



REF: 812/02/02/1/658

DATE: 16 November 2006

ATTENTION: LAB MANAGER

SUBJECT: 145th INTER-LABORATORY PROFICIENCY TESTING PROGRAM

We are pleased to present the results of the 145th Inter-laboratory Proficiency Testing Program involving the determination of resistance to degradation in the Los Angeles abrasion machine. 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 Mrs. 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

A handwritten signature in blue ink, appearing to read 'Lina Qudah'.

Eng. Lina Qudah

Head of Accreditation Decisions Section-DAC

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Report on 145th Inter-Laboratory Proficiency Testing Resistance to Degradation by Abrasion and Impact in the Los Angeles Machine

16 November 2006

1. INTRODUCTION

This document presents the results of the 145th inter-laboratory proficiency testing program conducted during the months of September 2006 involving the determination of resistance to degradation in the Los Angeles abrasion machine as per ASTM C 131–1996, on four (4) samples of 20 mm crushed aggregate.

This program is part of the Interlaboratory Comparison Programs organized by the 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 eleven laboratories participated in this program.

2.2 Samples tested:

Two different stockpiles of 20 mm crushed aggregates coming from different sources were prepared by thoroughly mixing the material using mechanical means.

From one stockpile, 22 samples of approximately 50 kg each were obtained using the procedure described in ASTM D 75 - 1997. From the other stockpile, another 22 samples were obtained using the same procedure. The above mentioned samples were randomly distributed to the eleven participating laboratories with each participant receiving four test samples, two from each set. The test 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:

- Resistance to degradation by abrasion and impact in Los Angeles abrasion machine as per ASTM C 131 – 1996.



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

6.2 CALCULATIONS OF Z-SCORES

Appendix B gives the details of the calculation of the Z-Score 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 RESULTS

After evaluating the Z-score, the following results were considered outliers:

Test Parameter	Labs with outlier results	Type of Outlier
Resistance to degradation in the Los Angeles abrasion machine	Lab 7-1 Lab 7-2	Between Labs

The test results provided by the above-mentioned laboratory are outside the Z score limits of ± 3 , the abovementioned laboratory is requested to investigate the root cause of the outlier results, implement corrective action and email a report within 2 weeks to Accreditation Decisions Section of the Dubai Accreditation Center to the following address: 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

**Los Angeles Abrasion Test
Percentage Loss, (%)**

Lab#	1	2	3	4
Lab1	16	16	21	20
Lab2	16	15	19	20
Lab3	15	15	20	21
Lab4	15	15	21	21
Lab5	16	16	22	21
Lab6	17	16	20	21
Lab7	14	14	19	19
Lab8	16	16	22	22
Lab9	16	16	20	20
Lab10	15	15	21	21
Lab11	16	16	20	21

Appendix B:Z-scores

Percentage Loss, (%)

Result#	S1 S2	S3 S4	S1+S3 S2+S4	S1-S3 S2-S4	Between Labs z- score	Within Labs z- score
Lab1-1	16	21	37.0	-5.0	1.35	0.000
Lab1-2	16	20	36.0	-4.0	0.00	0.771
Lab2-1	16	19	35.0	-3.0	-1.35	1.542
Lab2-2	15	20	35.0	-5.0	-1.35	0.000
Lab3-1	15	20	35.0	-5.0	-1.35	0.000
Lab3-2	15	21	36.0	-6.0	0.00	-0.771
Lab4-1	15	21	36.0	-6.0	0.00	-0.771
Lab4-2	15	21	36.0	-6.0	0.00	-0.771
Lab5-1	16	22	38.0	-6.0	2.70	-0.771
Lab5-2	16	21	37.0	-5.0	1.35	0.000
Lab6-1	17	20	37.0	-3.0	1.35	1.542
Lab6-2	16	21	37.0	-5.0	1.35	0.000
Lab7-1	14	19	33.0	-5.0	-4.05	0.000
Lab7-2	14	19	33.0	-5.0	-4.05	0.000
Lab8-1	16	22	38.0	-6.0	2.70	-0.771
Lab8-2	16	22	38.0	-6.0	2.70	-0.771
Lab9-1	16	20	36.0	-4.0	0.00	0.771
Lab9-2	16	20	36.0	-4.0	0.00	0.771
Lab10-1	15	21	36.0	-6.0	0.00	-0.771
Lab10-2	15	21	36.0	-6.0	0.00	-0.771
Lab11-1	16	20	36.0	-4.0	0.00	0.771
Lab11-2	16	21	37.0	-5.0	1.35	0.000

No. of Results	22.0	22.0	22.0	22.0
Median	16.00	21.00	36.00	-5.00
Q 1	15.00	20.00	36.00	-6.00
Q 3	16.00	21.00	37.00	-4.25
Inter Q Range	1.00	1.00	1.00	1.75
Normalzd IQR	0.741	0.741	0.741	1.297
Robust CV,%	4.633	3.530	2.059	-25.946
Minimum	14.0	19.0	33.0	-6.0
Maximum	17.0	22.0	38.0	-3.0
Range	3.0	3.0	5.0	3.0

Annex C: Charts

