

# Quantitative Analysis of the Filler of Welding Powder Wire PP-AN-1 by X-Ray Fluorescence Method

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*Accurate method to determine the composition of the multicomponent filler of the welding flux-cored wire PP-AN-1 by the X-ray fluorescent method (XRF) was described. Interelemental effects were estimated from weight portions of the components of the welding powder, and the predominance of absorption effects from matrix excitation influence was demonstrated. The proposed method is based on the regression analysis of the absorption parameters of test samples; it takes into account the variation of the effective wavelength of the primary radiation. Two methods of the weight portions of elements are described in the analysis of the welding powder wire, and errors in their calculation are estimated. The convergence of the iteration procedure was shown in the calculations of the weight portions of elements under real conditions. A methodology of sample preparation was proposed for analysis of flux-cored wire taking into account the peculiar features of the technological process. The results of X-ray fluorescence analysis of the various composition of flux-cored wire were used for the quality control of the produced wire PP-AN-1.*

**Keywords:** X-ray fluorescent method (XRF), filler, flux-cored wire, weight portions of elements, interelement effects, composite

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