Supplemental table 2: Information on pXRF analyses.

The analyses of the materials from Casa Parroquial were made in two campaigns, in 2015 and 2016, using two different pXRF instruments. Both instruments are from the same manufacturer and comparable evaluation settings were selected. The difference between both instruments is that the analyses with the pXRF-2015 were performed using a collimator with a beam of 3mm diameter and higher beam current; while the pXRF-2016 was uncollimated with a beam of 10mm diameter and lower beam current. The technical specifications of both instruments are summarised in table 2.1.

Five certificate reference materials were analysed with both instruments to assess compatibility. The results summarised in table 2.2 show a good agreement between instruments. In general, the precision was good for repeat analyses, with coefficients of variations below 3.9% for all major elements. Accuracy was also high, with relative differences ≤9.5% between instruments and the reference materials.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Instrument** | **Manufacturer/**  **Model** | **Tube** | **Mode** | **Voltage** | **Current** | **Collimator** | **Spot diameter** |
| pXRF2015 | Olympus Innov-X / Delta Premium | Rh | Alloy Plus | 40kV | 100A | Yes | 5mm |
| pXRF2016 | Au | 15A | No | 10mm |

Table 2.1: Technical specifications of both pXRF used for this research.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Silver standards** | **AGA 1** | | | | | | | | | **AGA 2** | | | | | | | | |
| **(wt%)** | **Cu** | **Pb** | **Au** | **Zn** | **Sn** | **Sb** | **Bi** | **Fe** | **Ag** | **Cu** | **Pb** | **Au** | **Zn** | **Sn** | **Sb** | **Bi** | **Fe** | **Ag** |
| pXRF 2015 | 18.6 | 0.2 | 1.6 | 0.2 | 0.4 | - | 0.2 | 0.05 | 78.7 | 9.7 | 1.3 | 0.6 | 0.5 | 0.6 | 0.2 | 0.1 | - | 87.1 |
| pXRF 2016 | 19.4 | 0.2 | 1.5 | 0.3 | 0.3 | nd | 0.2 | 0.03 | 78.0 | 9.7 | 1.1 | 0.5 | 0.5 | 0.4 | 0.1 | 0.1 | nd | 87.5 |
| **Reference values** | **20.0** | **0.2** | **1.5** | **0.2** | **0.3** | **0.1** | **0.2** | **0.04** | **77.5** | **10.0** | **1.0** | **0.5** | **0.5** | **0.5** | **0.2** | **0.1** | **0.03** | **87.1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Gold standards** | **MAC 1** | | | | **MAC 2** | | | | **MAC 3** | | | |  |  |  |  |  |  |
| **(wt%)** | **Cu** | **Au** | **Ag** | **Sn** | **Cu** | **Au** | **Ag** | **Sn** | **Cu** | **Au** | **Ag** | **Sn** |  |  |  |  |  |  |
| pXRF 2015 | 1.0 | 94.3 | 4.3 | 0.5 | 4.9 | 75.4 | 18.6 | 1.1 | 8.7 | 59.4 | 29.9 | 2.0 |  |  |  |  |  |  |
| pXRF 2016 | 1.1 | 94.1 | 4.3 | 0.5 | 5.3 | 74.9 | 18.8 | 1.1 | 9.4 | 58.7 | 29.9 | 2.0 |  |  |  |  |  |  |
| **Reference values** | **1.0** | **93.8** | **4.6** | **0.5** | **5.1** | **74.7** | **19.2** | **1.0** | **9.1** | **59.2** | **29.7** | **2.0** |  |  |  |  |  |  |

Table 2.2: Analytical results and given values of five standards analysed by pXRF.