Policies, Requirements and Conditions for Reference Material Producer Accreditation
Bureau of Laboratory Quality Standards, Department of Medical Sciences, Ministry of Public Health

1. Introduction

Bureau of Laboratory Quality Standards (BLQS) shall provide a high quality accreditation and technical services to accredit reference material producer (RMP) comply with ISO 17034 in combination with the current version of the ISO Guides 31 plus ISO/IEC 17025. Our processes for such accreditation offer applicant bodies the opportunity to assure their customers or their customers of their compliance with the relevant international standards. Reference material producers (RMPs) accreditation process of BLQS shall be managed by the Director of BLQS who has been endorsed by the government authoritative to operate all activities independently. The accreditation shall be impartial among all organization, both with internal and external agencies of DMSc.

BLQS shall ensure the accreditation system of RMP to comply with ISO 17011, *Conformity assessment-General requirements for the accreditation bodies accrediting conformity assessment bodies,* APLAC and ILAC MRA requirement in order to have international recognition of the accreditation scheme. BLQS also uses the current version of the APLAC TC 008 – *Requirement for and guidance on the Accreditation of a Reference Material Producer* and the resulting Scope of Accreditation.

2. Types of RMP

Reference Material Producer contains many stages of activities (tasks of RMP), some of this can be subcontracted. The types of RMP classified by number of task the RMP performed. *Table 1* demonstrates the types of RMP and the responsible tasks of each type of RMP as well as the relevant standard (ISO) applied to each stage.

According to APLAC TC 008 (*APLAC Requirements and Guidance on the Accreditation of a Reference Material Producer)*, the principles apply to the assessment and accreditations of RMPs are as follow:

2.1 The RMP shall be the body that is subject to accreditation. The RMP can be considered a "producer" or a "facility" but cannot be considered solely a "laboratory". The production of Reference Materials (RMs) involves some activities that are not normally considered the activities of a laboratory. The term "production" used in this document includes all necessary activities and tasks leading to a RM supplied to customers, and includes at least those given in the table (*Table 1*). In other words, production is not restricted to just the manufacture and preparation of the candidate material. Where an organization only provides services such as provision of reference values to a candidate RM, it cannot be considered as a RMP.

2.2 The accreditation criteria shall be ISO 17034 and ISO/IEC 17025 in combination. A RMP shall meet all the requirements of these two documents that are relevant to its activities, before accreditation is granted. ISO 17034 is applicable to all active of RMP, including testing, calibration and measurement. The relevance of a requirement given in ISO 17034 and ISO/IEC 17025 should be assessed in the context of the activities performed rather than the organizational structure of the RMP facility.

2.3 A RMP may choose or require the use of subcontractors to perform various tasks leading to the production of its RMs, and its role may change in relation to the RM produced. In this regard, the APLAC MRA Council (MRA Res. 18.14) resolved "that, within the context of the APLAC MRA for accreditation of

reference material products (RMPs), an accredited RMP is an organization that assigns the property values and determines the associated uncertainties *(ISO 17034, clause 7.13)* and issues the RM documents and labels *(ISO 17034, clause 7.14)*; that accredited RMPs shall be competent to perform those tasks that cannot be outsourced to sub-contractors or other outside parties,". When subcontractors are used for the preparation of the materials and for other activities, the RMP shall take responsibility for ensuring that these tasks are performed in a competent manner and that the relevant requirements for the use of subcontractors, given in ISO 17034 and ISO/IEC 17025 are met.

2.4 The RMP shall retain information within its management system that clearly details the roles of, and its relationships with, subcontractors and other related parties.

2.5 The following table *(Table 1)* provides examples of how tasks involved in RM production may be undertaken by the RMP and its subcontractors. This table is offered for the purpose of description and should not be considered to provide exhaustive coverage of all possible RMP/subcontractor arrangements. The ISO document (s) listed in the second column are considered to contain requirements that are relevant to the respective tasks listed in the first column

Table 1: Stages / Tasks of (C) RM production relevant to ISO 17034 in combination with ISO/IEC 17025 and responsible organizations.

No.	Stages / Tasks of RM Production	Relevant ISO Documents	Responsible Organizations							
			Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8
1.	*Production Planning*	ISO 17034 + ISO/IEC 17025	R	R	R	R	R	R	R	R
2.	# Material Preparation**	ISO 17034 + ISO/IEC 17025	R	S	S	S	S	R	S	R
3.	# Homogeneity/ Stability Testing	ISO 17034 + ISO/IEC 17025	R	R	R	S*	S*	S*	S*	R
4.	# Characterization of Property Values	ISO 17034 + ISO/IEC 17025	R	R	R	S*	S*	S*	R	S*
5.	*Assignment of and Decision on Property Values*	ISO 17034 + ISO/IEC 17025	R	R	R	R	R	R	R	R
6.	*Authorization of Property Values and Issue of Certificate*	ISO 17034	R	R	R	R	R	R	R	R
7.	# Handling and Storage (including Post Certification Testing)	ISO 17034 + ISO/IEC 17025	R	R	S	R	S	S	S	R
8.	Distribution and Post Distribution Service	ISO 17034	R	R	S	R	S	R	S	R

Tasks denoted by *italics* shall be performed by the RMP

R = Tasks performed by the RMP

S = Tasks performed by subcontractor.

= If performed by a subcontractor, the RMP shall ensure the technical competence of

that subcontractor.

* = Any conclusions in regards to these tasks shall be made by the RMP.

** = Testing calibration and measurement activities involved in material production and preparation should comply with the relevant parts of ISO/IEC 17025

2.6 The following are some possible modes of operation of an RMP.

a) A single organization produces the candidate (C) RM and assigns the property values based on its own measurement results *(type 1* as given in the above table).

b) An organization subcontracts the preparation of a candidate reference material and then assigns the property values based on measurement results from its own laboratories. The organization that issues the certificate sells the (C) RM *(type2).*

c) An organization subcontracts the production of a candidate reference material and all laboratory work necessary to assign the (C) RM property values. The certificate is issued by the RMP and the RM is distributed by the RMP or an external party *(type 5).*

d) An organization produces the candidate (C) RM and assigns the property values based on the measurement results from other (subcontractor) laboratories. Handling and storage of the (C) RM are performed by the subcontractor. The certificate is issued by the producer *(type 6).*

e) An organization produces the candidate (C) RM and is responsible for the homogeneity and stability studies, for example. The property values are characterized by a NMI (National Measurement Institute) or an external accredited laboratory. The producer sells the (C) RM *(type 8).*

3. Scopes

3.1 Area of Reference Material Producers may cover the list of materials used for critical and measurable properties in the chemical, biological, clinical, pharmacological, food and forensic sciences.

3.2 These requirements shall assure that relevant international standards are followed in the production, labeling, assignment of property values to the materials, including stability and homogeneity which are then factored in the Reference Material Procedures uncertainty reported.

3.3 The international Standard used for accreditation and the combinations of international standards are as follows:

3.3.1 ISO 17034: General requirements for the competence of reference material procedures.

In-combination with:

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

3.3.3 ISO Guide 30: Terms and definitions used in connection with reference materials.

3.3.4 ISO Guide 31: Contents of certificates of reference materials.

3.3.5 ISO Guide 35: Certification of reference materials-General and statistical principles.

3.4 The specific types of CRMs and RMs that the RMP is competent to produce is mentioned in the *table 1*: Stages / Tasks of RM production relevant to ISO 17034 in combination with ISO/IEC 17025 and responsible organizations. The range of property values for the (C) RMs with the associated uncertainties, where relevant, for which the RMP is accredited.

3.5 Categories and sub-categories of relevant materials are given in Appendix 1 which is a good guidance to describe the specific types of RMs for which a RMP is accredited.

3.6 The scope and certificate of accreditation shall state that the RMP meets the requirements of ISO 17034. There are relevant ISO/IEC 17025 requirements pertaining to every RMP assessment process, even if the RMP is only doing the tasks of production planning, assigning property values and issuing the certificate (*e.g.* sections 5.4.1, 5.4.2 and 5.4.6 of ISO/IEC 17025: 2005). A reference to ISO/IEC 17025 may, therefore also be included in each RMP's scope of accreditation for ISO 17034, i.e. the RMP meets the applicable requirements of ISO/IEC 17025 for the production of (C) RMs.

3.7 If the RMP requests accreditation as a laboratory to ISO/IEC 17025 for its testing, calibration or measurement activities, this accreditation can be expressed in a separate scope and certificate of accreditation. In this case, all the criteria for laboratory accreditation apply (R 07 15 001).

3.8 As a RMP can do various tasks *(refer to Table 1),* accreditation shall be granted to it for those activities that has been assessed and found to meet the relevant requirements. The scope of accreditation, of other records/reports that support the scope, shall clearly state these activities, together with the (C)RM(s) that the RMP is accredited to produce. If a RMP does certain activities that are outside the scope of its accreditation, it shall not claim that it is accredited for producing the (C) RM concerned, and cannot use an endorsed certificate/statement for such a (C) RM.

4. Definitions

4.1	RMP Accreditation :	Procedure by which the BLQS, DMSc gives formal recognition that the RMP has the management comply with the related International Standards and BLQS, DMSc quality requirements and RMP is competence to carry out specific types of CRMs or RMs as listed in the scope of accreditation.
4.2	Laboratory Accreditation Committee :	Laboratory Accreditation Committees are appointed by the Director of BLQS. The committee consists of technical experts in each discipline covering all scope categories of RMP accreditation and necessary authoritative bodies or stakeholders who are representatives from other organizations such as FDA of Thailand, National Bureau of Agricultural Commodity and Food Standards (ACFS), Associations, etc.
4.3	Certified Reference Material :	Reference material, accompanied by a certificate, one or more of whose property values are certified by a procedure which establishes its traceability to an accurate realization of the unit in which the property values are expressed, and for which each certified value is accompanied by an uncertainty at a stated level of confidence.
4.4	Reference Material :	Materials or substances one or more if whose property values are sufficiently homogenous and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials. (Noted; A reference material may be in the form of a pure mixed gas, liquid, or solid)
4.5	Traceability :	Property of the result of a measurement or the value of a standard whereby it can be related, with a stated uncertainty, to stated reference, usually national or international standards, through an unbroken chain of comparison.
4.6	Proficiency Testing (PT) :	Laboratory testing performance is determined by an accredited PT provider, using inter-laboratory comparison.

5. Qualification of the RMP applicants

The RMP must be legal identifiable. All practices shall comply with Thailand laws and regulations. For cross frontier accreditation, the laws and regulations of certain country must be complying with. The RMP may comprise permanent laboratory facilities, with or without sites away from its permanent or in associated temporary or mobile facilities.

6. General requirements

6.1 The top management of the RMP or the authorized representative shall sign the application forms.

6.2 Each applicant must nominate a senior staff member who will represent one in all nominations in all dealings with BLQS. This person shall take responsibility for communication between top management and BLQS.

6.3 All details of the quality management system and the implementation document, which are fulfill the requirements of the BLQS, shall be submitted. BLQS will terminate the application if the documents are not completed within 180 days, after the date of submitting the application.

6.4 The RMP shall comply with the accreditation procedure and shall pay fee as scheduled and conditioned by BLQS.

6.5 The RMP shall corporate with the assessors in the following:

6.5.1 Permit the access to the premises.

6.5.2 Prepare for test sample and hand on analysis for witness as requested by the assessor.

6.5.3 Assist and allow the use of the office stationary and the communication apparatus as necessary.

6.6 The administrators and the analysts have to work independently and have no conflict of interest that may adversely affect the quality of their works.

6.7 In case of any amendment or any changes of the Policy, Requirements and Conditions BLQS shall inform the accredited RMP, via on BLQS website. The accredited RMP shall commit to follow such changes.

6.8 BLQS may reduce the scope or terminate the accreditation when if the RMP does not practice as described in clause 9, or there is any indicating to demonstrate that the scope of accreditation is not complied with the requirements of the standards under the consideration of the Director of BLQS, the assessor, or the laboratory accreditation committees.

6.9 In case that the applicant RMP is in the process of accreditation or has already been accredited from the BLQS and the RMP intends to withdraw the accreditation, the RMP shall inform the BLQS, officially, in written do, to the director of BLQS. The RMP cannot refund fee for accreditation.

7. Quality requirements

7.1 The RMP shall implement the requirements of ISO 17034 in combination with ISO/IEC 17025 and other relevant international standards including the policies, requirements and conditions of BLQS, DMSc.

7.2 The testing laboratory shall participate in proficiency testing program or inter-laboratory comparison as required by the policies, requirements and conditions of BLQS, DMSc (referred to N 07 15 003).

7.3 The RMP shall use and document the technically valid procedures to characterize its reference materials depend on the type of RMs, its matrix, its intended use, the analytical facilities and accredited scope of technical competence for the laboratories involved, and the capabilities of method employed, as mentioned in ISO Guide 35.

7.4 The RMP shall use procedures for assignment of property values and their uncertainties based on accepted statistical principles for assignment of property values as mentioned in ISO Guide 35.

8. The Accreditation process

8.1 The RMP shall submit the application the BLQS with the listed document (Application form No. 11 (F 07 15 060), Application form No. 12 (F 07 15 061) and Application form No. 13 (F 07 15 062)). After the acceptance of the application, the BLQS will proceed as follows:

8.1.1 Examines the completeness of the documents, the result of proficiency testing or inter-laboratory comparison, and then inform the applicant to pay the fee as indicated by BLQS.

8.1.2 Appoints the assessors after all of documents are ready for accreditation.

8.1.3 Pre-assesses, if it is required by the applicant, the laboratory is notified of the date, time, and the assessors' name. The assessors will assess the QA manual, related documents at the facility premise as pre-assessment. BLQS will inform the name of assessors and the date of pre-assessment before conduct the assessment.

8.1.4 Inform the pre-assessment results to the RMP by sending the official report of pre-assessment.

8.1.5 The applicant RMP submits the corrective actions form (F 07 15 038) and evidences of the pre-assessment.

8.1.6 For the applicant RMP that was pre-assessed, the on-site assessment will be carried out after 60 days after per-assessed date, even if all of findings are not completely corrected.

8.1.7 In case that applicant RMP does not request for pre-assessment, the processes in the item 8.1.3 to 8.1.5 are omitted. BLQS will inform the name of the assessor and appoint the date of the on-site assessment. The applicant RMP shall pay an accreditation fee. The on-site assessment will be carried out.

8.1.8 BLQS inform the on site assessment results to the RMP by sending the official report of on site assessment.

8.1.9 The RMP shall correct all nonconformities in the timescale of the requirements for accreditation process of the BLQS. The duration for corrective action begins on the date of closing meeting for the assessment. The applicant RMP shall propose a nonconformities corrective action table (F 07 15 038) and supportive evidences, both in the electronic and the current copy, to BLQS. The timescale of nonconformities corrective actions is mentioned for each of assessment type as following:

8.1.9.1 **For pre-assessment,** the applicant RMP shall submit the corrective actions within 30 day after pre-assessed date. In case that the RMP cannot complete the corrective actions within 30 days, the RMP may extend the duration of corrective

actions for another 30 days, in written, to the Director the BLQS, with the reason and the approximate date for completion of corrective actions.

8.1.9.2 **For on site assessment of new accreditation/extended scope of accreditation,** the RMP shall submit the corrective actions within 90 days after assessed date. In case that the RMP cannot complete the corrective actions within time frame, the RMP can request for extended the period of time for corrective action, in written, to the Director of BLQS with the reason and the approximate date for completion of corrective actions. However, the duration of corrective actions and closed out shall be done within 120 days after assessed date. If the RMP carried out the corrective actions longer than 120 days, the BLQS shall suspend the accreditation of that RMP and shall withdraw the accreditation if the RMP cannot renewal its accreditation within the timeframe given from suspension.

8.1.9.3 **For follow up or extra ordinary follow up,** the RMP shall submit the corrective actions within 15 days. If the RMP cannot complete the corrective actions within the time frame given, BLQS shall reduce the scope of accreditation which does not complete of corrective actions. All expenses are the responsibility of the RMP.

8.1.9.4 **For surveillance and reassessment of the accreditation,** the RMP shall carry out the corrective actions of nonconformity within 30 days after assessed date. In case that the RMP cannot complete the period of time for corrective actions for 30 days, in written, to the Director of BLQS with the reason and the approximate data for completion of corrective actions. If the RMP cannot complete and closed out the corrective actions within the timeframe given, BLQS shall suspend the accreditation of that RMP and shall withdraw the accreditation if the RMP cannot renewal its accreditation within the timeframe given from suspension. The RMP shall note that the re-accreditation shall be granted within 3 months after the certification expiry date.

8.1.9.5 **For the combination between surveillance**, reassessment and extended scope of accreditation, the RMP shall carry out the corrective actions of nonconformities from the assessment within 30 days after assessed date. In case that the RMP cannot complete the corrective actions within time frame, the RMP can request for extended the period of time for corrective actions for 30 days, in written, to the Director of BLQS with the reason and the approximate date for completion of corrective actions. For extension scope of accreditation, the RMP shall carry out corrective actions of the nonconformities from management requirements from technical requirements within 90 days, the RMP can extend the duration of corrective actions as mentioned above in the item 8.1.9.2. The RMP shall note that the combination of assessment shall be granted for accreditation within 7 months after the certification expiry date.

8.1.10 BLQS will issue the certificate of accreditation after the Laboratory Accreditation committee grants the accreditation approval.

8.2 The accreditation certificate is valid for 2 years from issue data. If can be extended for every 2 years if the request for the re-accreditation is received from the RMP for 120 days prior to the expiry date and the re-accreditation is granted after a complete re-accreditation process. The combination certification between scope of surveillance, reassessment and extended scope of accreditation, shall be carried out as stated in a fee schedule.

9. Practices for the accredited RMP:

9.1 Maintains quality management system compliance to the accreditation certificate of the international standard of ISO 17034 and ISO/IEC 17025 in combination with and BLQS policies, requirements and conditions at all time of accreditation.

9.2 Optionally uses the BLQS accreditation symbol or accreditation statements. In both cased, the accredited RMP shall in form BLQS the intension to use the BLQS accreditation symbol or accreditation statements as mentioned in N 07 15 009.

9.3 Correctly uses the BLQS accreditation logos/symbols or statements. BLQS will take necessary actions against the accredited RMP or individuals who misused any of the BLQS accreditation logos/symbols or statements in the way of incorrect references or misleading or misrepresentation, for example using BLQS accreditation symbol for unaccredited test or unauthorized approved signatory. In these cases, the accredited RMP shall be suspended of accreditation for 90 days and might be sentenced by law.

9.4 Shall immediately stop using or shall not claim BLQS accreditation symbol or reference to its accredited status for the activities which are suspended, withdrew or reduced the scope of accreditation. Such misusages might result in legal responsibility. The accredited RMP shall inform its customer for its accredited status.

9.5 Shall not do anything which may mislead that the granted accreditation is BLQS certification for the product quality.

9.6 Shall inform BLQS, within 15 days, if there is any change from the application forms, such as:-

9.6.1 Legal status or business status and organization chart.
9.6.2 Top management who make a decision for the organization management.
9.6.4 Personnel, equipments, environment that have an effect directly to the RMP.
9.6.5 Approved signatories for the accredited RMP.
9.6.6 The claim or the use of BLQS accreditation symbol.
9.6.7 Others changes that may affecting the competence of the RMP.

9.7 Collection and storage of all quality documents for at least 3 years, therefore, the documents can be traceable.

10 Surveillance

10.1 Surveillance assessment for the accredited RMPs shall done as follows:

10.1.1 On-site surveillance assessment shall be done, if there is any evidence indicates that the accredited RMP cannot maintain their quality management system or it is the consensus decision from the Laboratory Accreditation Committees.

10.1.2 The accredited RMP shall submit the quality documents for surveillance assessment to the BLQS in advance, at least 60 days, and shall pay for accreditation fee as indicated.

11. Reassessment

11.1 Reassessment shall be taken place at intervals not exceeding than 2 years. Accredited RMP shall submit the quality document to BLQS in advance, at least 120 days prior to the expiry date of accreditation certificate. BLQS will carry out on-site reassessment in the timeframe of reassessment plan.

11.2 Accredited RMP shall submit the quality documents for reassessment to BLQS in advance, and shall pay for accreditation fee as indicated.

12. Extension scope of accreditation (Extending accreditation)

Accredited RMP can request for an extension the scope of an accreditation to BLQS under the timeframe as follows:

12.1 Shall apply for extension scope of accreditation at the same time of reassessment and pay accreditation fee as indicated.

12.2 In case that accredited RMP needs to apply for extension scope of accreditation before the time of reassessment, the accredited RMP shall inform the urgent necessary for extension to BLQS and get the approval for extension from the director of BLQS before applied. Such special application will cost 2 times more from the normal fee rate.

12.3 Shall request for extension scope of accreditation in advance at least 30 days and officially submit all of application forms together with the related quality documents BLQS. The BLQS shall carry out the on-site extension in the same manners as in the initial assessment.

13. Withdrawal / Suspension of the accreditation

13.1 Withdrawal of the accreditation:-

The committee will withdraw the accreditation under the following circumstances.

13.1.1 The RMP has become bankruptcy by court order.

13.1.2 Any practice that violate or do not comply with the Act for "Thai National Standards" B.E. 2551 *(National standards Act, B.E> 2551 (2008). Published in The Royal Thai Government Gazette. Volume 125, Part 42 A, Published Date 4th March A.D. 2008)* and the BLQS policies, requirements and conditions.

13.1.3 The RMP terminates its business.

The RMP shall inform the termination by officially document to BLQS.

13.2 Suspension of the accreditation:-

The Director of BLQS, DMSc will declare a temporary suspension of the accreditation if the RMP does not follow the Policy, Requirements and Conditions of the BLQS and cannot correct the nonconformities within a given timeframe, if the accredited RMP cannot correct and close out the nonconformities within a given timeframe again, BLQS will withdraw or reduce the scope of the accreditation, accordingly.

14. Appeal

14.1 The appeal for any decisions shall be submitted in written to the Secretary-General of Thai Industrial Standards Institute (TISI), Ministry of Industry within 15 days upon receipt of the withdrawal letter.

14.2 The decision of Ad-hoc Appeal Committee for Laboratory Accreditation's decision is a final.

14.3 During the appeal, the accreditation is still valid.

15. Use of accreditation symbol

15.1 The accredited RMP shall inform the using of the accreditation symbol or accreditation statement as defined in the BLQS policy, requirements and conditions for using of accreditation symbol or accreditation statement (referred to N 07 15 009).

15.2 RMP shall inform the BLQS of the detail of the symbol exhibition.

15.3 The symbol shall not be abused, misused, or misleaded in the accreditation. Misused of those symbols to their accreditation status or in any form of the BLQS policies, requirements and conditions may be also legal penalties. The accredited RMP shall be suspended of accreditation, may be punished according to the law.

16. Miscellaneous

16.1 BLQS will inform in written to the RMP of any changes in the requirements, which shall be corrected and adjusted within the timeframe.

16.2 The BLQS shall not take any responsibility if the RMP does not conform to the policy, requirements and conditions of the BLQS

16.3 The accredited or suspended or withdrawn RMP names, tests, method and accreditation number will be announced in the website: www.dmsc.moph.go.th, or http://blqs.dmsc.moph.go.th

16.4 Interested party shall submit the application to BLQS, DMSc, within the Ministry of Public Health (MOPH), Nonthaburi.

17. History of change

Revision No.	Documentation Change	Prepared / Revised by	Date Issued
00	Initial document	Ms. Waraporn Piyasirananda	22 Nov 2013
02	Withdraw references according to *ILAC Resolution 18.18* as follows: - ILAC G12:2000 - ILAC G9:2005 Update international standard requirements according to current version as follows: - ISO 17034:2016 - APLAC TC 008:2015 - ISO Guide 30:2015 - ISO Guide 31:2015	Mr. Awiruth Khejonnit	

APPENDIX 1

Category A: Chemical composition

Reference materials, being either pure chemical compounds or representative sample maple matrices, either natural or with added analytes (e.g. animal fats spiked with pesticides for residues analysis), characterized for one or more chemical or physicochemical property values.

Category B: Biological and clinical properties

Materials similar to Category A, but characterized for one or more biochemical or clinical property values.

Category C: Physical properties

Materials characterized for one or more engineering property values (e.g. hardness, tensile strength, surface characteristics, etc).

Category E: Miscellaneous

These principal categories are subdivided into subcategories as indicated in the following list. It should be noted that these sub-categories are indicative only. Other sub-categories can be added at any time to address the needs of applicants seeking recognition of competence in producing types of reference materials not currently listed.

CATEGORY A: CHEMICAL COMPOSITION

A2: INORGANIC REFERENCE MATERIALS

A2.6 Pure chemicals

Stoichiometry standards
Primary standards
Working standards
Secondary standards
Chromatography standards
Pharmaceutical materials
Cosmetic materials

A3: ORGANIC REFERENCE MATERIALS

A3.1 Pure organic compounds

Compounds for elemental analysis
Compounds for molecular weight
Chromatography standards
Illicit drugs and their metabolites – (See also A8 Forensic Reference Materials)
Illicit drugs
Delta-9-THC and other cannabinoids
amphentamine
Methylamphetamine
3, 4-methylenedioxyamphetamine