two groups: The first group contains dark glass–like archaeological fragments which were interpreted as a waste (slag) of a glass production. The second group consists of archaeological artefacts which were thought to be a slag from iron production.
The main aim of this work is to investigate these two types of archaeological artefacts. Employing standard transmission geometry Mössbauer effect experiments, iron crystallographic sites are identified and compared. In all samples, Fe^{2+} and Fe^{3+} structural positions were revealed. In addition, some of the archaeological artefacts that are presumably coming from glass production show traces of metallic iron. On the other hand, slag from iron production exhibit minute contribution of iron oxides in several instances.
Additional information about the composition of slag is obtained from X-ray diffraction (XRD), neutron activation analysis (NAA), and X-ray fluorescence (XRF) measurements.

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