PURPOSE

This CAN-P-1579 Appendix C document outlines the Standards Council of Canada (SCC) Mineral Analysis Working Group (MAWG) proficiency testing measurand list and criteria for the assessment of proficiency testing performance for accredited laboratories in the SCC Program Specialty Area - Mineral Analysis (PSA MA) program.

AUTHORSHIP

This publication has been compiled and approved by the SCC MAWG.

FURTHER INFORMATION

Correspondence concerning corrective action plans and all enquires concerning accreditation status should be addressed to the Secretary of the SCC Mineral Analysis Working Group:

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Requests for CANMET-MMSL PTP-MAL proficiency testing samples should be addressed to:

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(for samples prepared at Mineral Analysis Laboratory's off-site sample preparation facilities)

A. Policy application

Team Leaders and Technical Assessors shall apply this SCC PALCAN Policy requirements when assessing preparation of samples at mineral analysis testing laboratories.

This policy is specifically applicable only to the mineral analysis PSA.

B. General criteria

1) The definitions from CAN-P-1579 Appendix B: Sept 2008 *("Definitions for the PSA-MA Program"*) shall apply:

- Chemical decomposition
- Control sample
- Duplicate sample
- Quality control sample
- Reference sample
- Replicate sample
- Replicate tests
- Sample
- Sample analysis
- Sample collection
- Sample history requirements
- Sample preparation
- Sample pre-treatment
- Sample reduction
- Subsample
- Test
- Test method
- Test portion

These definitions indicate that all steps necessary to prepare the sample for analysis shall be clearly defined and documented for both the on-site and off-site preparation of samples.

2) All accredited mineral analysis test methods shall be written to clearly define all stages of the test. An integral part of the test method includes defining and/or referencing all processes and procedures. This includes sample collection, sample history requirements, sample preparation, sample pre-treatment, sample reduction, subsampling, quality control as well as the unique combination of matrix, analyte coupled with digestion method and analytical finish and the calculations and reporting of results

C. General on-site sampling assessment criteria

1) In the normal context of an accredited mineral analysis test or test method, sample preparation refers ONLY to in-house processes or procedures on submitted samples (i.e. "test item" as defined in CAN-P-4E) as received by the laboratory.
Sample preparation as defined in CAN-P-1579 Appendix B September 2008 does not refer to any sample reduction processes at off-site physical sample preparation facilities which prepare a "representative" sample from a bulk or other sample for submission to the laboratory.

2) If the laboratory is analyzing "representative" prepared samples or sub-samples received from an off-site physical sample preparation facility (i.e. a facility where bulk or other samples have undergone any sample reduction processes to provide an appropriate "representative" sample) then 5.10.2 of CAN-P-4E applies.

The test report shall contain a clear statement to the effect that the test results relate only to the items tested as received by the laboratory (Section 5.10.2 includes the provision "where relevant" but in this case there shall be no exceptions. Section 5.10.2 states: **Each test report or calibration certificate shall include a statement to the effect that the results relate only to the items tested**)

3) The assessment of the on-site preparation of samples shall include the laboratory demonstrating to the Technical Assessor the following:

a. The sample is crushed to the appropriate top particle size as specified in the contract (e.g. 90% <10 mesh).

b. The pulp material is pulverized to pass the criteria specified in the contract (e.g. 90% <150 mesh).

Note: Items a) and b) can be documented by keeping a detailed log book of regular screen tests of the crushed and pulverized material on a regular basis (usually at least once per shift).

c. There is a clear demonstration that all routinely used sieves employed have been certified, are properly maintained, checked and cleaned at appropriate intervals.

Notes: i) sieves are critical pieces of equipment and must meet the general requirements of CAN-P-1627. Due to the volume of samples processed the "normal" life span of a routinely used sieve is generally 1-6 months so one would not expected them to last past the 1 year certificate of compliance warranty period. Generally there would not be a need to have the routinely used sieve certified yearly.

ii) providing the routinely used sieve is not used for more than one year the requirements of CAN-P-1627 can be demonstrated as follows:

- The manufacture's certificate of compliance (stating their conformance to ISO 9001 and the manufacturing requirements of ASTM E11 and ISO 565 3310-1) and in the case of Tyler sieves, they are warranted for 1 year "*from the date of 1st use*".

- The laboratory has implemented a procedure of recording the "*date the sieve was put into use*" on the sieve certificate (however recorded)

- The laboratory has recorded the "*date the sieve was removed from use*" on the certificate (however recorded)

- These certificates are filed appropriately (at least as long as required by their QS requirements for critical documents)

iii) demonstrating that the sieves are cleaned via air hose in between each sample and further cleaning by other means if air cleaning fails to remove sample satisfies item c). Proper maintenance can be demonstrated by recording in the detailed log book these cleanings and observation that the sieve does not have any tears in it.

iv) The laboratory has developed and implemented a procedure(s) for use and maintenance of sieves in the sample preparation area that meets this requirement.

d. Duplicates representing different concentration ranges are inserted at the first splitting stage of the sample reduction and the SD of these duplicates is acceptable to the client.

Note: This can be demonstrated through the calculation of the SD from duplicates at different concentrations inserted to demonstrate statistical control.

D. Specific off-site sampling assessment criteria

1) The laboratory may, at its discretion, report its' test result(s) with respect to the **parent sample**, rather than the "representative" sub-sample submitted (i.e. the "test item"), if the laboratory has a specific contract with their client(s) that specifically includes sample comminution and splitting at a remote location.

In these circumstances, the accredited test method must, in addition to explicitly defining all stages of the test, contain a clear statement that as part of this specific test method the "physical preparation of samples" encompasses all processes including those sample reduction processes from off-site sample preparation facilities (i.e. a facility where bulk or other samples have undergone any sample reduction processes to provide an appropriate "representative" sample).

2) In these instances the assessment of the off-site preparation of samples for these specific accredited test method(s) shall include the laboratory demonstrating to the Technical Assessor the following:

a. The sample is crushed to the appropriate top particle size as specified in the contract (e.g. 90% <10 mesh)

b. The pulp material is pulverized to pass the criteria specified in the contract (e.g. 90% <150 mesh)

Note: Items a) and b) can be documented by the off-site facilities keeping a detailed log book of regular screen tests of the crushed and pulverized material on a regular basis (usually at least once per shift) and submitting complete hard or electronic copies of these to the central analysis laboratory.

c. There is a clear demonstration that all routinely used sieves employed at the off-site facility have been certified, are properly maintained, checked and cleaned at appropriate intervals

Note: i) sieves are critical pieces of equipment and must meet the general requirements of CAN-P-1627. Due to the volume of samples processed the "normal" life span of a routinely used sieve is generally 1-6 months so one would not expected them to last past the 1 year certificate of compliance warranty period. Generally there would not be a need to have the routinely used sieve certified yearly.

ii) Providing the routinely used sieve is not used for more than one year the requirements of CAN-P-1627 can be demonstrated as follows:

- The manufacture's certificate of compliance (stating their conformance to ISO 9001 and the manufacturing requirements of ASTM E11, ISO 565 and ISO 3310-1) and in the case of Tyler sieves, they are warranted for 1 year "*from the date of 1st use*".
- The laboratory has implemented a procedure of recording the "*date the sieve was put into use*" on the sieve certificate (however recorded)
- The laboratory has recorded the "*date the sieve was removed from use*" on the certificate (however recorded)
- These certificates are filed appropriately (at least as long as required by their QS requirements for critical documents) and copies of these are submitted to the central lab

iii) demonstrating that the sieves are cleaned via air hose in between each sample and further cleaning by other means if air cleaning fails to remove sample satisfies item c). Proper maintenance can be demonstrated by recording in the detailed log book these cleanings and observation that the sieve does not have any tears in it and submitting complete copies of these to the central lab.

iv) The off-site laboratory has developed and implemented a procedure(s) for use and maintenance of sieves in the sample preparation area that meets this requirement and submitting a complete copy of this procedure(s) to the central lab.

d. Duplicates representing different concentration ranges are inserted at the first splitting stage of the sample reduction process at the off-site location and the SD of these duplicates is acceptable to the client

Note: This can be demonstrated through the calculation of the SD from duplicates at different concentrations inserted at the off-site facility to demonstrate statistical control.

E. Failure to meet specific off-site sampling assessment criteria

If the laboratory is unable to demonstrate to the Technical Assessor and Team Leader during the assessment at the accredited laboratories facility that all the requirements in items D 1) & 2) above are met, the laboratory may elect to have SCC conduct an assessment of the complete processes for the preparation of samples at all or representative off-site sample preparation facilities at the full cost to the laboratory.

F. Scope listings and test reports

1) For mineral analysis laboratories that choose to include sample preparation according to item D above, then those specific test methods shall be clearly identified on their Scope of Accreditation and a caveat shall be added to the Scope and the final test report stating that the normal PALCAN assessment process was not followed for the sample preparation part of that specific test method.

2) If the laboratory elects to have all its accredited mineral analysis tests covered by the off-site physical sample preparation criteria in item D above then those test methods shall be clearly identified on their Scope of Accreditation as follows:

a. A note shall be placed under the "**Mineral Analysis Testing**" heading that indicates the following:

"(see Note 1 concerning off-site physical sample preparation)"

b. In the "**Notes**" section of the Scope there shall be a statement similar to the following:

"The physical sample preparation involving accredited test methods as listed on the scope of accreditation may be performed at .... (name) ..... laboratory or at off-site sample preparation locations that are monitored regularly for quality control and quality assurance practices."