X-RAY FLUORESCENCE ANALYZE OF MANY COMPONENT SAMPLES

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The method of X-ray fluorescence analyze of the chemical component of glazes, faience and ceramic materials of architecture monuments of Middle Age Azerbaijan was suggested. As the nature of the base material (Na, Mg, Al, Si, P, K, Ca, Ti, Mn, Fe), as colouring (Cr, Co, Cu) and specially added components (Sn, Pb) were determined by X-ray fluorescence qualified, and then quantity analyze.

The physical processes, taking part in the time of excitement of analitic line in the long wave field of the spectrum by brake X-ray spectrum, and also guality correlation between the contents of determined elements and intensity of their analytic lines.

It was showed that the presence of a great deal of elements, having the typical X-ray radiation in long-and short wave fields of X-ray spectrum suggest the choice of the definite option for X-ray fluorescence analyze of glazes, faience and ceramic materials.

For the guality analyze the method of calibration is used. It means that the seeking contents of the analyzing sample components is regards as the solutions of eguation of relation:

\[ F(C, I) = 0, \]

where C - vector of concentration, I - vector of the measured intensities in the samples of the known component accordingly.

F(C, I) - unknown type of functional dependence, which must be determined and which characterizes the different physical effects (the effects of the election excitement, applying line, the distinguishing in the submerged features of the determined and other elements and so on.)

By means of the many factor dispersion analyze the following conditions of carrying out X-ray fluorescence guality analyze were optimizing: temperature of alloy of sample with flux Li₂B₄O₇ with correlation of dilution 1:10 1250 °C, division of sample up to 0.074mm, the pressure by the method of two-layer tablet under the pressure 20 t/cm². The control of the process of glass formation was carried out by electron microprobe TESLA BS-300 with enlargement 20000. The accepted model of the analyze allowed to reduce the influences of granulometric and mineralogical content, effects of applying of analytical lines, elected submersion and additional excitement. The alloy, division and pressure were carried out on units of sample preparing of "HERZOG" (FDR). Analyze was carried out on universal X-ray spectrometer of type "VRA" (DDR), and also on quantumeter of type (CRM-25" (USSR).

As the standart the samples of mountain rocks, diluted by oxide of colouring elements with wide diapason of analyzing components concentration. So, X-ray fluorescence analyze can be used for determination of chemical composition of glazers, faience and ceramic.