Analysis of silver base solders using the thin layer XRF technique.

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A wavelength-dispersive x-ray fluorescence (WD-XRF) spectrometric method for determination of high concentrations of elements (main constituents) in silver/copper/zinc/manganese/nickel alloys samples was developed.
The thin layer method was found as a suitable for control of alloy compositions.
The method uses samples taken in the form of chips that were dissolved in nitric acid and analyzed as a thin layer after evaporating.
The high level of uncertainty caused by sample preparation imprecision was reduced using strontium Kα line as an internal standard for all tested elements.
Sample preparation involved: preparing alloy solution 1g/100 mL with 0.2 g of IS, dropping 50 μL of the solution onto the filter disk and evaporation.
Calibration curves was obtained using synthetic standard solution made from pure elements.
Application strontium Kα line for imprecision correction allowed to obtained significant improvement (several times) of residual standard deviation, satisfactory for control of alloy compositions. Uncertainty obtained with this method was lower than 1% relative.