



APMP-APLAC Joint Proficiency Testing Programme  
(APLAC T095)  
Determination of Elements (Calcium and Cadmium)  
in Drinking Water



**Instructions for Participants**

## 1. Objectives

The APMP-APLAC Joint Proficiency Testing Programme (APLAC T095) is jointly coordinated by National Metrology Institute of Japan (NMIJ) and Government Laboratory of Hong Kong (GLHK) according to the recommendation from the APMP-APLAC Joint PT Working Group, which is established under the auspices of the Asia Pacific Metrology Programme (APMP) and the Asia Pacific Laboratory Accreditation Cooperation (APLAC).

The programme targets on the analysis of two elements (calcium and cadmium) in a gravimetrically prepared water sample. The purposes of the study are (i) to assist participating laboratories in demonstrating competence on the measurement of the mass fractions of the two analytes (mandatory measurand: calcium; optional measurand: cadmium) in the proficiency test sample of water by various analytical techniques; and (ii) to identify problems and opportunities for self-improvement. The mass fractions of the analytes on an as-received basis will be used for comparability purposes.

## 2. Analysis of the proficiency test sample

Participating laboratories will be provided with **ONE** sample bottle containing about **100 mL** of water. Upon receipt of the sample, please complete the Sample Receipt Form and return it to the co-ordinator of the proficiency testing programme (E-mail: [aplact095@govtlab.gov.hk](mailto:aplact095@govtlab.gov.hk)). Replacement of a new bottle of sample will be arranged if the proficiency test sample is identified to be not suitable for analysis.

The proficiency test sample should be stored under room temperature conditions (about 20 °C).

Participants should treat the proficiency test sample in the same manner as the majority of routinely tested samples. Participants should use the test method of their choice. The proficiency test sample should be shaken thoroughly before conducting the tests. Participants are requested to perform at least three independent measurements on three separate portions of the sample and to determine the mass fractions of the analytes. The determination of calcium is mandatory to participants; whereas the analysis of cadmium



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is an optional one. The two measurands and the range of values to be expected for the proficiency test sample are given in Table 1.

Table 1

Measurand	Mass fraction (expected range of values)
Mandatory: Calcium	1 mg/kg to 20 mg/kg
Optional: Cadmium	0.5 µg/kg to 4 µg/kg

For safety considerations, the proficiency test sample should be handled with care to avoid from contacting with eyes. Wash the suffered body areas with plenty of water and consult physicians when necessary.

For this proficiency testing programme, return of the untested proficiency test sample is not necessary.

### 3. Reporting and submission of results

Participants should complete the Result Proforma. The manners of reporting test results are as follows:

- For each analyte, the mean value of at least 3 independent measurements and the measurement uncertainty should be reported;
- Report the mass fraction of calcium in mg/kg;
- Report the mass fraction of cadmium in µg/kg; and
- Participants should provide information about methods of analysis.

Participants should be aware that any submitted results are considered final and accordingly such results and units should be thoroughly checked before submission. Participants should submit the Result Proforma electronically to the co-ordinator of the proficiency testing programme (E-mail: [aplact095@govtlab.gov.hk](mailto:aplact095@govtlab.gov.hk)) on or before the deadline. Results submitted after the deadline will not be accepted. Participants are reminded that the ability to report results in the specified unit and within the given time scale are part of the proficiency test.

Upon approval, an electronic copy of the final report on the performance of participating laboratories will be tentatively distributed to the participants in November 2015 at the earliest. The report will reveal only the code number assigned to the designated participating laboratory and the identity of participants in this proficiency testing programme will be kept confidential.



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The proficiency testing programme is conducted in the belief that participants will perform the analysis and report results with scientific rigour. Collusion and falsification of results are clearly against the spirit of the proficiency testing programme.

#### **4. Contact**

Participants may wish to contact the co-ordinator of the proficiency testing programme for any enquires (E-mail: [aplact095@govtlab.gov.hk](mailto:aplact095@govtlab.gov.hk)).