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HOKLAS Supplementary Criteria No. 31

‘Physical and Mechanical Testing’ Test Category – Gemstone Testing to Standard Methods for Testing Diamond for Hong Kong (HKSM/DT-2008)

0 Introduction

- (a) This criteria document serves to clarify and supplement the requirements of ISO/IEC 17025:2017 and HKAS Policy Document No. 1 for accreditation of laboratories performing diamond testing under the test category of ‘Physical and Mechanical Testing’. It shall be read in conjunction with the current issue of ISO/IEC 17025:2017 and other relevant accreditation criteria documents.
- (b) In addition to the requirements stipulated in this document, an accredited laboratory shall comply with specific requirements of diamond test standard methods.

1 Scope

(No additional explanation)

2 Normative references

(No additional explanation)

3 Terms and definitions

(No additional explanation)

4 General requirements

(No additional explanation)

5 Structural requirements

(No additional explanation)

6 Resource requirements

6.1 General

(No additional explanation)

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6.2 Personnel

6.2.1 Approved signatories

6.2.1.1 Nominees of approved signatories for the tests of diamond shall either be

- (a) a Certified Gemmologist (CG) in Diamond of the Gemmological Association of Hong Kong (GAHK) with at least one year relevant testing experience; or
- (b) a person having a relevant professional certificate of a recognised gemmological institution (e.g. Gem-A, GIA etc.) or equivalent with at least one year relevant testing experience. In addition, the applicant shall have adequate knowledge of ISO/IEC 17025 and have attended and passed an external training course of diamond testing. The outline of a typical training course of diamond testing is shown in Appendix A (Appendix A could be exempted in the condition of the nominees attending diamond course with relevant contents of Appendix A). Training materials shall be kept. The applicant shall also demonstrate that he/she has acquired up-to-date technical knowledge and skills by participation in activities related to the tests for at least 18 hours in the two years preceding his/her application for approved signatory. Records of participation in such activities shall be maintained for at least four years. After approval has been granted, the approved signatory shall continually update his/her technical knowledge and skills in accordance with Note (i) below. In addition, he/she shall also demonstrate to the HKAS Executive in each assessment that he/she is competent in the respective tests.

Notes: (i) The activities of acquiring up-to-date technical knowledge and skills include attending courses/workshops, seminars/conferences, making public presentations, issuing technical papers in journals or other publications, or joining study tour etc. The minimum requirement involved in these activities is nine hours per year. For maintaining the signatory status after approval has been granted for two years, the minimum requirement involved in the activities which shall be focused on advanced knowledge related to gemstone testing is three hours per year. The content and the number of hours counted of the activities shall be recorded. HKAS Executive may review the records if

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necessary.

(ii) If necessary, HKAS Executive may seek advice from relevant Working Party/Task Force or other relevant professional bodies, such as GAHK, to determine the equivalence of professional qualifications, membership and the activities of acquiring up-to-date technical knowledge and skills.

6.2.1.2 The applicants shall demonstrate to the assessment team their technical competence in diamond testing before signatory approval is granted.

6.2.1.3 For existing approved signatories, if the conditions or requirements listed in 6.2.1.1 cannot be met, the laboratory shall inform HKAS Executive in writing immediately and the person shall not sign any HOKLAS endorsed reports from the date of not meeting the specified requirement. HKAS Executive will take appropriate action (e.g. removal of his/her signatory approval) when notification of change is received.

6.2.2 Operators performing tests of diamond, except weighing measurement, shall be a person meeting the requirements of approved signatories, recognised gemmologist of a gemmological institution or equivalently trained. For those who are equivalently trained, the training records shall be kept and HKAS Executive may review the records and assess the operator's competence during assessment.

6.3 Facilities and environmental conditions

(No additional explanation)

6.4 Equipment

6.4.1 General requirements on equipment calibration are given in HOKLAS Supplementary Criteria No. 2. Specific requirements on equipment calibration/verification for instruments for diamond testing are given in Appendix B of this document.

6.5 Metrological traceability

(No additional explanation)

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7 Process requirements

7.1 Review of requests, tenders and contracts

(No additional explanation)

7.2 Selection, verification and validation methods

7.2.1 The identification of a diamond test item shall strictly follow the definition of diamond and test procedures stipulated in the “Standards Methods for Testing Diamond for Hong Kong” published by the Gemmological Association of Hong Kong (the Diamond Standard).

7.3 Sampling

(No additional explanation)

7.4 Handling of test or calibration items

7.4.1 Test application forms, test records and test reports shall contain sufficient information to allow unique identification of the test items. The laboratory shall record the distinguishing features and characteristics of the tested item by written or digital format, or using plotting diagram.

7.4.2 Care should be exercised in handling test items to prevent damages to them or contamination of their surface. Wearing clean white cotton gloves is a good practice.

7.5 Technical records

7.5.1 All observations and conditions under which such observations are made shall be clearly recorded. Operator shall strictly follow the requirements of the test standards in recording data and reporting results. Where measurement instruments are used, their readings shall be recorded or their printouts shall be signed and kept. Where the observations are made by an operator, they shall be recorded unambiguously with the help of a sketch, a graph or annotation where appropriate. Where appropriate, it may be convenient to use digital photography to record and present the observations.

7.5.2 The basis and rationale behind the identification of diamond shall be recorded.

7.6 Evaluation of measurement uncertainty

(No additional explanation)

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7.7 Ensuring the validity of results

7.7.1 The laboratory shall perform a regular inter-operator comparison for each accredited test of diamond every six months. All operators of the laboratory shall participate in this comparison using the same test item. The records of such comparisons shall be kept. For laboratories where a single operator performs the test, checks the results and signs the report, such single-operator laboratories shall document and demonstrate an effective quality assurance mechanism to ensure the validity of the test results, and also participate more frequently in inter-laboratory comparison tests. A frequency of at least once every six months for each accredited test depending on the volume of work and other pertinent factors may be suitable. When assessing the adequacy of participation in inter-laboratory comparisons, other quality assurance measures implemented by the laboratory will be taken into consideration.

Note: An approved signatory, where manpower resources of his/her laboratory are available, should not sign a test report containing test results obtained by himself/herself.

7.7.2 HKAS requires accredited laboratories to participate in proficiency testing programmes or inter-laboratory comparison tests as an integral part of their quality assurance requirements. Accredited laboratories shall refer to HOKLAS SC-33 in respect of the HOKLAS proficiency testing requirement.

7.8 Reporting of results

7.8.1 Opinions or interpretations for diamond testing that a laboratory is not accredited for providing is not permitted in a HOKLAS endorsed report or certificate. If this is required, approval from HKAS Executive in writing is necessary. An endorsed report or certificate containing such opinions shall in all cases clearly state that the laboratory is not accredited for providing them.

7.8.2 For laboratories accredited for performing identification tests and making conclusions in accordance with the “the Diamond Standard”, test reports or certificates including an identification conclusion on whether the test item is “Diamond” shall state conspicuously and unambiguously alongside such conclusion that it was made based on the definition stated in “the Diamond Standard”.

7.9 Complaints

(No additional explanation)

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7.10 Nonconforming work

(No additional explanation)

7.11 Control of data and information management

(No additional explanation)

8 Management system requirements

(No additional explanation)

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APPENDIX A

The outline of a typical training course on diamond testing shall include, but not limited to, the following:

A. Lecture section

- Introduction and basic theory of diamond
- Authenticity identification of diamond
- Introduction of diamond testing and grading methods
- The basic principles of testing and grading equipment including DiamondSure, Proportion Analyzer and/or other similar diamond testing machine for Diamond testing
- The analysis of testing and grading results
- Reporting of testing results

B. Practical section

- Use the range of gem testing instruments to identify natural diamonds, imitations, and synthetics.
- The use of testing and grading equipment including DiamondSure, Proportion Analyzer and/or other similar diamond testing machine for diamond testing
- Good practice of conducting diamond testing

C. Assessments

- Coursework
- Practical assessment
- Written assessment

Note: Course duration: at least 75 hours including lecture & practical sections.

Remarks: The nominee of approved signatory shall attend top-up training course if his/her previous training course did not cover all contents of Appendix A.

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APPENDIX B

SPECIFIC CALIBRATION REQUIREMENT

This Appendix lists the specific calibration requirements for equipment of diamond tests.

Type of equipment	Maximum period between successive calibration/verification	Calibration/verification procedure or guidance documents and equipment requirements
Diamond Tests		
POLARISCOPE	6 months	Check against reference standard with proper traceability to an acceptable source [#] .
FLUORESCENCE	6 months	Check against reference standard with proper traceability to an acceptable source [#] .
INFRARED SPECTROMETER	3 months	Check against reference standard with proper traceability to an acceptable source [#] .
DIAMONDSURE / DIAMOND SCREENING DEVICE	Daily	Check against reference standard with proper traceability to an acceptable source [#] .
PROPORTION ANALYZER	6 months	Check against reference standard with proper traceability to an acceptable source [#] .

Note of #: The laboratory shall demonstrate the traceability of the reference standard and acceptability of the source to the satisfactory to HKAS Executive. If necessary, HKAS may seek advice from GAHK or other appropriate professional bodies.