



Specific Accreditation Criteria

ISO/IEC 17025 Application Document Life Sciences - Annex

Aquatic biology

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Purpose

In addition to the *ISO/IEC 17025 Standard Application Document (SAD)* and the accompanying *Life Sciences - Appendix*, this document provides interpretative criteria and recommendations for aquatic biology analyses for both applicant and accredited facilities.

Facilities must comply with all relevant *documents in the NATA Accreditation Criteria (NAC)* package applicable for Environment (refer to *NATA Procedures for Accreditation*).

The clause numbers in this document follow those of ISO/IEC 17025, however, as not all clauses require interpretation the numbering may not be consecutive.

Scope of aquatic biology analyses

Accreditation is available for the detection, identification and enumeration of algae, microinvertebrates, macroinvertebrates, enteric and free-living protozoa, cyanobacteria, metazoa, and for ecotoxicology.

The scope of accreditation will list potentially toxic cyanobacteria and planktonic algae to the species level. Other cyanobacteria and planktonic algae can be identified to the lowest level as determined by the competency of the facility.

Accreditation is also available for the collection of samples for aquatic organisms, the detection of toxicity associated with cyanobacteria and marine phytoplankton, and ecotoxicological bioassays using a range of indicator organisms, including microinvertebrates.

The system of classification for all aquatic biology determinations is based on the classification of organisms to a specified level.

5 Structural requirements

5.6 Provision must be available for:

- adequate rest periods for personnel between sample analysis;
- adequate staff resources to meet periods of peak demand.

6 Resource requirements

6.2 Personnel

6.2.2

Cryptosporidium and *Giardia*

A supervisor for parasitic protozoa must have analysed a minimum of 100 samples with a minimum of 10 positive samples.

An analyst for parasitic protozoa must have analysed a minimum of 50 samples with a minimum of 5 positive samples.

6.2.3 Staff undertaking sample analysis and staff approved to release results, will be expected to demonstrate an ability to identify and enumerate examples of target organisms to the defined level (e.g. family, genus or species).

Facility management is expected to provide opportunities for staff to gain further experience in the field of aquatic biology. Provision must be made for staff to attend relevant events to ensure they keep up to date with changes in taxonomy and develop a professional network with other scientists working in the field.

6.5 Metrological traceability

6.5.3 The facility is expected to maintain a reference library, including text books, photo micrographs and specimens.

It is important to maintain a collection of specimens that have not been able to be identified. With advances in taxonomy, such a collection may provide valuable information for the future.

A system must be developed to allow new or unidentifiable specimens to be sent to taxonomic experts for identification.

With advances in electronic photo imaging it is desirable that a means of capturing images electronically be developed.

Note: This does not apply to the testing of *Cryptosporidium* and *Giardia*.

7 Process Requirements

7.7 Ensuring the validity of results

7.7.1

Cryptosporidium and *Giardia*

Recovery rates for positive controls from each sample matrix per week* (minimum one per 20 samples) and from reagent water (minimum one per week*) must be established and on-going charts of recovery efficiency be maintained.

Positive controls must be identified by source, method purification, propagation/age, preservation and percent of cysts and oocysts that meet confirmation criteria (e.g. DAPI positive and/or DIC positive).

Note: * Denotes week during which samples are concentrated.

7.7.2

Cryptosporidium and *Giardia*

The acceptable range for percentage recoveries is 10% - 110% in relevant parasitic protozoan proficiency testing programs.

7.8 Reporting of results

7.8.3 Specific requirements for test reports

7.8.3.1

Cryptosporidium and *Giardia*

Test reports must include recovery rates. If an internal standard is used, the reported recovery rate may be sample specific. Where an internal standard is not used, reported recovery rate must be matrix specific. The report must also clearly indicate the percentage of sample analysed.

References

This section lists publications referenced in this document. The year of publication is not included as it is expected that only current versions of the references shall be used.

Standards

ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories

NATA Publications

NATA Accreditation Criteria (NAC) package applicable to the activities covered, or proposed to be covered, by the facility's scope of accreditation

Amendment Table

The table below provides a summary of changes made to the document within this issue.

Section or Clause	Amendment
Whole document	The previous separate <i>Specific Accreditation Criteria Annexes</i> covering biological tests on water and testing water samples for <i>Cryptosporidium</i> and <i>Giardia</i> have been combined into one Annex. No new recommendations have been included, other than editorial changes.
7.7.1	Quality control criteria revised in accordance with the U.S.EPA method 1623.
7.8.3.1	Criteria expanded for reporting recovery rates in test reports.