

भारतीय मानक

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Indian Standard

परख और हॉलमार्किंग केंद्रों की स्थापना और
संचालन — सामान्य अपेक्षाएँ

(पहला पुनरीक्षण)

Establishment and Operation of
Assaying and Hallmarking
Centres — General Requirements

(First Revision)

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the finalization by the Precious Metals Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 2009. This revision has been taken to align this standard with the requirements laid down in IS/ISO/IEC 17025 : 2017 'General requirements for the competence of testing and calibration laboratories (*second revision*)'. The concept of proficiency testing has also been introduced in this standard.

Under the Bureau of Indian Standards hallmarking scheme a jeweler register with Bureau of Indian Standards for sale of hallmarked precious metals namely gold and silver and sends the entire jewellery/artefacts for testing to Bureau of Indian Standards recognized assaying and hallmarking centres. This standard outlines the general requirements for establishment and operation of assaying and hallmarking centres.

A list of equipment for gold and silver assaying is given in [Annex B](#) and [Annex C](#) for guidance only.

The composition of the Committee responsible for the formulation of this standard is given in [Annex G](#).

For the purpose of whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard***ESTABLISHMENT AND OPERATION OF ASSAYING AND
HALLMARKING CENTRES — GENERAL REQUIREMENTS***(First Revision)***1 SCOPE**

This standard covers general requirements for establishment and operation of assaying and hallmarking centres.

2 REFERENCES

The standards listed in [Annex A](#) contain provisions, which through references in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards.

3 TERMINOLOGY

3.1 Hallmarking — The accurate determination and official recording of the proportionate content of precious metal in precious metal articles.

3.2 Fineness — The content of the named precious metal(s) measured in terms of parts per thousand by mass of alloy is the ratio between the mass of precious metal content and the total mass expressed in parts per thousand.

3.3 Assaying — The method of accurate determination of the precious metal content of the sample.

3.4 Assaying and Hallmarking Centre — An organization recognized by Bureau of Indian Standards for assaying and hallmarking of precious metal articles. Henceforth, the assaying and hallmarking centre will be referenced as centre only.

3.5 Jeweller — A person engaged in the business to get precious metal articles manufactured for sale or to sell precious metal articles.

3.5.1 Registered Jeweller — A jeweller who has been granted a certificate of registration by the Bureau of Indian Standards to get precious metal articles manufactured for sale or to sell any precious metal article after getting the same hallmarked.

4 GENERAL REQUIREMENTS**4.1 Impartiality**

4.1.1 Centre's activities shall be undertaken impartially and structured and managed so as to safeguard impartiality. The work allocation of the employees shall be done such that impartiality is ensured such as management personnel-quality manager, receipt and delivery personnel shall not be involved in fire assay activity etc.

4.1.2 The centre's management shall be committed to impartiality through selection process of personnel, incorporation, impartiality and commitment in quality policy, governance management etc.

4.1.3 The centre shall be responsible for the impartiality of its activities and shall not allow commercial, financial or other pressures to compromise impartiality.

4.1.4 The centre shall identify risks to its impartiality on an on-going basis. This shall include those risks that arise from its activities or from its relationships or from the relationships of its personnel, such as ownership, governance, management, personnel, shared resources, finance, contracts, marketing including branding, payment of sales commission or other inducement for the referral of new customers.

4.1.5 If a risk to impartiality is identified, the centre shall be able to demonstrate how it eliminates or minimizes such risk.

4.2 Confidentiality

4.2.1 The centre shall be responsible, through legally enforceable commitments, for the management of all information obtained or created during the performance of the centre activities. The centre shall inform the customer in advance of the information it intends to place in the public domain. Except for information that the customer makes publicly available or when agreed between the centre and the customer (for example, for the

purpose of responding to complaints), all other information is considered proprietary information and shall be regarded as confidential.

4.2.2 When the centre is required by law or authorized by contractual arrangements to release confidential information, the customer or individual concerned shall, unless prohibited by law, be notified of the information provided.

4.2.3 Information about the customer obtained from sources other than the customer (for example complainant, regulators) shall be confidential between the information provider and the centre. The name and details of information provided shall be confidential to the centre and shall not be shared with the customer, unless agreed by the information provider or regulator.

4.2.4 Personnel, including any committee members, contractors, personnel of external bodies, calibration service provider, maintenance service provider, consultants, external auditors for internal quality audit or individuals acting on the centre's behalf, shall keep confidential all information obtained or created during the performance of centre's activities, except as required by law.

5 STRUCTURAL REQUIREMENTS

5.1 The centre shall be a legal entity, or a defined part of a legal entity, that is legally responsible for its centre activities.

5.2 The centre shall identify management that has overall responsibility for the centre.

5.3 The centre shall define and document the scope of recognition for which it conforms with this document. The centre shall only claim conformity with this document for the scope of recognition.

5.4 Centre's activities shall be carried out in such a way as to meet the requirements of this document, the centre's customers, regulatory authorities and organizations providing recognition. This shall include centre's activities performed at location covered under scope of recognition. Centre shall not perform its activities at any other facility except those covered under scope of recognition.

5.5 The centre shall:

- a) Define the organization and management structure of the centre, its place in any parent organization, and the relationships between management, technical operations and support services;
- b) Specify the responsibility, authority and interrelationship of all personnel who

manage, perform or verify work affecting the results of centre's activities; and

- c) Document its procedures to the extent necessary to ensure the consistent application of its centre activities and the validity of the results.

5.6 The centre shall have personnel who, irrespective of other responsibilities, have the authority and resources needed to carry out their duties, including:

- a) Implementation, maintenance and improvement of the management system;
- b) Identification of deviations from the management system or from the procedures for performing centre's activities;
- c) Initiation of actions to prevent or minimize such deviations;
- d) Reporting to centre's management on the performance of the management system and any need for improvement; and
- e) Ensuring the effectiveness of the centre's activities.

5.7 Centre's management shall ensure that:

- a) Communication takes place regarding the effectiveness of the management system and the importance of meeting customers' and other requirements; and
- b) The integrity of the management system is maintained when changes to the management system are planned and implemented.

6 RESOURCE REQUIREMENTS

6.1 General

The centre shall have available the personnel, facilities, equipment, systems and support services necessary to manage and perform its centre's activities.

6.2 Personnel

6.2.1 All personnel of the centre, either internal or external, that could influence the centre activities shall act impartially, be competent and work in accordance with the centre's management system.

6.2.2 The centre shall document the competence requirements for each function influencing the results of centre activities, including requirements for education, qualification, training, technical knowledge, skills and experience.

6.2.3 The centre shall ensure that the personnel have the competence to perform centre's activities for which they are responsible and to evaluate the significance of deviations.

6.2.4 The management of the centre shall communicate to personnel their duties, responsibilities and authorities.

6.2.5 The centre shall have procedure(s) and retain records for the following:

- a) Determining the competence requirements;
- b) Selection of personnel;
- c) Training of personnel;
- d) Supervision of personnel;
- e) Authorization of personnel; and
- f) Monitoring competence of personnel.

6.2.6 The centre shall authorize personnel to perform centre's specific activities, including but not limited to, the following:

- a) Verification of methods;
- b) Analysis of results, including statements of conformity or opinions and interpretations; and
- c) Report, review and authorization of results.

6.3 Facilities and Environmental Conditions

6.3.1 The facilities and environmental conditions shall be suitable for the centre's activities and shall not adversely affect the validity of results. Influences that can adversely affect the validity of results can include, but are not limited to, contamination, dust, electromagnetic disturbances, radiation, humidity, electrical supply, temperature and vibration.

6.3.2 The requirements for facilities and environmental conditions necessary for the performance of the centre's activities shall be documented.

6.3.3 The centre shall monitor, control and record environmental conditions in accordance with relevant specifications, methods or procedures or where they influence the validity of the results.

6.3.4 Measures to control facilities shall be implemented, monitored and periodically reviewed and shall include, but not be limited to:

- a) Access to and use of areas affecting the centre activities;
- b) Prevention of contamination, interference or adverse influences on centre's activities; and
- c) Effective separation between areas with incompatible centre s activities.

6.3.5 The centre shall have CCTV camera with a minimum recording of 30 days and ensure all the activities of the centre are captured day and night for the purpose of security as well as verification of the activities.

6.4 Equipment

6.4.1 The centre shall have access to equipments that are required for the correct performance of centre's activities and that can influence the results. The indicative list of equipments and reagents is given at [Annex B](#) and [Annex C](#).

6.4.2 The centre shall not use equipment outside its permanent control and outside of the location covered under scope of recognition.

6.4.3 The centre shall have a procedure for handling, transport, storage, use and planned maintenance of equipment in order to ensure proper functioning and to prevent contamination or deterioration.

6.4.4 The centre shall verify that equipment conforms to specified requirements as per relevant testing method standards before being placed or returned into service.

6.4.5 The equipment used for measurement shall be capable of achieving the measurement accuracy and/or measurement uncertainty required to provide a valid result.

6.4.6 Measuring equipment shall be calibrated when:

- a) The measurement accuracy or measurement uncertainty affects the validity of the reported results; and
- b) Calibration of the equipment is required to establish the metrological traceability of the reported results.

NOTE — Types of equipment having an effect on the validity of the reported results can include.

1 Those used for the direct measurement of the measure and, for example micro-weighing balance, thermometer, hydrometer, digital temperature controller of melting, cupellation and annealing furnaces and XRF.

2 Those used to make corrections to the measured value, for example check gold.

6.4.7 The centre shall establish a calibration programme, which shall be reviewed and adjusted as necessary in order to maintain confidence in the status of calibration. Guidelines for verification/calibration of equipment's and availability of certified reference materials are placed in [Annex D](#).

6.4.8 All equipment requiring calibration or which has a defined period of validity shall be labeled, coded or otherwise identified to allow the user of the equipment to readily identify the status of calibration or period of validity.

6.4.9 Equipment that has been subjected to overloading or mishandling, gives questionable results, or has been shown to be defective or outside specified requirements, shall be taken out of service. It shall be isolated to prevent its use or clearly labeled or marked as being out of service until it has been verified to perform correctly. The centre shall examine the effect of the defect or deviation from specified requirements and shall initiate the management of nonconforming work procedures (see [7.10](#)).

6.4.10 When intermediate checks are necessary to maintain confidence in the performance of the equipment, these checks shall be carried out according to a defined procedure and records shall be retained.

6.4.11 When calibration and reference material data include reference values or correction factors, the centre shall ensure the reference values and correction factors are updated and implemented, as appropriate, to meet specified requirements.

6.4.12 The centre shall take practicable measures to prevent unintended adjustments of equipment from invalidating results.

6.4.13 Records shall be retained for equipment which can influence centre's activities. The records shall include the following, where applicable:

- a) The identity of equipment, including software and firmware version;
- b) The manufacturer's name, type identification and serial number or other unique identification;
- c) Evidence of verification that equipment conforms with specified requirements;
- d) The current location;
- e) Calibration dates, results of calibrations, adjustments, acceptance criteria and the due date of the next calibration or the calibration interval;
- f) Documentation of reference materials, results, acceptance criteria, relevant dates and the period of validity;
- g) The maintenance plan and maintenance carried out to date, where relevant to the performance of the equipment; and
- h) Details of any damage, malfunction, modification to, or repair of, the equipment.

6.5 Metrological Traceability

6.5.1 The centre shall establish and maintain metrological traceability of its measurement results by means of a documented unbroken chain of calibrations, each contributing to the measurement uncertainty, linking them to an appropriate reference.

6.5.2 The centre shall ensure that measurement results are traceable to the international system of units (SI) through:

- a) Calibration provided by a competent IS 17025 accredited calibration centre, having requisite scope of accreditation; and
- a) Certified values of certified reference materials-provided by a competent producer IS 17034 accredited reference material producer or IS 17025 accredited centre having accredited scope/ Bhartiya Nirdehak Dravya (BND).

6.6 Externally Provided Products and Services

6.6.1 The centre shall ensure that only suitable externally provided products, such as cupels, water, reagents-acids, proof gold, silver, copper, lead, nickel, palladium, XRF standards, reference weights and services such as calibration services, annual maintenance contract etc and that affect centre's activities are used, when such products and services:

- a) Are intended for incorporation into the centre's own activities; and
- b) Are used to support the operation of the centre.

6.6.2 The centre shall have a procedure and retain records for:

- a) Defining, reviewing and approving the centre's requirements for externally provided products and services;
- b) Defining the criteria for evaluation, selection, monitoring of performance and re-evaluation of the external providers;
- c) Ensuring that externally provided products and services conform to the centre's established requirements, or when applicable, to the relevant requirements of this document, before they are used or directly provided to the customer; and
- d) Taking any actions arising from evaluations, monitoring of performance and re-evaluations of the external providers.

6.6.3 The centre shall communicate its requirements to external providers for:

- a) The products and services to be provided;
- b) The acceptance criteria;
- c) Competence, including any required qualification of personnel; and
- d) Activities that the centre, or its customer, intends to perform at the external provider's premises.

- b) Preliminary examination for homogeneity check and segregation;
- c) Sampling;
- d) Assaying;
- e) Laser marking;
- f) Verification of marking and damages incurred;
- g) Packaging and return of comets, if any; and
- h) Final despatch/delivery.

7 PROCESS REQUIREMENTS

7.1 Review of Requests, Tenders and Contracts

7.1.1 The centre shall have a procedure for the review of requests, tenders and contracts. The procedure shall ensure that:

- a) The requirements are adequately defined, documented and understood; and
- b) The centre has the capability and resources to meet the requirements.

7.1.2 Any differences between the request or tender and the contract shall be resolved before centre activities commence. Each contract shall be acceptable both to the centre and the customer. Deviations requested by the customer shall not impact the integrity of the centre or the validity of the results.

7.1.3 The customer shall be informed of any deviation from the contract.

7.1.4 If a contract is amended after work has commenced, the contract review shall be repeated and any amendments shall be communicated to all affected personnel.

7.1.5 The centre shall cooperate with customers or their representatives in clarifying the customer's request and in monitoring the centre's performance in relation to the work performed.

7.1.6 Records of reviews, including any significant changes, shall be retained. Records shall also be retained of pertinent discussions with a customer relating to the customer's requirements or the results of the centre's activities.

7.2 Selection and Verification of Methods

7.2.1 The centre shall use test methods as described in the latest valid version of relevant testing method standards and have documented procedures/work instructions for all activities of centre such as:

- a) Receiving;

7.2.2 All methods, procedures and supporting documentation, such as instructions, standards, manuals and reference data relevant to the centre's activities, shall be kept up to date and shall be made readily available to personnel.

7.2.3 The centre shall ensure that it uses the latest valid version of a method unless it is not appropriate or possible to do so. When necessary, the application of the method shall be supplemented with additional details to ensure consistent application.

7.2.4 The centre shall verify that it can properly perform methods before introducing them by ensuring that it can achieve the required performance. Records of the verification shall be retained. If the method is revised by the issuing body, verification shall be repeated to the extent necessary.

7.3 Sampling

The sampling shall be done in accordance with the requirements mentioned below:

- a) The centre shall carry out sampling as per sampling plan given in [Annex E](#) and guidelines for sampling as given in [Annex F](#). Detailed sampling plans, if required, may be prepared by the centre;
- b) The centre shall carry out sampling using special tools to get a representative sample as per relevant testing method standards and documented instructions maintained by assaying and hallmarking centre;
- c) The centre shall retain records which include the sampling method used, identification of samples data to identified lot/sub lot from which representative sample has been taken and the sampling personnel, date and time of sampling;
- d) Samples shall have identifiable traceability with the lot and the test result; and
- e) The sampling plan and method shall be available at the site where sampling is undertaken.

7.4 Handling of Test or Calibration Items

7.4.1 The centre shall have a procedure for the transportation, receipt, handling, protection, storage, retention, and disposal or return of test items, including all provisions necessary to protect the integrity of the test item and to protect the interests of the centre and the customer. Precautions shall be taken to avoid deterioration, contamination, loss or damage to the item during handling, transporting, storing/waiting, and preparation for testing.

7.4.2 The centre shall have a system for the unambiguous identification of test items. The identification shall be retained while the item is under the responsibility of the centre. The system shall ensure that items will not be confused physically or when referred to in records or other documents. The system shall, if appropriate, accommodate a sub-division of an item or groups of items and the transfer of items.

7.4.3 Security of all the jewellery articles/artefacts shall be ensured during working hours and articles held overnight. Availability of safe shall be ensured for secured storage of articles.

7.4.4 The centre shall take insurance for the jewellery/artefacts under process/stock the insurance amount shall be minimum (₹ 40 Lakh) and shall depend on the jewellery present in the centre at any time.

7.4.5 The centre shall return cornets of jewellery articles along with hallmarked jewellery/rejected jewellery articles. The centre hallmarking process shall be completed in 48 h, any deviation from the same shall be recorded with justification.

7.4.6 The centre shall take profession indemnity insurance to cover the liability of hallmarked jewellery/artefacts with respect to purity/fineness for a minimum amount of (₹ 2 Lakh).

7.5 Packaging

The centre shall maintain identification and ensure protection of each article and cornets for the consignment received during and after the hallmarking.

7.5.1 Upon receipt of the test item, deviations from specified conditions shall be recorded. When there is doubt about the suitability of an item for test, or when an item does, these conditions shall be maintained, monitored and recorded.

7.6 Technical Records

7.6.1 The centre shall maintain and ensure that technical records for each activity which

contain the results, report and sufficient information to facilitate, if possible, identification of factors affecting the measurement result and its associated measurement uncertainty and enable the repetition of the centre activity under conditions as close as possible to the original. The technical records shall include the date and the identity of personnel responsible for the receipt, sampling, assaying (performance of each test and checking of results), hallmarking and delivery and for checking data and results. Original observations, data and calculations shall be recorded at the time they are made and shall be identifiable with the specific task.

7.6.1.1 All records including that for jewellery/artefacts hallmarked for each of the Bureau of Indian Standards licensee shall be retained for a period of minimum 3 years.

7.6.2 The centre shall ensure that amendments to technical records can be tracked to previous versions or to original observations. Both the original and amended data and files shall be retained, including the date of alteration, an indication of the altered aspects and the personnel responsible for the alterations.

7.7 Evaluation of Measurement Uncertainty

7.7.1 Centre shall identify the contributions to measurement uncertainty. When evaluating measurement uncertainty, all contributions that are of significance, shall be taken into account using appropriate methods of analysis.

7.7.2 A centre performing testing shall evaluate measurement uncertainty. Where the test method precludes rigorous evaluation of measurement uncertainty, an estimation shall be made based on an understanding of the theoretical principles or practical experience of the performance of the method.

7.8 Ensuring the Validity of Results

7.8.1 The centre shall have a procedure for monitoring the validity of results. The resulting data shall be recorded in such a way that trends are detectable and, where practicable, statistical techniques shall be applied to review the results. This monitoring shall be planned and reviewed and shall include, where appropriate, but not be limited to:

- a) Use of reference materials or quality control materials;
- b) Functional check(s) of measuring and testing equipment;
- c) Use of check or working standards with control charts, where applicable

- d) Intermediate checks on measuring equipment;
- e) Replicate tests using the same or different methods;
- f) Retesting of retained items; and
- g) Review of reported results.

7.8.2 The centre shall monitor its performance by comparison with results of other centre, where available and appropriate. This monitoring shall be planned and reviewed and shall include, but not be limited to, the following:

7.8.2.1 The centre shall participate in proficiency testing (PT) at least one grade of gold alloys as per IS 1417 every year and ensure that grades nearest to 916.0 ppt, 750.0 ppt, and 585.0 ppt are covered on rotational basis. In case the hallmarking centre is marking white gold and/or fineness above 990 ppt, then centre shall participate in PT on rotational basis for these grades also in a period of three years.

7.8.2.2 Every year the center shall participate in proficiency testing of one grade of silver alloys, on rotational basis, with fineness as close as possible to grades specified in IS 2112.

NOTES

1 In case any of the above grades are not covered under scope of recognition of the centre or PT scheme/provider for a specific close grade is not available, other close grade may be tested.

2 IS 17043 contains additional information on proficiency tests and proficiency testing providers. Proficiency testing providers that meet the requirements of IS 17043 are considered to be competent.

7.8.2.3 In addition to proficiency testing, the centre may initiate/participate in inter laboratory comparisons (ILC) every year. However, in case PT provider for a specific grade is not available, ILC shall be mandatorily undertaken.

7.8.3 Data from monitoring activities shall be analyzed, used to control and, if applicable, improve the centre's activities. If the results of the analysis of data from monitoring activities are found to be outside predefined criteria, appropriate action shall be taken to prevent incorrect results from being reported.

7.9 Reporting of Results

7.9.1 General

7.9.1.1 The results shall be reviewed and authorized prior to release.

7.9.1.2 The results shall be provided accurately, clearly, unambiguously and objectively, usually in a report. For example, a test report shall include all the information agreed with the customer and necessary for the interpretation of the results and all information required by the method used. All issued reports shall be retained as technical records.

7.9.2 Requirements for Reports

7.9.2.1 Each report shall include at least the following information, unless the centre has valid reasons for not doing so, thereby minimizing any possibility of misunderstanding or misuse:

- a) A title (for example "Test Report");
- b) The name and address of the centre;
- c) The location of performance of the centre activities, including when performed at sites away from the centre's permanent facilities, or in associated temporary or mobile facilities;
- d) Unique identification that all its components are recognized as a portion of a complete report and a clear identification of the end;
- e) The name and contact information of the customer;
- f) Identification of the method used;
- g) A description, unambiguous identification and when necessary, the condition of the item;
- h) The date of receipt of the test or calibration item(s), and the date of sampling, where this is critical to the validity and application of the results;
- j) The date(s) of performance of the centre activity;
- k) The date of issue of the report;
- m) Reference to the sampling plan and sampling method used by the centre or other bodies where these are relevant to the validity or application of the results;
- n) A statement to the effect that the results relate only to the items tested;
- p) The results with, where appropriate, the units of measurement;
- q) Additions to, deviations or exclusions from the method;
- r) Identification of the person(s) authorizing the report; and

- s) Clear identification when results are from external providers.

NOTE — Including a statement specifying that the report shall not be reproduced except in full without approval of the centre can provide assurance that parts of a report are not taken out of context.

7.9.2.2 The centre shall be responsible for all the information provided in the report, except when information is provided by the customer. Data provided by a customer shall be clearly identified. In addition, a disclaimer shall be put on the report when the information is supplied by the customer and can affect the validity of results. Where the centre has not been responsible for the sampling stage (for example the sample has been provided by the customer), it shall state in the report that the results apply to the sample as received.

7.9.3 Reporting Sampling-Specific Requirements

Where the centre is responsible for the sampling activity, in addition to the requirements listed in [7.9.2](#), reports shall include the following, where necessary for the interpretation of results:

- a) The date of sampling;
- b) Unique identification of the item or material sampled (including the name of the manufacturer, the model or type of designation and serial numbers, as appropriate);
- c) The location of sampling, including any diagrams, sketches or photographs;
- d) A reference to the sampling plan and sampling method;
- e) Details of any environmental conditions during sampling that affect the interpretation of the results; and
- f) Information required to evaluate measurement uncertainty for subsequent testing or calibration.

7.9.4 Laser Marking

7.9.4.1 The centre shall carry out marking as per documented procedure using laser marking machines and on articles which are conforming to the requirement of IS 1417 or IS 2112. The markings shall be legible and durable.

7.9.4.2 Marking on the gold and silver items shall be as mentioned in IS 1417 or IS 2112 respectively.

7.9.4.3 The permissible sizes (height) of the

hallmark are:

<i>Sl No.</i>	<i>Gold</i> mm	<i>Silver</i> mm
(1)	(2)	(3)
i)	1.5	4.0
ii)	1.0	2.0
iii)	0.75	1.5
iv)	0.50	1.0

NOTE — In case of gold articles below 2 gms marking size (height) of 0.3 mm is also permitted.

7.9.4.4 Marking to shall be done on all parts which are detachable and can be easily removed or replaced.

7.9.4.5 Marking shall be done only on those articles which are permitted in IS 1417, IS 2112 and in the way mentioned in these standards.

7.9.4.6 Vigilance to be maintained during use of laser marking machine through appropriate means to avoid unauthorized use.

7.9.4.7 The centre shall maintain record of laser marking done for different customers.

7.9.5 Amendments to Reports

7.9.5.1 When an issued report needs to be changed, amended or re-issued, any change of information shall be clearly identified and where appropriate, the reason for the change included in the report.

7.9.5.2 Amendments to a report after issue shall be made only in the form of a further document, or data transfer, which includes the statement 'amendment to report mentioning serial number, or an equivalent form of wording. Such amendments shall meet all the requirements of this document.

7.9.5.3 When it is necessary to issue a complete new report, this shall be uniquely identified and shall contain a reference to the original report that it replaces.

7.10 Complaints

7.10.1 The centre shall have a documented process to receive, evaluate and make decisions on complaints.

7.10.2 A description of the handling process for complaints shall be available to any interested party on request. Upon receipt of a complaint, the centre shall confirm whether the complaint relates to centre activities that it is responsible for and, if so, shall deal with it. The centre shall be responsible for all decisions at all levels of the handling process for complaints.

7.10.3 The process for handling complaints shall include at least the following elements and methods:

- a) Description of the process for receiving, validating, investigating the complaint, and deciding what actions are to be taken in response to it;
- b) Tracking and recording complaints, including actions undertaken to resolve them; and
- c) Ensuring that any appropriate action is taken.

7.10.4 The centre receiving the complaint shall be responsible for gathering and verifying all necessary information to validate the complaint.

7.10.5 Whenever possible, the centre shall acknowledge receipt of the complaint, and provide the complainant with progress reports and the outcome.

7.10.6 The outcomes to be communicated to the complainant shall be made by, or reviewed and approved by, individual(s) not involved in the activities in question.

NOTE — This can be performed by external personnel.

7.10.7 Whenever possible, the centre shall give formal notice of the end of the complaint handling to the complainant.

7.11 Nonconforming Work

7.11.1 The centre shall have a procedure that shall be implemented when any aspect of its centre activities or results of this work do not conform to its own procedures or the agreed requirements of the customer (for example equipment or environmental conditions are out of specified limits, results of monitoring fail to meet specified criteria). The procedure shall ensure that:

- a) The responsibilities and authorities for the management of nonconforming work are defined;
- b) Actions (including halting or repeating of work and withholding of reports, as necessary) are based upon the risk levels established by the centre;

- c) An evaluation is made of the significance of the nonconforming work, including an impact analysis on previous results;
- d) A decision is taken on the acceptability of the nonconforming work;
- e) Where necessary, the customer is notified and work is recalled; and
- f) The responsibility for authorizing the resumption of work is defined.

7.11.2 The centre shall retain records of nonconforming work and actions as specified in 7.11.1 b) to 7.11.1 f).

7.11.3 Where the evaluation indicates that the nonconforming work could recur, or that there is doubt about the conformity of the centre's operations with its own management system, the centre shall implement corrective action.

7.12 Control of Data and Information Management

7.12.1 The centre shall have access to the data and information needed to perform centre activities.

7.12.2 The centre information management system(s) used for the collection, processing, recording, reporting, storage or retrieval of data shall be validated for functionality, including the proper functioning of interfaces within the centre information management system(s) by the centre before introduction. Whenever there are any changes, including centre software configuration or modifications to commercial off-the-shelf software, they shall be authorized, documented and validated before implementation.

NOTES

1 In this document 'centre information management system(s)' includes the management of data and information contained in both computerized and non-computerized systems. Some of the requirements can be more applicable to computerized systems than to non-computerized systems.

2 Commercial off-the-shelf software in general use within its designed application range can be considered to be sufficiently validated.

7.12.3 The centre information management system(s) shall:

- a) Be protected from unauthorized access;
- b) Be safeguarded against tampering and loss;
- c) Be operated in an environment that complies with provider or centre specifications or, in the case of non-computerized systems, provides conditions which safeguard the accuracy of manual recording and transcription;

- d) Be maintained in a manner that ensures the integrity of the data and information; and
- e) Include recording system failures and the appropriate immediate and corrective actions.

7.12.4 When a centre information management system is managed and maintained off-site or through an external provider, the centre shall ensure that the provider or operator of the system complies with all applicable requirements of this document.

7.12.5 The centre shall ensure that instructions, manuals and reference data relevant to the centre information management system(s) are made readily available to its personnel.

7.12.6 Calculations and data transfers shall be checked in an appropriate and systematic manner.

8 MANAGEMENT SYSTEM REQUIREMENTS

8.1 Options

8.1.1 General

The centre shall establish, document, implement and maintain a management system that is capable of supporting and demonstrating the consistent achievement of the requirements of this document and assuring the quality of the centre results. In addition to meeting the requirements of [4](#) to [7](#), the centre shall implement a management system in accordance with [8.1.2](#).

8.1.2 As a minimum, the management system of the centre shall address the following:

- a) Management system documentation (*see* [8.2](#));
- b) Control of management system documents (*see* [8.3](#));
- c) Control of records (*see* [8.4](#));
- d) Actions to address risks and opportunities (*see* [8.5](#)); improvement (*see* [8.6](#));
- e) Corrective actions (*see* [8.7](#));
- f) Internal audits (*see* [8.8](#)); and
- g) Management reviews (*see* [8.9](#)).

8.2 Management System Documentation

8.2.1 Centre management shall establish, document and maintain policies and objectives for the fulfillment of the purposes of this document and shall ensure that the policies and objectives are acknowledged and implemented at all levels of the centre organization.

8.2.2 The policies and objectives shall address the competence, impartiality and consistent operation of the centre.

8.2.3 Centre management shall provide evidence of commitment to the development and implementation of the management system and to continually improving its effectiveness.

8.2.4 All documentation, processes, systems, records, related to the fulfilment of the requirements of this document shall be included in, referenced from, or linked to the management system.

8.2.5 All personnel involved in centre activities shall have access to the parts of the management system documentation and related information that are applicable to their responsibilities.

8.3 Control of Management System Documents

8.3.1 The centre shall control the documents (internal and external) that relate to the fulfillment of this document.

NOTE — In this context, "documents" can be policy statements, procedures, specifications, manufacturer's instructions, calibration tables, charts, text books, posters, notices, memoranda, drawings, plans, etc. These can be on various media, such as hard copy or digital.

8.3.2 The centre shall ensure that:

- a) Documents are approved for adequacy prior to issue by authorized personnel;
- b) Documents are periodically reviewed, and updated as necessary;
- c) Changes and the current revision status of documents are identified;
- d) Relevant versions of applicable documents are available at points of use and, where necessary, their distribution is controlled;
- e) Documents are uniquely identified; and
- f) The unintended use of obsolete documents is prevented, and suitable identification is applied to them if they are retained for any purpose.

8.4 Control of Records

8.4.1 The centre shall establish and retain legible records either in hard form or soft form or in combination of both, to demonstrate fulfillment of the requirements in this document.

8.4.2 The centre shall implement the controls needed for the identification, storage, protection, back-up, archive, retrieval, retention time, and disposal of its records. The centre shall retain records for a period

consistent with its regulatory obligations. Access to these records shall be consistent with the confidentiality commitments, and records shall be readily available. All records including that for jewellery/artefacts 'hallmarked for each customers shall be retained for a period of minimum three years.

NOTE — Additional requirements regarding technical records are given in [7.6](#).

8.5 Actions to Address Risks and Opportunities

8.5.1 The centre shall consider the risks and opportunities associated with the centre activities in order to:

- a) Give assurance that the management system achieves its intended results;
- b) Enhance opportunities to achieve the purpose and objectives of the centre;
- c) Prevent, or reduce, undesired impacts and potential failures in the centre activities; and
- d) Achieve improvement.

8.5.2 The centre shall plan:

- a) Actions to address these risks and opportunities;
- b) How to:
 - 1) Integrate and implement these actions into its management system; and
 - 2) Evaluate the effectiveness of these actions.

NOTE — Although this document specifies that the centre plans actions to address risks, there is no requirement for formal methods for risk management or a documented risk management process. Centre can decide whether or not to develop a more extensive risk management methodology than is required by this document, for example through the application of other guidance or standards.

8.5.3 Actions taken to address risks and opportunities shall be proportional to the potential impact on the validity of centre results.

NOTES

1 Options to address risks can include identifying and avoiding threats, taking risk in order to pursue an opportunity, eliminating the risk source, changing the likelihood or consequences, sharing the risk, or retaining risk by informed decision.

2 Opportunities can lead to expanding the scope of the centre activities, addressing new customers, using new technology and other possibilities to address customer needs.

8.6 Improvement

8.6.1 The centre shall identify and select opportunities for improvement and implement any necessary actions.

NOTE — Opportunities for improvement can be identified through the review of the operational procedures, the use of the policies, overall objectives, audit results, corrective actions, management review, suggestions from personnel, risk assessment, analysis of data, and proficiency testing results.

8.6.2 The centre shall seek feedback, both positive and negative, from its customers. The feedback shall be analyzed and used to improve the management system, centre activities and customer service.

NOTE — Examples of the types of feedback include customer satisfaction surveys, communication records and review of reports with customers.

8.7 Corrective Actions

8.7.1 When a non-conformity occurs, the centre shall:

- a) React to the nonconformity and, as applicable:
 - 1) Take action to control and correct it; and
 - 2) Address the consequences.
- b) Evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not;
 - 1) Recur or occur elsewhere, by;
 - 2) Reviewing and analysing the nonconformity; determining the causes of the nonconformity; and
 - 3) Determining if similar nonconformities exist, or could potentially occur;
- c) Implement any action needed;
- d) Review the effectiveness of any corrective action taken;
- e) Update risks and opportunities determined during planning, if necessary; and
- f) Make changes to the management system, if necessary.

8.7.2 Corrective actions shall be appropriate to the effects of the nonconformities encountered.

8.7.3 The centre shall retain records as evidence of:

The nature of the nonconformities, cause(s) and any subsequent actions taken; the results of any corrective action.

8.8 Internal Audits

8.8.1 The centre shall conduct internal audits at planned intervals to provide information on whether the management system:

- a) Conforms to:
 - 1) The centre's own requirements for its management system, including the centre activities;
 - 2) The requirements of this document; and
- b) Is effectively implemented and maintained.

8.8.2 The centre shall:

- a) Plan, establish, implement and maintain an audit programme including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration the importance of the centre activities concerned, changes affecting the centre, and the results of previous audits;
- b) Define the audit criteria and scope for each audit;
- c) Ensure that the results of the audits are reported to relevant management;
- d) Implement appropriate correction and corrective actions without undue delay; and
- e) Retain records as evidence of the implementation of the audit programme and the audit results.

NOTE — IS 19011 provides guidance for internal audits.

8.9 Management Reviews

8.9.1 The centre management shall review its management system at planned intervals, in order to ensure its continuing suitability, adequacy and effectiveness, including the stated policies and objectives related to the fulfillment of this document.

8.9.2 The inputs to management review shall be recorded and shall include information related to the following:

- a) Changes in internal and external issues that are relevant to the centre;
- b) Fulfillment of objectives;
- c) Suitability of policies and procedures;
- d) Status of actions from previous management reviews;
- e) Outcome of recent internal audits;
- f) Corrective actions;
- g) Assessments by external bodies;
- h) Changes in the volume and type of the work or in the range of centre activities;
- j) Customer and personnel feedback;
- k) Complaints;
- m) Effectiveness of any implemented improvements;
- n) Adequacy of resources;
- p) Results of risk identification;
- q) Outcomes of the assurance of the validity of results; and
- r) Other relevant factors, such as monitoring activities and training.

8.9.3 The outputs from the management review shall record all decisions and actions related to at least:

- a) The effectiveness of the management system and its processes;
- b) Improvement of the centre activities related to the fulfillment of the requirements of this document;
- c) Provision of required resources; and
- d) Any need for change.

ANNEX A

(Clause 2)

LIST OF REFERRED STANDARD

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
IS 1417 : 2016	Gold and gold alloys, jewellery/artefacts — Fineness and marking — Specification (<i>fourth revision</i>)	IS/ISO/IEC 17025 : 2017	General requirements for the competence of testing and calibration laboratories (<i>second revision</i>)
IS 1418 : 2009	Determination of gold in gold bullion, gold alloys and gold jewellery/artefacts — Cupellation (fire assay) method (<i>third revision</i>)	IS/ISO 17034 : 2016	General requirements for the competence of reference material producers
IS 2112 : 2014	Silver and silver alloys, jewellery/artefacts — Fineness and marking — Specification (<i>third revision</i>)	IS/ISO/IEC 17043 : 2023	Conformity assessment — General requirements for the competence of proficiency testing providers (<i>first revision</i>)
IS 2113 : 2014	Assaying silver in silver and silver alloys — Methods (<i>third revision</i>)	IS/ISO 19011 : 2018	Guidelines for auditing management systems (<i>second revision</i>)

To access Indian Standards, click on the link below:

https://www.services.bis.gov.in/php/BIS_2.0/bisconnect/knowyourstandards/Indian_standards/isdetails/

ANNEX B

*(Foreword and Clause 6.4.1)***LIST OF EQUIPMENTS AND REAGENTS FOR GOLD ASSAYING AND HALLMARKING BY
CUPELLATION METHOD**

<i>Sl No.</i>	<i>Name of Equipment and Instruments</i>	<i>Least Count/Sensitivity</i>	<i>Range</i>
(1)	(2)	(3)	(4)
i)	LIST OF EQUIPMENTS		
	a) Cupellation furnace	–	Up to 1 150 °C
	b) Annealing furnace	–	Up to 900 °C
	c) Weighing balance (to be installed in dust free room antivibration platform)	0.002 mg for 990 fineness and 0.001 mg for more than 990 fineness	
	d) Laser machine (capable of marking as per IS 1417)		
	e) XRF machine (capable to detect Cd, Pb, Ir, Ru, Os and other platinum group elements)		
	f) Air conditioner		
	g) Generator (for uninterrupted power supply to the cupellation furnace)		
	h) Balling plier		
	j) Cupels		
	k) Cleaning brush		
	m) Hammer and anvil (hammer of 400 g) or power press		
	n) Scrapping tools (different type of scrappers, micro drills, chisels, etc)		
	p) Magnifying glass (10 X)		
	q) Emery paper (different grades)		
	r) Aluminium and/or stainless steel tray		
	s) Thermometer	–	Up to 110 °C
	t) Hydrometer	–	1.0 SG to 2.0 SG
	u) Parting tray with thimbles of Pt or Pt/Ir or Pt/Rh or unglazed silica (the bottom surface of the base of the parting tray shall not touch the base of the parting container)		
	v) Crucible (pure graphite crucible for melting of scrapings)		

<i>Sl No.</i>	<i>Name of Equipment and Instruments</i>	<i>Least Count/Sensitivity</i>	<i>Range</i>
(1)	(2)	(3)	(4)
	w) Hot plate		
	y) Jeweller's roll		
	z) Scarification dishes (dia 50 mm required for testing of white gold)		
	aa) Tongs and forceps		
	bb) Anti-vibration table/platform for high accuracy balance		
	cc) Numbering device/number punch		
	dd) Fume-hood with scrubber		
	ee) Furnace for melting scrapping	–	Up to 1 050 °C
	ff) Micrometer	0.01 mm	–
	gg) Reference gold sample of 585, 750,833, 916, 958 and 995 fineness for internal checks depending upon scope of recognition		
ii)	LIST OF REAGENTS		
	a) (See IS 1418) for details of reagents/chemicals/consumables		
NOTE — Above list of equipment's and regents is only for guidance as the equipment's required will depends on the scope of recognition.			

ANNEX C

*(Foreword and Clause 6.4.1)***LIST OF EQUIPMENTS AND REAGENTS FOR SILVER ASSAYING AND HALLMARKING BY GRAVIMETRIC METHOD (C-1 AND C-2) AND POTENTIOMETRIC METHOD (C-3)**

<i>Sl No.</i>	<i>Name of the Equipments and Instruments</i>	<i>Least Count/Sensitivity</i>	<i>Range</i>
(1)	(2)	(3)	(4)
i)	LIST OF EQUIPMENTS		
	a) XRF machine (capable to detect Cd and Pb)		
	b) Laser machine (capable of marking large article also)		
	c) Weighing balance (to be installed in dust free room and anti-vibration platform)	0.01 mg	
	d) Air conditioner (to make the atmosphere dust free and to maintain room temp)		
	e) Hot plate (convenient size for silver assaying)		250 °C
	f) Drying oven electrical		200 °C
	g) Hammer		1 kg
	h) Rolling mill (capable of rolling buttons into strip)		
	j) Generator for uninterrupted power supply		
	k) Scrapping tools (microdrill, different types of scrappers, scissors and chisels)		
	m) Magnifying glass (10 X)		
	n) Burette/dropping pipette (<i>see</i> IS 2113)		
	p) Metallic tray (for carrying skiff, <i>see</i> IS 2113)		
	q) Watch glass		75 mm Dia
	r) Funnel		
	s) Glass beaker		25 mm Dia 250 ml
	t) Tongs and forceps		
	u) Desiccator		
	v) Filter vacuum pump		
	w) Sintered glass crucible No.3 (medium porosity) G3 and G4		
	y) Anti-vibration table for high accuracy balance		
	z) Distilled water/appropriate distillation plant for distilled water		

<i>Sl No.</i>	<i>Name of the Equipments and Instruments</i>	<i>Least Count/Sensitivity</i>	<i>Range</i>
(1)	(2)	(3)	(4)
	aa) Glass rods		
	bb) Wash bottle with fine jet		
	cc) Reference silver sample of fineness depending upon scope of recognition fineness		
ii)	LIST OF REAGENTS		
	a) (See IS 2113) for details of reagents/chemicals/consumables		
iii)	LIST OF APPARATUS		
	a) Automatic titrator machine (capable of delivering increment of 0.05 ml at the equivalence point)		
	b) Titration beaker		
NOTE — Above list of equipment's and regents is only for guidance as the equipment's required will depends on the scope of recognition.			

ANNEX D

(Clause 6.4.7)

GUIDELINES FOR VERIFICATION/CALIBRATION OF EQUIPMENTS AND AVAILABILITY OF CERTIFIED REFERENCE MATERIALS (CRMs)

D-1 The equipment/material shall be calibrated/certified with traceability to National/International Standards preferably from NABL accredited labs.

shall indicate observations along with associated uncertainty of measurements.

D-2 The calibration certificates of the equipments

D-3 The calibration/verification shall cover the following point/range of use:

<i>Sl No.</i>	<i>Equipment/Material</i>	<i>Recommendation</i>	<i>Recommended Minimum Frequency</i>
(1)	(2)	(3)	(4)
i)	Micro balance	Initial calibration with traceability calibrated weights for regular internal checks	1 Year
ii)	Cupellation and annealing furnace temperature indicators	Calibration with traceability	1 Year
iii)	XRF machine	Initial calibration by supplier and regular internal checks with certified reference standards of gold/silver of different fineness	–
iv)	Standard weights for internal checks of micro balance	Calibration with traceability	2 Years
v)	Gold/silver standards of different fineness (as per requirement) for XRF machine verification	a) Calibration provided by a competent IS 17025 accredited calibration centre, having requisite scope of accreditation; and b) Certified values of certified reference materials-provided by a competent producer – IS 17034 accredited Reference Material Producer or IS 17025 accredited centre having accredited scope/Bhartiya Nirdeshak Dravya (BND).	Minimum 2 number standards of different fineness covering usage range
vi)	Proof gold/silver/lead/copper – Material for assaying as per IS 1418 or IS 2113	a) Calibration provided by a competent IS 17025 accredited calibration centre, having requisite scope of accreditation; and b) Certified values of certified reference materials-provided by a competent producer – IS 17034 accredited Reference Material Producer or IS 17025 accredited centre having accredited scope/Bhartiya Nirdeshak Dravya (BND).	Sufficient quantity to be available

<i>Sl No.</i>	<i>Equipment/Material</i>	<i>Recommendation</i>	<i>Recommended Minimum Frequency</i>
(1)	(2)	(3)	(4)
vii)	Distilled water or water of equivalent purity free from halides and suspended impurities	Test certificate from supplier or testing of sample from a lab or self testing arrangement	–
viii)	Nitric acid free from halides and suspended impurities	Test certificate from supplier or testing of sample from a lab or self testing arrangement	–

ANNEX E

(Clause 7.3)

SAMPLING PLAN

Follow Steps in Downward Direction and Look for the Applicable Situation					
Step 1	Receipt and physical verification of consignment of jewellery offered by certified jeweller				
Step 2	100 percent check of each article of lot (for declared fineness) by XRF to ensure conformity and homogeneity of lot as per declaration and presence of prohibited elements as per relevant IS				
Step 3	(A)		(B)		(C)
	Fineness of lot is same as declared by jeweller and Homogeneous as per XRF		Fineness of lot is different than that declared by jeweller but lot is homogeneous		Fineness of lot is different than that declared by jeweller and articles of lot are also of different fineness that is, heterogeneous lot
Step 4	(D) Uniform lot (similar items)		Non-uniform lot (different items)	Refer back to jeweller	Refer back to jeweller
Step 5	For Scrapping/Drilling Please (see Annex E)	For Cutting/Melting Please (see Annex E)	Make sub-lots of similar articles	Observed fineness accepted by jeweller	Not accepted by jeweller Reject and return jewellery
Step 6	Melt under controlled conditions that is, reducing atmosphere and make a homogeneous button made of composite sample		Proceed as (D)	Proceed as (A)	Reject and return jewellery
Step 7	Draw sample for duplicate assay as per IS 1418 for gold and IS 2113 for silver				
Step 8	Carryout assaying as per IS 1418 for gold and IS 2113 for silver				

ANNEX F

(Clause 7.3)

GUIDELINES ON SAMPLING

F-1 PRELIMINARY EXAMINATION

F-1.1 Visual inspection to check marking on the articles, if any.

F-1.2 Visual inspection to detect any excessive or sub-standard solder.

F-1.3 Visual inspection to detect base metal parts or unauthorized filling.

F-1.4 Segregation of any doubtful articles for special tests.

F-1.5 The centre shall carry out a preliminary examination by XRF method on each article for homogeneity check and segregation.

F-1.6 Verification for the presence of prohibited elements/metals as per relevant Indian Standard shall also be done by XRF method.

F-2 SAMPLING

F-2.1 The following methods of sampling may be used:

- a) Cutting/melting;
- b) Scrapping; and
- c) Drilling.

F-2.2 Cutting is the preferred method for accuracy but it is often not practicable. In such cases, samples may be removed by scraping. In special circumstances samples may also be obtained by drilling. The sampling of hollow items must be done by cutting/melting/drilling or scrapping both from inside and outside.

F-2.3 Samples may be taken from convenient positions provided that they are representative of the part being sampled. Other types of surface impurities such as residues of polishing media must also be removed before samples are taken. Lacquer must also be removed by a suitable solvent.

F-2.4 Samples from articles which have been polished or are contaminated with grease may require to be degreased in a suitable solvent

(for example, trichloroethylene) before they are assayed.

F-2.5 The number of items taken from a lot and the number of samples taken from these items for testing and analysis shall be sufficient to establish the homogeneity of the lot and ensure that all parts of all articles controlled in the lot are up to the required standard of fineness.

F-2.6 The number of articles selected for sampling and the extent to which samples from more than one article are grouped together before assaying will depend on circumstances. For example, in some cases, it may be more appropriate to select one or more articles at random from a lot and to assay them separately, in other cases it may be preferable to sample a greater number of articles and group the samples together before assay. Experience of the likely variation in fineness within a lot and the extent to which the articles may be damaged by sampling will be the deciding factors. In general, the minimum number of articles selected according to the size of the lot shall be as below.

F-3 MINIMUM NUMBER OF SAMPLES AND ASSAYS

F-3.1 Consignment and Lot

A consignment shall be collection of articles/artifacts of same fineness from which a sample shall be drawn and assayed to determine conformance with the acceptable criteria. There may be different lots in a consignment. A lot shall be defined as a set of articles having the same fineness, type/design.

F-3.2 The minimum assays required based on lot size and method of sampling shall be as per sampling plan given in [Table 1](#).

F-3.3 Where an article selected for sampling is made of several parts, each part of the article shall, where practicable, be sampled.

F-3.4 If articles are suspected of containing an unauthorized filling, they shall be tested by drilling or cutting or by immersion in a suitable reagent.

Table 1 Lot Size and Sampling*(Clause F-3.2)*

Sl No.	Item	Lot Size	Sampling by Scrapping/Drilling, <i>Min</i> Percent	Sampling by Cutting/Melting, <i>Min</i>	Minimum Assays
(1)	(2)	(3)	(4)	(5)	(6)
i)	Jewellery	1 to 40	10	1	1
		41 to 280	10	One additional for every 60 pieces	One additional assay for every 60 pieces
		281 and above	10	One additional for every 100 pieces	One additional assay for every 100 pieces
ii)	Artefacts	1 to 500	–	One sample for every 100 pieces	One for every 100 pieces
		501 and above	–	One addition after every 250 pieces	One addition after every 250 pieces
<p>NOTE — In case of mixed lot of up to 10 pieces having same fineness but different type/design, the sampling for testing may be permitted as follows:</p> <p>a) In case of sampling by scrapping/drilling, samples for testing shall be taken from a minimum of 20 percent of the pieces in the lot, subject to a minimum of two pieces;</p> <p>b) In the case of sampling by cutting/melting, sample for testing has to be taken from at least one piece; and</p> <p>c) In these types of lots, a minimum one assay has to be done.</p>					

ANNEX G

(Foreword)

COMMITTEE COMPOSITION

Precious Metals Sectional Committee, MTD 10

<i>Organization</i>	<i>Representative(s)</i>
Geological Survey of India, New Delhi	SHRI PARAVJEET SINGH (Chairperson)
All India Gems and Jewellery Trade Federation, Mumbai	SHRI D. D. KAREL SHRI SURESH I. DHURV (<i>Alternate</i>)
Association of Gold Refineries and Mints, New Delhi	SHRI ANIL C. KANSARA
Bhartiya Swarnkar Sangh, Jaipur	SHRI DULI CHAND KAREL SHRI PREM KUMAR SONI (<i>Alternate</i>)
CGR Metalloys Private Limited, Kochi	SHRI JAMES JOSE SHRI JOSEPH K. JAMES (<i>Alternate</i>)
Consumer Education and Research Centre, Ahmedabad	DR C. J. SHISHOO
Consumer Guidance Society of India, Mumbai	DR SITARAM DIXIT DR M. S. KRAMATH (<i>Alternate</i>)
CSIR – Indian Institute of Toxicology Research, Lucknow	SHRI R. C. MURTHY
CSIR – National Physical Laboratory, New Delhi	DR N. VIJAYAN
CSIR – National Metallurgical Laboratory, Jamshedpur	DR K. K. SAHU DR ASHOK K. MOHANTY (<i>Alternate</i>)
Gem and Jewellery Export Promotion Council, Mumbai	SHRI SABYASACHI RAY
Gujarat Gold Centre, Ahmedabad	SHRI SHARAD C. KANSARA
Hindalco Industries Limited, Mumbai	SHRI JAYESH PAWAR SHRI DIVYANG SHAH (<i>Alternate</i>)
India Government Mint, Mumbai	SHRI BIMAL PARSAD SHRI RAVINDRA GUNDERAO JADHAV (<i>Alternate</i>)
Indian Association of Hallmarking Centres, New Delhi	SHRI HARSHAD AJMERA SHRI UDAY SHINDE (<i>Alternate</i>)
Indian Diamond Institute, Surat	SHRI SAMIR D. JOSHI SHRI HITESH VERMA (<i>Alternate</i>)
Indian Institute of Technology Bombay, Mumbai	SHRI SMRUTIRANJAN PARIDA SHRI N. K. KHOSLA (<i>Alternate</i>)
Institute of Chemical Technology, Mumbai	DR B. M. BHANAGE SHRI RADHE V. JAYARAM (<i>Alternate</i>)
Jalan and Company, Chandni Chowk, New Delhi	SHRI ISHWAR JALAN SHRI VINAY JALAN (<i>Alternate</i>)
MMTC-PAMP India Private Limited, New Delhi	SHRI PANKAJ DESHMUKH SHRI ANKUR GOYAL (<i>Alternate</i>)
National Centre for Compositional Characterization of Materials, New Delhi	DR R. SHEKAR SHRI N. N. MEERVALE (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
National Chemical Laboratory, Pune	SHRI C. S. GOPINATH DR E. BALARAMAN (<i>Alternate</i>)
National Mineral Development Corporation, Hyderabad	DR CH SARVAN KUMAR DR K. SRIRAMGURU (<i>Alternate</i>)
National Refinery Private Limited, Mumbai	SHRI ASHISH SONEWALA SHRI AMIT J. (<i>Alternate</i>)
National Test House, Kolkata	DR A. B. MONDAL
Sigma Four, New Delhi	SHRI A. K. BAHL SHRIMATI ANITA BHATIA (<i>Alternate</i>)
Titan Company Limited, Bangalore	SHRIMATI MEENAKSHI SUNDARAM SHRI ANIKESH NANDY (<i>Alternate</i>)
Voluntary Organisation in Interest of Consumer Education (VOICE), New Delhi	SHRI B. K. MUKHOPADHYAY SHRI M. A. U. KHAN (<i>Alternate</i>)
World Gold Council, New Delhi	SHRI P. R. SOMASUNDARAM
BIS Directorate General	SHRI SANJIV MAINI, SCIENTIST 'F'/SENIOR DIRECTOR AND HEAD (METALLURGICAL ENGINEERING) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary
SHRI SHIV PRAKASH
SCIENTIST 'D'/JOINT DIRECTOR
(METALLURGICAL ENGINEERING), BIS

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Central : 601/A, Konnectus Tower -1, 6th Floor,
DMRC Building, Bhavbhuti Marg, New
Delhi 110002

Telephones

{ 2323 7617

Eastern : 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V,
Salt Lake, Kolkata, West Bengal 700091

{ 2367 0012
2320 9474

Northern : Plot No. 4-A, Sector 27-B, Madhya Marg,
Chandigarh 160019

{ 265 9930

Southern : C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113

{ 2254 1442
2254 1216

Western : Manakalya, 4th Floor, NTH Complex (W Sector), F-10, MIDC, Andheri
(East), Mumbai 400093

{ 283 25838

Branches : AHMEDABAD, BENGALURU, BHOPAL, BHUBANESHWAR, CHANDIGARH, CHENNAI, COIMBATORE, DEHRADUN, DELHI, FARIDABAD, GHAZIABAD, GUWAHATI, HARYANA, HUBLI, HYDERABAD, JAIPUR, JAMMU & KASHMIR, JAMSHEDPUR, KOCHI, KOLKATA, LUCKNOW, MADURAI, MUMBAI, NAGPUR, NOIDA, PARWANOO, PATNA, PUNE, RAIPUR, RAJKOT, SURAT, VIJAYAWADA.