

Laboratory and Technician Certification

by

Nabil Kamel, M.A.Sc., P.Eng.

CCIL Program Manager




Laboratory and Technician Certification

Table of contents

- What is lab certification ?
- Why lab certification?
- Lab certification in Canada
- CCIL certification program make up
- Results of inter-lab correlation test results
- Summary of certification benefits



What is laboratory certification?

- The procedure by which an authoritative body gives formal recognition that an organization or a person is competent to carry out specific tests
 - Globally, certification has become a definitive requirement for product testing associated with food, public health, environmental assessments and construction projects.
 - *Most countries rely on lab certification process as a means of evaluating technical competence, based on ISO 17025, International Standard*
- 




What is laboratory certification?

- Factors considered in ISO 17025 include:
 - qualification and training of testing personnel,
 - test equipments used, calibration and maintenance,
 - validity and appropriateness of the test methods
 - adequate quality assurance and quality control procedures in-place,
 - traceability of measurements and calibrations,
 - management commitment to quality
 - Other




What is laboratory certification ?

- To ensure continued compliance and maintenance of technical expertise, ISO labs must be audited on regular basis
 - Certified labs must also participate in proficiency testing on regular basis to maintain its certification status
 - Most testing labs seek certification to demonstrate their technical competence
- 




Why Lab Certification?

Regular lab auditing & participation in Prof. Tests

- Ensures up-to-date & uniform test procedures
 - Ensures testing is by qualified and trained staff
 - Ensures equipment are calibrated and maintained
 - Improves standards of excellence in testing
 - Increases confidence in test results
 - Reduces potential for interruptions and disputes
 - Improper testing, on the other hand, can lead to drastic consequences if project delays and /or the prospect of legal actions are considered
- 




laboratory certification in Canada

- In Canada, **all** labs involved in testing associated with food, public health and environmental assessments must be certified/accredited to ISO 17025.
 - This is not the case however for labs involved with testing for the road construction industry
- 




laboratory certification in Canada

- For the road building industry, only Ontario that currently has a comprehensive requirement that testing on the Ontario Ministry of Transportation projects must be done by certified asphalt and/or aggregate laboratory
 - In BC and AB, lab certification has recently been introduced and is being quite widely embraced
 - In BC, referee testing on the BC Ministry of Transportation projects must be done by a certified laboratory
- 




laboratory certification in Canada

- Based on current lack of lab certification requirements in the majority of jurisdictions in Canada, it would appear that a clear recognition of the importance of laboratory certification need to be established
 - In Canada, CCIL Provides certification of testing laboratories for concrete, asphalt and aggregate materials
- 



CCIL Certification Programs

Who is CCIL?

- CCIL is a Registered Non-Profit Organization
 - Started with Asphalt lab certification in the early 1980's in Ontario
 - Expanded to Aggregates in the mid 1990's
 - Expanded to Technician Certification also in the mid 1990's
 - In 2007, introduced lab certification into BC
 - Expanded to Alberta in 2009
 - Acquired the Concrete lab certification program from CSA in 2009
- 

CCIL Certification Program Make-up


- In general, the CCIL certification program is in compliance with ISO 17025, with 5 main components:
 1. Proficiency samples on annual basis
 2. Prof. Samples Program Follow-up
 3. Laboratory Inspections/Audits
 4. Quality manual & Internal Audit
 5. Technician Certification

Certification Program Make-up Asphalt and Aggregate Materials

	<u>CCIL</u>	<u>Canadian Mix Exchange</u>	<u>ISO</u>	<u>AASHTO</u>
Interlab Correlation	√	√	√	√
Correlation Follow up	√	-	-	-
Lab Audits	√	-	√	√
Quality System	√	-	√	√
Technician Certificate	√	-		√




Certification Program Make-up Asphalt and Aggregate Materials

- The cornerstone of the program are Integrity and Confidentiality as per ISO 17025
 - In addition, CCIL directive for a distinct effort of the CCIL staff to work with the labs to improve results/raise standards of testing
 - The results show up clearly in the excellent standard deviation of the inter-lab correlation results
- 



Certification Program Make-up Asphalt and Aggregate Materials

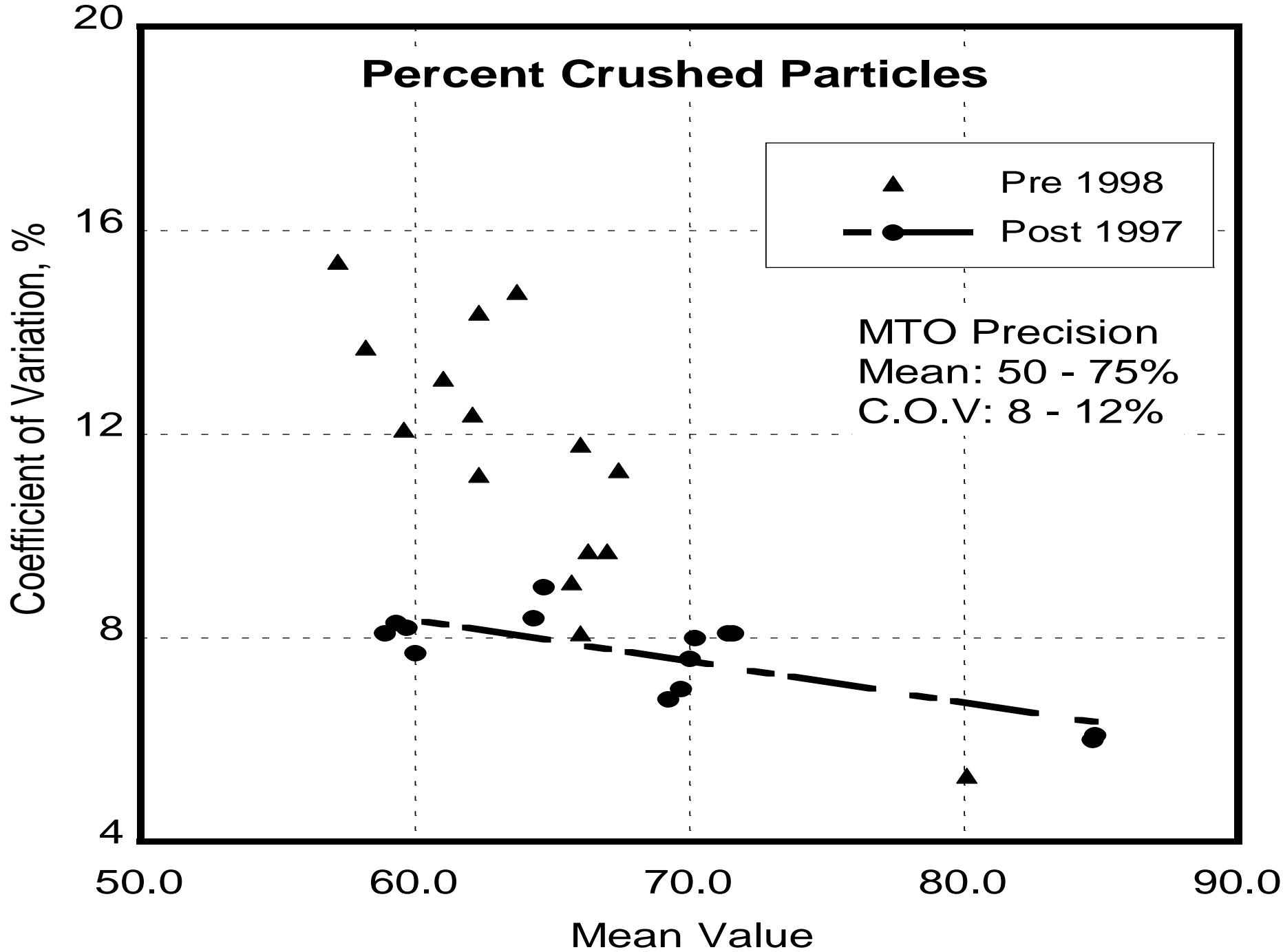
- CCIL Certification Programs administered by Local Admin Committees entrusted with establishing, reviewing, and revising, as necessary, the technical criteria for the core elements of the program in accordance with overall CCIL criteria
 - Participation in Program Administration Committee by all local Stakeholders: local testing labs, local contractor labs, Provincial and Municipal Authorities. The CCIL certification program is tailored to local test procedures and needs
- 

CCIL Certification Programs Overview, 2010

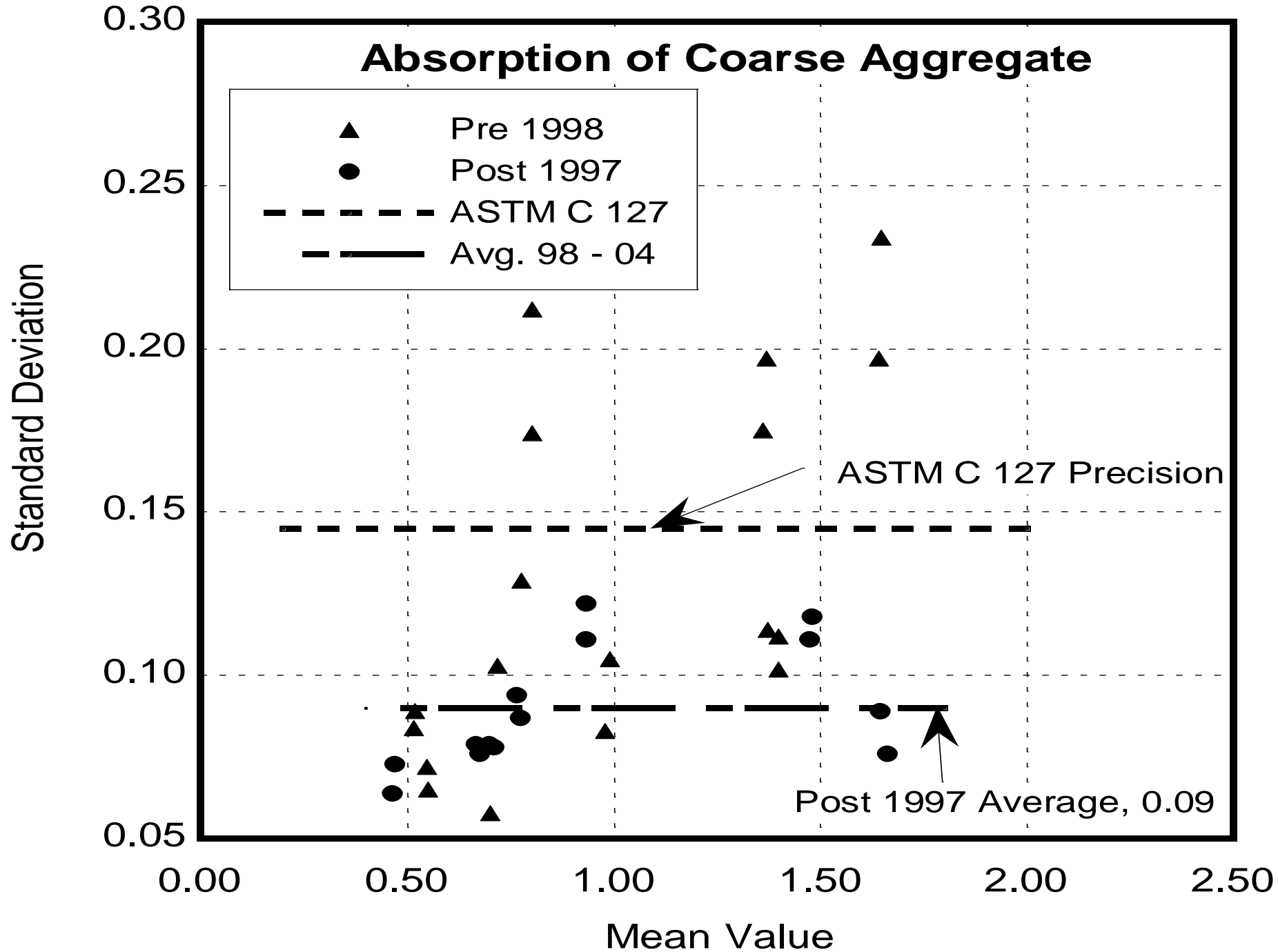
- Asphalt and Aggregate certified laboratories in ON, MB, SK, AB, and BC
- Total number of Asphalt laboratories.....165
- Total number of Aggregate laboratories.....265

- Concrete certified laboratories nation-wide, in all provinces and the NW Territories
- Total number of Concrete laboratories.....232

Percent Crushed Particles



Absorption of Coarse Aggregate



BC certification Program, Ignition Oven, % AC Correlation Tests

	2008	2009	2010
Mean, BC	5.11	5.11	5.05
Mean, ON	5.03	5.03	5.06
SD, BC	0.166	0.153	0.151
SD, ON	0.092	0.088	0.104


Similar Trend is observed with other tests

BC Certification Program: Mix Compliance Correlation Results

	2008	2009	2010
SD, BRD, BC	0.091	0.070	0.015
SD, BRD, ON	0.010	0.011	0.010
SD, AV, BC	1.269	1.426	0.624
SD, AV, ON	0.405	0.474	0.572
SD, VMA, BC	1.583	1.844	0.496
SD, VMA, ON	0.500	0.384	0.376




Lab Certification is a win-win to all

- Regulators: the assurance that regulation is supported by valid test data
 - Owners: the assurance that the project is built in accordance with the specified test requirements
 - Contractors, producers, consultants & testing laboratories: improved confidence in testing results leading to reduced potential for job interruptions, construction delays and contract disputes
- 



Benefits of Certification

- Our Role
 - Ensures testing by qualified, trained staff
 - Uniform & up-to-date Test Procedures
 - Reduces test variations and Improve overall laboratory testing standard
 - Increases confidence in test results
 - Reduces potential for delays and disputes
 - Encourages technician training
- 

Benefits (cont'd)

- Certification ensures, promotes and implants a culture of quality, no draw backs. It makes engineering sense and it is highly cost effective considering the benefits and the risk associated with improper testing.
- Benefits to all stakeholders
 - *Regulators, Owners, Producers, Consultants and Testing laboratories*



*CCIL Laboratory and Technician
Certification Programs*

Thank you





CCIL Certification Programs Western Canada

- Eleven Laboratories, 2007
 - Twenty laboratories, 2008
 - Twenty-Five Laboratories in 2009
 - Fifty Laboratories for 2010
 - *Sixty labs applied for the 2011 asphalt and aggregate certification, to date*
 - Plus 97 certified concrete labs
- 