DUBAI ACCREDITATION CENTER

Report on 143rd Inter-Laboratory Proficiency Testing
Determination of Gold in Gold Jewellery alloys-Cupellation Method (Fire Assay)

Date: 4 September 2006

1. INTRODUCTION

This document presents the results of the 143rd Inter-Laboratory Proficiency Testing Program conducted during the months of July and August, involving the determination of Gold in Gold Jewellery alloys-Cupellation Method (Fire Assay) according to BS EN ISO 11426:1999.

This program is part of the Interlaboratory Comparison Programs organized by Dubai Accreditation Center of DM for monitoring the validity of test results of laboratories operating in Dubai as a requirement of the Local Order 52/1990 and ISO/IEC 17011: 2004.

2. EXPERIMENTAL DESIGN

2.1 Participants:

A total of five laboratories participated in this program.

2.2 Samples tested:

The samples, consisted of gold strips approximately 1 gram each, were distributed to all participating laboratories. The test samples were prepared from 4 different gold bars and divided into twenty samples, which were randomly assigned to the five participating laboratories with each participant being given four test gold strips, one from each bar. The samples were designated as Samples 1, 2, 3, and 4 with a unique identification number marked on each sample.

3. CONFIDENTIALITY

Each laboratory is given a Code number to maintain confidentiality of results and to protect their identities. Only the concerned laboratory knows its code number.

4. TEST METHOD

Instructions were given to the participants to test the samples for BS EN ISO 11426:1999.

5. TEST RESULTS

Test results submitted by the participating laboratories are presented in Appendix A. The numbers in the column headings of the table represent the code numbers of the participating laboratories.

6. EVALUATION OF RESULTS

6.1 Please refer to the document **DAC-G3-03** Robust Z-Score Analysis for the methodologies of analysis.

6.2 Calculations of z-scores from the results

Appendix B gives the details of the calculation of the Z-Score. The Z score analysis is based on an internationally accepted procedure being used by accreditation bodies implementing Interlaboratory comparison programs.

6.3 Outlier results

After evaluating the Z-Score, all the results are acceptable.

7. APPENDICES

7.1 Appendix A: Raw Data
7.2 Appendix B: Calculation of z-scores and other statistics
7.3 Appendix C: Charts

Appendix A: Raw data

The Average Gold Content, (%)

Lab#	Sample1	Sample2	Sample3	Sample4
Lab 1	752.330	875.330	918.210	999.160
Lab 2	750.128	874.093	916.810	999.900
Lab 3	751.200	875.200	916.100	999.100
Lab 4	751.000	875.000	917.000	999.000
Lab 5	750.420	875.720	917.600	999.870

Appendix B: Calculation of z-scores

Average Gold Content, (%)

Result#	S1 S2	S3 S4	S1+S3 S2+S4	S1-S3 S2-S4	Between Labs z-score	Within Labs z-score
Lab1-1	752.330	918.210	1670.54	-165.88	-0.6654	-0.6603
Lab1-2	875.330	999.160	1874.49	-123.83	0.6687	0.6924
Lab2-1	750.128	916.810	1666.94	-166.68	-0.6890	-0.6861
Lab2-2	874.093	999.900	1873.99	-125.81	0.6654	0.6288
Lab3-1	751.200	916.100	1667.30	-164.90	-0.6866	-0.6288
Lab3-2	875.200	999.100	1874.30	-123.90	0.6674	0.6902
Lab4-1	751.000	917.000	1668.00	-166.00	-0.6821	-0.6642
Lab4-2	875.000	999.000	1874.00	-124.00	0.6655	0.6869
Lab5-1	750.420	917.600	1668.02	-167.18	-0.6819	-0.7022
Lab5-2	875.720	999.870	1875.59	-124.15	0.6759	0.6821

No. of Results	10	10	10	10
Median	813.21	958.61	1772.27	-145.35
Q 1	751.050	917.150	1668.005	-165.970
Q 3	875.150	999.145	1874.225	-124.038
Inter Q Range	124.100	81.995	206.220	41.933
Normalzd IQR	91.995	60.783	152.871	31.085
Robust CV,%	11.313	6.341	8.626	-21.385
Minimum	750.13	916.10	1666.94	-167.18
Maximum	875.72	999.90	1875.59	-123.83
Range	125.59	83.80	208.65	43.35

Appendix C: Charts