

## **In-house Test Methods to Determine Content of Precious Metals to 999.9ppt by ICP-OES**

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Analytical Services, a division of the Sheffield Assay Office, carries out determination of precious metal (Au, Pd, Pt and Ag) for bullion, refining businesses and for The Goldsmith Company (Trial of the Pyx). The accuracy of any test method is unquestionable even more when testing precious metal to 999.9 ppt.

The research programme presented here, has used the principles given by the standards ISO 15093:20 and ISO 15096 to develop an ICP-OES in-house test method. The in-house test method includes internal standards and standard addition principles to improve measurement stability and minimise matrix interferences, respectively.

The in-house test method results agreed with results when materials are tested fully in accordance with ISO 1593 and 15096. The main benefits of using the in-house test methods are the reduction in precious metal sample used for the testing and the evaluation of commercial Reference Materials which are sold as 999.9-9999.9ppt purity.