

The London Bullion Market Association  
**The Fifth LBMA Assaying & Refining  
Seminar**  
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**Session Five:**

**Reference Materials and Proficiency Testing**

**Proficiency Testing Scheme for Gold Fire Assaying -  
Introduction**

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**I. Introduction**

I am here today to talk about the LBMA's Proficiency Testing scheme. This is the second year that we have run the scheme, following its introduction last year. It has proved a great success so far, and the report of the 2013 scheme was recently published. But, before I go any further I just wanted to explain the structure and format of this session. We have split it into three parts. The first part I will be introducing, kicking off with an overview of the scheme, explaining the purpose of the scheme, how it differs from anything that we have done before in particular in respect of Proactive Monitoring, and explain a little about the logistics and procedures involved in running the scheme. For the second part, I will be handing over to Kate Wilkinson from FAPAS, who are the facilitators of the scheme on our behalf. They are experts in running proficiency testing schemes, having run many before, but this is a first for them in terms of gold proficiency testing. Kate will talk a little bit about the principles of Proficiency Testing; their role as facilitators; and explain such of the technical concepts, such as z-scores and standard deviations. The third part is going to be a presentation from Dirk Hofmanns, who is Senior Lab Manager at Umicore Precious Metals, and he will be talking about it from a perspective of a participant in the scheme. He will provide a technical analysis: he will interpret, analyse, dissect, and interpret the results of this year's report, and compare them to the report last year. He is going to be showing you lots of graphs and more besides. So, hopefully at the end of this session, you will go away with a thorough understanding of what proficiency testing is, and what it is designed to achieve.

**II. What is Proficiency Testing?**

Before I go any further, I should really just explain what Proficiency Testing is designed to achieve in the context of the gold scheme that we are running; and it really is an opportunity

for LBMA Good Delivery refiners to assess their assaying accuracy in relation to a large group of their peers, and that is essentially what we are running.

Now, when we began to elicit interest from GDL refiners to participate in the scheme, in late 2011, one of the questions I was frequently asked was, ‘*what is the difference between Proficiency Testing (PT) and Proactive Monitoring (PAM)*’. Now, hopefully this slide will explain the difference. The differences are:

- PT is voluntary, whereas PAM is mandatory for all currently accredited refiners.
- PT is run annually, whereas the PAM is run over a three-year cycle.
- PT involves a refiner’s laboratory assaying a single piece of gold and submitting the results not to the LBMA, but to the facilitator – in this case FAPAS. PAM goes wider than just assay testing: it involves production and financial tests. They are very different schemes.
- The LBMA does not receive any information on the identity of the labs participating in the scheme. FAPAS assign a code to each lab, and only each individual participant knows their code, they do not know the code of the other participants, so it is very much anonymous.
- PT results are published in a report. Although as I have mentioned, the lab identities are kept anonymous, but it does give an opportunity for each participant to compare their results against those of the other participants involved in the scheme.
- PT is really designed for participants to test the assay in their normal testing environment. We do not expect them to do anything that they wouldn’t normally do. With PAM, however, we would expect them to make extra special efforts to achieve assaying accuracy.
- PT is confined to gold at the moment, whereas PAM extends to both gold and silver, but if there is any appetite for the PT scheme to be extended to silver, we would be interested in your views, and we could take those in the panel session at the end of the day.

### **III. How and When**

This is just a bit of background to how and when we set up the scheme. It was first considered at the 2009 Assaying and Refining Seminar, when Professor Michael Thompson, a leading authority on proficiency testing, presented a paper describing the methodology used and the usefulness of the approach. The LBMA Physical Committee then approved a recommendation to develop a Proficiency Testing Scheme for gold fire assayers, and the LBMA Referees then worked up an initial draft into a final version, which was approved at the last A&R seminar in 2011. As I say, the first scheme was introduced in 2012 and the report was published in April 2012. This year we brought forward the publication of the report to coincide with this seminar, so it was published in late February.

### **IV. Participants in 2012**

In terms of the participation, this is the list of participants that took part in the scheme this year. There were 40 in total out of the 63 accredited refiners, so it was a good number for us to achieve. It proved logistically getting 40 gold samples distributed to all the different participants across the world, for example we had some difficulties with some of the customs and some of the samples were kept behind, but we managed to get them all out in the end.

This slide shows you where those participants were geographically located. We have 17 participants from the Far East, 10 of which were from Japan; for Europe there were 12

participants, half of which were from Switzerland; and then we had other participants from all the different continents, with the exception of Antarctica. I think we did well to get that many participants involved.

## **V. The Sample Properties**

These are the properties of the sample. You would be surprised: it is not a big sample; you can see if any of you were there at the Silver Anniversary Dinner, there is a Silver Anniversary coin that we gave out, with a picture of the sample below. It was two-and-half centimetres in length, approximately 3.3 grams in weight. To assay test, primarily the participants were using fire assay techniques to determine the fineness; some of them did use ICP. The sample was an existing LBMA reference material sample, and was produced and checked by the LBMA referees. Minimum purity 995, with typical impurities: copper, silver, platinum and palladium.

## **VI. 2013 Timetable**

This is just to give you a flavour for the kind of timetable that we ran to. First of all, we had to identify a facilitator; we then had to write and liaise with all the GDL gold refiners; we had to send them terms and conditions, which they had to sign and return to the LBMA; we then distributed the samples in mid-December 2012, with testing beginning in January. Over a three week period, participants had to submit, to FAPAS, a minimum of four and a maximum of six trial tests, with results to be submitted by 8 February. Then FAPAS prepared a report, which LBMA and the referees commented on, and the report was finally published in February 2013. I would just like to say, thanks again to all the refiners who took part in the scheme, and any GDL refiners that did not participate if they would be interested in participating next year, then please let the LBMA know. And finally if you have any questions, we can take them at the end of this session. Thank you for your time.