X-RAY FLUORESCENCE ANALYSES OF POSTMEDIAEVAL GLAZED POTTERY FROM SOUTHERN MORAVIA

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The investigation of pottery with ionising radiation provides valuable information on its composition, provenance, and production technology. One of these frequently used analytical techniques is an X-ray fluorescence analysis (XRFA) that is based on detection of characteristic X-rays emitted by atoms of measured samples after exposure with X-rays or gamma rays. In comparison with most of others analytical techniques, sample preparation is not necessary, XRFA instruments could be constructed as portable, and therefore in-situ analyses could be performed already during archaeological surveys. Although bulk analysis is not possible, because mean free paths of low energy X-rays in siliceous materials achieve only several tens or maximum couple of hundreds micrometers, analysis of the surface supplies information on composition of glaze, surface contaminants or corrosion products. Laboratory or in-situ XRFA represents an outstanding tool for the initial probe of various samples, because the analysis is non-destructive, easy to perform, multi-elemental, fast, and relatively cheap. On the other hand, detection limits in XRFA are insufficient for searching for trace elements in some cases.

X-ray fluorescence analysis was applied to classification of pottery from Strachotin and Vacenovice area dating back to the end of 16th and the beginning of 17th century. These two localities were occupied by Anabaptists, who manufactured faiences beside common pottery. Faience is porous ceramics with a white shard, made of loam soil based ceramic mixture covered with lead-tin white and usually ornamented with painted decorating of several colours. The approximate composition of glazes and pigments was firstly determined with XRFA and then more accurate concentrations were obtained with an electron microprobe CAMECA SX 100. The impervious glaze contains tin, bismuth, and arsenic compounds, which cause yellow up to auburn colouring of the glaze. Combination of

nickel and cobalt compounds led to unusual greyish blue colouring of the glaze.