



TECHNICAL REPORT ON
THE ABRASION RESISTANCE OF AGGREGATE BY USE OF THE LOS ANGELES MACHINE
PROFICIENCY 2015

CETANZ Technical Report	TR 9
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Associated Test Method(s)	NZS4407:1991 3.12

1. Introduction

CETANZ technical committee launched this proficiency programme in August 2015 for following test method NZS4407 1991 Test 3.12, Test Method for The abrasion resistance of aggregate by use of the Los Angeles machine. The materials and instructions were distributed to following participating laboratories. They are:

Fulton Hogan Limited	Auckland
Fulton Hogan Limited	Christchurch
Higgins Contractors Limited	Palm. Nth
Opus International Consultants Limited	Auckland
Opus International Consultants Limited	Christchurch
Opus International Consultants Limited	Hamilton
Opus International Consultants Limited	Napier
Opus International Consultants Limited	Rotorua
Road Science Auckland Laboratory	Auckland
Stevenson Laboratory Limited	Drury
Winstone Aggregate	Hunua

Road Science Auckland Laboratory prepared and distributed the materials and instructions to the participants on behalf of CETANZ.

The scheme and Technical Coordinator is Frank Hu from Road Science Auckland Laboratory.

Keith Towl of IANZ kindly administered the Laboratory Identity portion of this Scheme, thus ensuring confidentiality. This means that only IANZ knows who each lab is in the final report. Keith issued Proficiency Laboratory ID before results are returned to the coordinator.

10 laboratories returned their results.

2. Purpose of this Proficiency Scheme

- Provide results that enable participants to improve their performance.
- Contribute to confidence of mutual users of Civil Engineering Laboratories.
- Identify problems with, or between, laboratories if any.
- Provide an indication of the industry's ability to perform the test method.

3. Instructions

Each Laboratory was sent 1 bulk test sample of CA 19.

- Test perimeters and controls:
 - Test method: NZS4407 1991 Test 3.12
 - Grading B

Each Laboratory was asked to supply the following results:

- Laboratory Identification (Supplied by IANZ)
- IANZ accreditation status for this test
- Loss at 100 revolutions
- Loss at 500 revolutions
- Ratio

4. Statistical Analysis Used

Raw data will be returned to the participants with simple statistical analysis. It will be up to each laboratory to assess its own performance.

5. Results

All results but one are within 2 standard deviations. In fact, most results are within or around 1 standard deviation. The only result that is outside 2 standard deviations is from a non-accredited Lab 7 and is excluded from Table 2. See Appendix.

6. Further action

Advise stakeholders of proficiency data.

7. Referenced Documents

NZS 4407:1991: Part 2 tests 3.12

8. Disclaimer

The information in this publication is to encourage high standards within the civil engineering testing industry. The information is intended as a technical report for CETANZ members only and in no way purports to be a robust statistical analysis. CETANZ cannot accept any liability of any sort for unsatisfactory site or laboratory work carried out by Companies who are members of CETANZ or organisations who claim to be following this report. CETANZ assumes no responsibility for any loss which may arise from reliance on the report and disclaims all liability accordingly. Specialist and/or legal advice should always be sought on any specific problem or matter.

Appendix

Table 1 All results

	Accredited	Tester	Loss @100 rev	Loss @ 500 rev	Ratio
Lab 1	Y	N	1.8	8.5	0.216
Lab 2	Y	Y	1.7	9.4	0.181
Lab 3	Y	Y	1.8	9.3	0.194
Lab 5	Y	Y	1.8	9.3	0.194
Lab 6	N	N	1.86	8.98	0.207
Lab 7	N	Y		4.4	
Lab 8	Y	Y	1.7	8.9	0.191
Lab 9	Y	Y	1.6	8.0	0.200
Lab 10	Y	N	2.0	9.0	0.222
Lab 222	Y	Y	1.7	8.8	0.193
Average			1.77	8.46	0.200
Standard Deviation			0.12	1.49	0.0130
Average \pm 1SD			1.66 - 1.89	6.97 - 9.94	0.19 - 0.21
Average \pm 2SD			1.54 - 2	5.49 - 11.43	0.17 - 0.23
Range			1.6 - 2	4.4 - 9.4	0.181 - 0.222

Table 2 All results except Lab 7

	Accredited	Tester	Loss @100 rev	Loss @ 500 rev	Ratio
Lab 1	Y	N	1.8	8.5	0.216
Lab 2	Y	Y	1.7	9.4	0.181
Lab 3	Y	Y	1.8	9.3	0.194
Lab 5	Y	Y	1.8	9.3	0.194
Lab 6	N	N	1.9	9.0	0.207
Lab 8	Y	Y	1.7	8.9	0.191
Lab 9	Y	Y	1.6	8.0	0.200
Lab 10	Y	N	2.0	9.0	0.222
Lab 222	Y	Y	1.7	8.8	0.193
Average			1.77	8.91	0.200
Standard Deviation			0.12	0.44	0.0130
Average \pm 1SD			1.66 - 1.89	8.47 - 9.35	0.19 - 0.21
Average \pm 2SD			1.54 - 2	8.02 - 9.79	0.174 - 0.226
Range			1.6 - 2	8 - 9.4	0.181 - 0.222