



REF: 812/02/02/1/ 789

DATE: 21 February 2007

ATTENTION: LAB MANAGER

SUBJECT: 150<sup>th</sup> INTER-LABORATORY PROFICIENCY TESTING PROGRAM

We are pleased to present the results of the 150<sup>th</sup> Inter-laboratory Proficiency Testing Program involving the determination of Ten Percent Fine Value.

As in previous programs, we have assigned code numbers to participating laboratories in order to protect their identities. For this particular program please contact Dr. Yaser (Tel. No. 3027074) or Eng. Raniah (Tel. No. 3027069) to inform you which code number has been assigned to you.

You are also requested to pay to Dubai Accreditation Centre (DAC), an amount of (Dhs 418) in return for your participation in the Inter-laboratory Proficiency Testing Program (please note that the governmental laboratories are exempted from participation fees). We would like to draw your attention that payment can be made through DCLD counter- ground floor by credit card. Should you intend to pay by cheque please address the cheque to Dubai Municipality. After payment, please submit a copy of the invoice to the Accreditation Center (Eng. Raniah Ed Dili in the administration building on the second floor office no. 310).

You are kindly requested to pay the amount within one month from the date in which the result is posted on our website.

We thank you for your participation and we would welcome any comments or suggestions on this and on future programs. Please do not hesitate to contact us if you need any clarification on the report.

*Kind Regards*

ENG. LINA MOFLEH QUDAH  
HEAD OF ACCREDITATION DECISIONS SECTION - DAC

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## DUBAI ACCREDITATION CENTER

### Report on 150<sup>th</sup> Inter-Laboratory Proficiency Testing Ten Percent Fines Value (TFV) of Aggregate

20 February 2007

#### 1. INTRODUCTION

This document presents the results of the 150<sup>th</sup> inter-laboratory proficiency-testing program conducted during the months of December 2006 - January 2007, involving the determination of the ten percent fines value of aggregate samples (dry) according to BS 812:1990 Part 111 Test 7.1.

This program is part of the Interlaboratory Comparison Programs organized by Dubai Accreditation Center of DM for monitoring the validity of tests 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 fifteen laboratories participated in this program.

##### 2.2 Samples tested:

The test items consist of four (4) samples of coarse crushed rock (10mm nominal size) each in one bag of approximately 20 kg was distributed to all participating laboratories. The sample specifications were such that the expected test results from one source is different than that of the other. The samples were thoroughly mixed using mechanical means in order to ensure homogeneity.

From one source, 30 samples were collected using standard sampling procedure for aggregate. Similarly from the other source, another 30 samples were also collected. The samples were randomly distributed to the fifteen participating laboratories with each participant receiving four samples (two from each source). 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 according to BS 812:1990 Part 111 Test 7.1



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### 5. TEST RESULTS

The test results submitted by the participating laboratories are presented in Appendix A. In order to protect the identity of the participating laboratories, each one was assigned a code number. The numbers in the column headings, Lab #, of the tables represents the code numbers for the participating laboratories.

### 6. EVALUATION OF RESULTS

#### 6.1 METHOD OF ANALYSIS

Please refer to document **DAC-G3-03** Robust Z-Score Analyses for the methodologies of analysis that can be downloaded from our website [www.dac.gov.ae](http://www.dac.gov.ae)

#### 6.2 CALCULATIONS OF Z- SCORES

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

#### 6.3 OUTLIERS RESULTE

After evaluating the z-scores, the following results were considered outliers:

Test Parameter	Labs with outlier results	Type of Outlier
Ten Percent Fines Value	Lab 8-1	Between labs
	Lab 8-2	
	Lab 9-1	
	Lab 9-2	
	Lab 14-1	
	Lab 14-2	
	Lab 7-2	Within labs
	Lab 8-1	
	Lab 8-2	
	Lab 9-2	
	Lab 12-1	
	Lab 12-2	
	Lab 14-1	
	Lab 14-2	



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The test results provided by the above mentioned laboratories are outside the Z-score limits of  $\pm 3$  and identified as outliers. The above-mentioned laboratories are requested to investigate the root cause of the outlier results, implement corrective action and email a report within 2 weeks to the head of the Accreditation Decisions Section of Dubai Accreditation Center to the following email address [lmqudah@dm.gov.ae](mailto:lmqudah@dm.gov.ae)

### 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 results

TEN PERCENT FINE VALUE (kN)

Lab #	1	2	3	4
Lab 1	280	280	350	350
Lab 2	280	280	350	350
Lab 3	280	280	350	350
Lab 4	280	280	350	350
Lab 5	290	290	360	360
Lab 6	290	290	370	370
Lab 7	270	280	330	330
Lab 8	270	260	310	300
Lab 9	300	290	370	380
Lab 10	280	280	350	350
Lab 11	280	280	350	350
Lab 12	280	280	330	320
Lab 13	280	280	350	350
Lab 14	280	270	300	310
Lab 15	280	280	350	350

Appendix B:Z-scores

Result#	S1 S2	S3 S4	S1+S3 S2+S4	S1-S3 S2-S4	Between Labs z- score	Within Labs z- score
Lab1-1	280	350	630.0	-70.0	0.00	0.000
Lab1-2	280	350	630.0	-70.0	0.00	0.000
Lab2-1	280	350	630.0	-70.0	0.00	0.000
Lab2-2	280	350	630.0	-70.0	0.00	0.000
Lab3-1	280	350	630.0	-70.0	0.00	0.000
Lab3-2	280	350	630.0	-70.0	0.00	0.000
Lab4-1	280	350	630.0	-70.0	0.00	0.000
Lab4-2	280	350	630.0	-70.0	0.00	0.000
Lab5-1	290	360	650.0	-70.0	1.80	0.000
Lab5-2	290	360	650.0	-70.0	1.80	0.000
Lab6-1	290	370	660.0	-80.0	2.70	-1.799
Lab6-2	290	370	660.0	-80.0	2.70	-1.799
Lab7-1	270	330	600.0	-60.0	-2.70	1.799
Lab7-2	280	330	610.0	-50.0	-1.80	3.597
Lab8-1	270	310	580.0	-40.0	-4.50	5.396
Lab8-2	260	300	560.0	-40.0	-6.30	5.396
Lab9-1	300	370	670.0	-70.0	3.60	0.000
Lab9-2	290	380	670.0	-90.0	3.60	-3.597
Lab10-1	280	350	630.0	-70.0	0.00	0.000
Lab10-2	280	350	630.0	-70.0	0.00	0.000
Lab11-1	280	350	630.0	-70.0	0.00	0.000
Lab11-2	280	350	630.0	-70.0	0.00	0.000
Lab12-1	280	330	610.0	-50.0	-1.80	3.597
Lab12-2	280	320	600.0	-40.0	-2.70	5.396
Lab13-1	280	350	630.0	-70.0	0.00	0.000
Lab13-2	280	350	630.0	-70.0	0.00	0.000
Lab14-1	280	300	580.0	-20.0	-4.50	8.993
Lab14-2	270	310	580.0	-40.0	-4.50	5.396
Lab15-1	280	350	630.0	-70.0	0.00	0.000
Lab15-2	280	350	630.0	-70.0	0.00	0.000

No. of Results	30.0	30.0	30.0	30.0
Median	280.00	350.00	630.00	-70.00
Q 1	280.00	335.00	615.00	-70.00
Q 3	280.00	350.00	630.00	-62.50
Inter Q Range	0.00	15.00	15.00	7.50
Normalzd IQR	0.000	11.120	11.120	5.560
Robust CV,%	0.000	3.177	1.765	-7.943
Minimum	260.0	300.0	560.0	-90.0
Maximum	300.0	380.0	670.0	-20.0
Range	40.0	80.0	110.0	70.0

Annex C: Charts

