

# CERTIFICATE

No. 2026-0392-IX

## Inspection of Calibrations on spectrometer GoldXpert

On 20.4.2026 was made calibration on spectrometer GoldXpert SN: 610030 by company BAS Rudice spol. s r.o. Spectrometer calibration was focused on precision and accuracy of elements based on matrix elements Au, Ag, Pd, Pt and their admixtures.

For calibration and check of precision and accuracy was used set of certified reference materials. Calibration was made with measuring time of 180 sec on certified reference samples that completely covered measuring window of spectrometer. Calibration was aimed to the following elements:

**Cr, Mn, Fe, Co, Ni, Cu, Zn, Ir, Pt, Au, Rh, Pb, Bi, Zr, Pd,  
Ag, Sn, Sb, W, In & Cd**

Spectrometer **CONFORMS** specification of manufacturer.

Validity of this certificate is 12 months. It is valid till: 20.4.2027

Long term stability is assured by using standardization coin 316 or original docking station with 316 coupon. Marking of this 316 standard is fixed and irreplaceable on both standard and spectrometer software.

The above mentioned calibration standard 316 used for standardization was also used during primary calibration of the spectrometer Delta and it is an irreplaceable part of calibration of the spectrometer. The intensity of individual elements contained in this recalibration standard were measured during the primary calibration and are stored in an internal database of spectrometer. These stored intensities are then automatically compared at each recalibration with actually measured values and then are automatically calculated the recalibration coefficients based on peak position changes. Performing the standardization (Cal check) of spectrometer automatically assures, that the spectrometer is in the identical state as it was during primary calibration. Permanent accuracy of measurements is assured by doing this recalibration (Cal check) on above mentioned recalibration standard 316 with guaranteed homogeneity and chemical stability in the entire volume. Recommended interval between standardizations is maximum 24 hours. It is necessary to verify proper function of recalibration (Cal check) at least once per year by service organization BAS Rudice spol. s r.o. using the HW test and measuring an independent certified materials. Spectrometer Delta is screening ED-XRF technology (not validation method), which may suffer from interference or inability to detect some invisible or undetectable elements which may cause results deviations. ED-XRF Method itself measures only a surface of the measured material and the ED-XRF method therefore does not guarantee the homogeneity of the chemical composition of the measured material in the entire volume, but it is the only information about the composition of the surface layer of the measured material. The penetration depth of X-ray beam is determined by the chemical composition of the material. When the sample is for example gold plated, then the measured chemical composition doesn't conform the weight percent's in the entire volume, but that are the weight percent's of the surface layer. For the measurement accuracy is also important correct positioning of the sample, if the measured sample doesn't completely cover the analytical window of the spectrometer accuracy will be degraded. Decentered small samples may show considerable measurement error. The sample must be free of all surface contaminants and window spectrometer must not be dirty or contaminated.

Blansko 20.4.2026

Inspection was made by:

**BAS RUDICE**  
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Not VALID without water mark: