Logo of the AHC

GENERIC QUALITY MANUAL

[According to IS 15820:2009]

of

…….. Assaying & Hallmarking Centre
Address
City
State
India
Pin

Telephone No
Fax
Email
Website

Document No.	
Issue Number	
Issue Date	
Prepared & Issued by Quality Manager	
Approved by CEO	
Copy No.	MASTER COPY
Copy Holder	QUALITY MANAGER

1.2 Distribution Record

A controlled copy of this Quality Manual is issued to key persons of the centre/stakeholder. The following are the authorized holders of the '**CONTROLLED COPY'** of Quality Manual.

Controlled Copy No.	Name and Designation of the Copyholder
01	Shri/Smt……., Chief Executive Officer
02	Shri/Smt …….., Quality Manager
03	Shri/Smt …….., Assaying In-charge
04	Bureau of Indian Standards

1.3 Amendment Record

Each copy holder of this Quality Manual shall be given a copy of the amendment as well as this Amendment Record. The copy holder shall ensure that the Manual is kept up to date with respect to amendments and obsolete page(s) of the Manual is/are duly returned to the Quality Manager.

Amend-ment No.	Page No.	Section/ Clause/ Sentence	Date	Details of Amendment	Justification for amendment	Signature of Quality Manager

1.4 Scope of M/s ..... Assaying and Hallmarking Centre

M/s ..... Assaying and Hallmarking Centre (hereinafter is mentioned as "Centre" or "the Centre') is a small organization having its major field of activity as assaying of gold/silver samples and offers services of providing technically valid test results and hallmarking. The management system has covered all operations of the Centre, namely:

For Gold: (a) Receiving (b) XRF examination (c) Sampling (d) Fire Assay (e) Reporting the results (f) hallmarking and /or

For Silver: (a) Receiving (b) XRF examination (c) Sampling (d) Gravimetric/Potentiometric method of test (e) Reporting the results (f) Hallmarking

1. The working is based according to the requirements specified in IS 15820:2009 excluding clause No. 4.5 Subcontracting of Tests.

1.5 References

This Quality Manual has been prepared by the Centre complying with the requirements of following Indian Standards (ISs):

Sl. No.	IS No.	Title
01	IS 15820:2009	General Requirements for Competence of Assaying and Hallmarking Centres
02	IS 1417:1999	Gold & Gold Alloys, Articles – Fineness & Marking - Specification
03	IS 1418:2009	Determination of Gold in Gold Bullion, Gold Alloys & Gold Articles – Cupellation (Fire Assay) Method
04	IS 2112:2003	Silver & Silver Alloys, Articles – Fineness & Marking - Specification
05	IS 2113:2002	Assaying Silver in Silver and Silver Alloys – Methods

1.6 Definitions

Term	Definition
Articles	Jewellery/artefacts
Assaying	The method of accurate determination of precious metal content, expressed in parts per thousand, in a sample.
BIS	Bureau of Indian Standards, the Recognizing Authority for Assaying & Hallmarking Centres in India
Customer	BIS licensed jeweller and purchasers Hallmarked gold/silver articles
Global Customer	Exporter of gold/silver articles

Centre/the Centre	XYZ Assaying & Hallmarking Centre
Product	Assay & Hallmarking services for gold/silver articles

1.7 Abbreviations

Abbreviated Term	Expanded Form	Term	Full Form
A/c	Accounts	ML	Master List
ADM	Administration	NABL	National Accreditation Board for Testing and Calibration Laboratories
ALB	Assay Laboratory	NC	Non-conformity
BIS	Bureau of Indian Standards	OL	Obsolete
CH	Charts	PAD	Personnel & Administration
CD	Compact Disc	PL	Policy
CEO	Chief Executive Officer	PPT	Parts Per Thousand
DEO	Document of external origin	PSL	Personnel
FM	Format	PUR	Purchase
GR	General Records	QAC	Quality Assurance
HRD	Human Resource Development	QM	Quality Manual
IA	Internal Audit	QR	Quality Records
ID	Identification	QSY	Quality System
IGM	India Government Mint	QMS	Quality Management System
ISO	International Organization of Standardization	RCV	Receiving
IS	Indian Standard	SP	Support Procedure
LBT	Laboratory Technician	SPL	Sampling
LS	List	TR	Technical Records
MGT	Management	TM	Test Methods
MKT	Marketing	WI	Work Instruction

Section: 2	…….. Assaying & Hallmarking Centre	AHC LOGO

(4.1 of IS 15820:2009)

2.1 Organization

Sl. No.	PROFILE	
i.	Name of the Centre	XYZ ASSAYING & HALLMARKING CENTRE
ii.	Date of establishment.	
iii.	Name of Parent Firm	M/s
iv.	Type & details of Firm	Partnership Firm involved in refining of gold and operating the Assaying & Hallmarking Centre.
v.	Management [Promoter(s)] composition including their business activities, if there is any	
vi.	Statement	a) Assaying and Hallmarking Centre is having legal identity and independent status. The promoters of this centre do not have any linkages with manufacturing or retailing of gold/silver jewellery/artefacts. b) The centre carries out assaying and Hallmarking activities complying with requirements of IS 1418/2113 and IS 15820. It has been set up to meet the needs of the customer. The relevant statutory and regulatory requirements are to be complied with.
vii.	Managed & controlled by	……, CEO
viii.	Address	……, PIN ……., State……., India The centre operates all its activities at this given address and there is no off-site activities (4.1.3)
ix.	Communication details	☎: + 91- 🖷: + 91- **E-mail**: Web Site: www.
x.	Legal status	Proprietorship/Partnership/ROC Firm Registration No. SSI Registration No.
xi.	Scope of Business	Gold and/or Silver Assaying and Hallmarking
xii.	Income Tax A/c No.	PAN -
xiii.	VAT Registration No.	
xiv.	Building	Receiving, XRF, sampling, weighing, fire assay/testing of silver, hallmarking and administration office facilities.
xv.	Test/assay facility	XRF and assaying of gold in gold bullion, gold alloys and articles – Cupellation (Fire Assay) method according to IS 1418. List of equipment is given at Annex I.

		Methods of assaying silver in silver and silver alloys according to IS 2113:2002. List of equipment is given at Annex I.
xvi.	Quality management aspects	➢ Competent Quality Manager, Assaying In-Charge and key personnel ➢ Accuracy and sensitivity of instruments and equipment ➢ In-depth practical knowledge of samplers about manufacturing of articles and skill (aptitude) in sampling ➢ Strict adherence to specified and documented fire assay method coupled ➢ Quality control of critical operations, laboratory consumables ➢ Training of personnel ➢ Work discipline ➢ Continual improvement
xvii	Work environment	Facilities for correct performance of all steps commencing from receiving to delivery
xviii	Customer	Jeweller licensed by BIS and other entity who purchases Hallmarked articles
xix.	Input to Centre	Articles, namely articles made up of gold and/or silver for testing/assaying and Hallmarking
xx.	Output from Centre	➢ Hallmarked articles ➢ Cornets of gold samples ➢ Test Reports
xxi.	Security matters	➢ Closed circuit TV with back up facility of minimum 90 days storage ➢ Strong room/safe for storage of gold articles, certified reference materials, cornets etc.
xxii.	Quality Manager	
xxiii.	Assaying In-charge	
xxiv.	Overall responsibility of technical operations	
xxv.	Protecting confidentially the customer's needs.	

2.1.1 Needs of Customer

Sl. No.	Needs of the Customer
i.	Assaying of articles shall be carried out as per IS 1418.
ii.	Charges shall be as approved by BIS.
iii.	Residual test sample (cornet) shall be returned after testing along with Articles;
iv.	Articles to be returned as per delivery voucher/invoice without any damage in proper packing.

1. The Organizational Structure is given at Annex 5 describing the interrelationship between Centre's personnel.

2. The responsibility of key personnel in M/s …….., the parent organization that have involvement or influence on the assaying and hallmarking activities of and the Centre has been defined hereunder in order to identify the potential conflicts of

interest between the Firm with Centre's personnel, which might adversely affect the judgment and integrity of staff and quality of work :

Sl. No.	Key Personnel	Major responsibilities in M/s	
		Refinery	Centre
i.		Technical Manager (Administration, Marketing, Production)	⇒ CEO
ii.		--	⇒ Quality Manager
iii.		--	⇒ Assaying In-charge
iv.		Chief Fin. & Admin. Officer: ⇒ Commercial, Personnel, Administration, Legal and Purchase	

3. There is no chance of potential conflict of interest.

4. Instructions have been issued to all personnel who manage, perform or verify work affecting the quality of the tests and assay to ensure that each of them is aware of the extent and limitations of his areas of responsibility and authority. The centre has provided authority and resources to each individual to initiate action to prevent or minimize any deviation in their respective areas. The centre ensures that all staff are adequately qualified and experienced to perform the duties assigned to them with respect to their position.

5. The Centre's management has assigned the Quality Manager with responsibility for ensuring that Management System is implemented in the Centre and followed at all times. The Quality Manager has direct access to the highest level of the Centre's management, namely the CEO for decisions on policy and/or resources.

6. The Assaying In-charge has been assigned with overall responsibilities of technical operations of the Centre as a whole and provision of resources to ensure the required quality and time management.

7. The Centre has appointed following deputies for key managerial personnel:

Sl. No.	Person	Deputy to
1	Deputy Assaying In-charge	Assaying In-charge
2	Deputy Quality Manager	Quality Manager

8. The Centre's policy is to ensure the protection of its customers information and proprietary rights confidentially. The customer's confidential and proprietary rights are defined as (a) Their logo/identification mark as to be applied on their articles as a part of Hallmark; (b) Rejections; (c) Details of articles (weight and quantity) sent for Hallmarking and (d) Pattern and Design of Articles. However, BIS will be furnished with the details on demand. The procedure followed is as described below:

i All personnel have been informed that confidentiality shall be always maintained and honestly protected. Noncompliance will be dealt with very seriously by the management.

ii An undertaking is taken in written form from all employees working in receiving, sampling, XRF tester, assaying personnel, technicians, Laser operator, delivery staff to protect confidential information and proprietary rights of all customers.

iii Under no circumstances the results of assay be made known to any third party without the written consent of the customer. The exclusion is BIS, who shall be furnished with details on demand.

iv Report shall not be sent by fax to any customer or BIS without management's prior approval.

9. The Centre obtains a written undertaking from its managerial and other key personnel who are exposed to customer's identity and other details, they will never succumb to any type of pressure or influence of customers or internal sources or external commercial, financial and other pressures. In addition, the management keeps strict vigilance and watch over its personnel to ensure that its personnel are free from any undue internal and external influences that adversely affect the quality of their work. The assay results/ test reports are personally scrutinized by CEO/Centre In charge/Quality Manager before they are released. CEO also monitors personally the entire system on his own to prevent any leakage of information.

(4.2 of IS 15820:2009)

2.2 Management System

1. The organization has established, implemented & maintained a management system appropriate to assaying & Hallmarking as per IS:15820-2009. It is to assure the Centre's quality of assaying and hallmarking activities. The Centre's management system is appropriate to the scope of its activities and in accordance with the Indian Standard IS 15820:2009.
2. The Centre's quality policy, objectives, roles and responsibilities of key personnel have been framed and given in this Manual. The quality Policy statement is signed by Chief Executive Officer who also takes decisions on the resources. The statement includes the following.

a) commitment in relation to quality of Centres assaying and hallmarking services and to provide its Customers at all times with a service complying with recognized standard of practice as given in the Indian Standards referred in this Manual;
b) standard of services given to customers;
c) purpose of management system related to quality;
d) statement that all staff have familiarized themselves with the content of the Quality Manual and comply with the laid down policies and procedures and associated documentation at all times in their work; and
e) commitment to compliance with IS 15820:2009 and continually improve the management effectiveness.

3. Top management of the Centre has ensured that the Quality Policy is communicated to and understood by those personnel who are responsible for maintaining the quality management system at all the levels.
4. Top management provides evidence of commitment to the development and implementation of the management system and continually improving its effectiveness by following the documents of all levels meticulously including carrying out internal audit and management review meeting, handling customer's complaint, discussion on improvement
5. The top management communicates to the employees the importance of the meeting customer's requirements as well as statutory & regulatory requirements.
6. The supporting procedures and technical procedures have been included in this Manual explaining their actual implementation. No separate documentation has not been prepared.
7. The document structure used for the management system is as described below:

Level	Name of document
L1	Quality Manual
L2	Test Methods
L3	Forms, Reports, Records etc.

8. The procedures have been integrated with individual clauses where reference has been made in the Indian Standard. Stand alone Procedure has not been developed and implemented.

2.2.1 QUALITY POLICY

XYZ Assaying & Hallmarking Centre is totally committed to comply with the requirements of IS 15820:2009 Indian Standard General Requirements for Competence of Assaying and Hallmarking Centres:

1) to consistently serve, meet and exceed overall expectations of customer about quality of assaying and hallmarking with error free and technically valid results;

2) to pursue better professional practices and continually improve the services and systems;

3) to periodically train key technical persons and employees whose services may affect the quality of Centre's performance, thereby enhance satisfaction of customers;

4) to continuously endeavor to build and maintain reputation of the Centre being absolute trustworthy in eyes of its valued customers who are primarily jewelers; and

5) to familiarize all personnel concerned with testing activity with the quality documentation and implement the policies and procedures in their work.

Place: [Chief Executive Officer]
Date :

[This Quality Policy is communicated to all employees, explained to them so that it is understood and accepted by each individual as a prime responsibility while delivering the services.]

2.2.2 QUALITY OBJECTIVES

In order to meet the commitments made in the Quality Policy, following quality objectives have been framed:

- Maintain our current status of a leading, quality conscious Assaying and Hallmarking Centre which operates as a technically competent service provider; quality system;

- To maximize creation of value and satisfaction of all customers;

- Provide conducive and growth-oriented environment to employees through HRD activities and thereby develop the centre as the role model for others;

- Continue to further strengthen and maintain a reputation for being always absolutely trustworthy.

Place: [Chief Executive Officer]
Date :

(4.3 of IS 15820:2009)

2.3 Document Control

1. The centre has established and maintained procedures to control all documents (both internal and external) which form part of the management system from receipt to delivery of articles (4.3.1). The Quality Manager is responsible for documentation and establishing, maintaining control of all documents in the Centre. The various types of documents required by the Centre are as follows:

Documents of Internal Origin

i. Quality Policy
ii. Quality Manual
iii. Forms
iv. Reports
v. Records

Documents of External Origin

i. Indian Standards
ii. Guidelines/Policy/Instructions/Circulars from BIS
iii. Other regulations, namely Standards of Weights & Measures Act
iv. Calibration certificates
v. Test Reports on Certified Reference Materials
vi. Software used - XRF, Laser Marking, Others
vii. Copies of licences from jewelers
viii. Copies of identification marks supplied by jewelers
ix. Requests received from jewelers for assaying & Hallmarking
x. Operating Manuals of equipment

2. The procedure to control all documents (internal or external origin) is described as follows. The Quality Manager is authorized to prepare documents and issue them with prior review and approval by CEO including changes / amendments in existing documentation. A Master List of all documents (internal or external origin) identifying the current revision status and distribution is available with Quality Manager to avoid use of invalid and/or obsolete documents.

3. The Quality Manager ensures that only authorized edition of appropriate document is available at workstation where operations essential for effective functioning of the Centre. Periodic review of documents are done to ensure continuous suitability and compliance with applicable requirements. Any invalid or obsolete document is promptly removed from all points of use. Only one copy of such document is kept with Quality Manager after putting stamp of 'OBSOLETE DOCUMENT" and assuring any unintended use. Obsolete documents when retained for either legal or knowledge preservation are marked with stamp 'FOR REFERENCE ONLY".

4. Each document is uniquely numbered. Master Copy of each document is maintained indicating date of issue, revision status, page numbering etc. If necessary, due to any special reason, primarily related to testing and/or assay of samples, the views of Assay In-charge will be taken while reviewing the existing documentation and maintaining appropriate records.

5. Procedures will be established describing changes in documentation in computerized system as and when such system is developed.

(4.4 of IS 15820:2009)

2.4 Review of Requests / Contracts

1. CEO is responsible for marketing activity and signing contract with customers. The procedure shall be as follows. CEO will review the customer's request sent along with the articles and communicate to customer about deviations and carry out amendment of the contract as may be required.
2. The centre has ensured that hallmarking is done for articles received only from I licensed by BIS. Records of such BIS licensees whose articles are received for hallmarking are maintained. The centre has internet facility to access the BIS website for ascertaining the current status of the licenses.
3. The Centre shall accept only such articles which are capable of being hallmarked.
4. The Centre shall Hallmark and return the articles to customer within 48 hours.
5. The Centre shall also undertake assaying of articles/samples of Hallmarked articles from consumers on priority. Assay Report shall be issued, based on the relevant Indian Standard, with proper identification of the article/sample.
6. The centre shall review the requests for hallmarking. The established procedure will be to examine the request as well as each article in the consignment to check for the following:

i. Whether request from a BIS licensed jeweller;
ii. The scope and validity of submitted licence;
iii. Markings on the articles (articles with any marking will not be accepted);
iv. Quantity in numbers, corresponding weight with respective declared fineness;
v. Design for articles (medallions/coins resembling currency of any country will not be accepted for Hallmarking);
vi. Insurance of the articles submitted for Hallmarking purposes by the licensee;
vii. The capability in respect of available of CRMs;
viii. The capability in respect of meeting delivery time schedule;
ix. Delivery Mode & Charges, if any;
x. Hallmarking charges applicable; and
xi. The jeweler has given an undertaking declaring their identification mark as declared to BIS.

7. Records of reviews, including any significant changes shall be maintained. Record shall also be maintained of pertinent discussion with a customer relating to the customer's requirements or the results of the work during the period of execution of the contract. The customer shall be informed of any deviation from the contract. If a contract needs to be amended after work has commenced, the same contract review process has repeated and any amendments has communicated to all affected personnel.

(4.5 of IS 15820:2009)

2.5 Subcontracting of tests

Subcontracting of any activity related to assaying and hallmarking shall not be done.

(4.6 of IS 15820:2009)

2.6 Purchasing Services & Supplies

1. The centre follows the procedures for purchase of service and supplies it uses that affect the quality of assaying and hallmarking activities. The procedure covers purchase, receipt and storage of reagents, laboratory consumable materials relevant to assaying and hallmarking. The procedure for purchasing services and supplies shall be as follows. Quality Manager and Assaying In-charge are jointly responsible for selection and purchase of services and supplies the Centre uses that affect the quality of the tests which require to be consistently complying with standard specifications.
2. Selection and fixing up of suppliers for capital goods like test equipment, accessories, precision instruments, hand tools etc. Authorizing selection and fixing up of services providers for calibration of equipment is done based on NABL accreditation.
3. The centre evaluates suppliers of all critical consumables, supplies and services which affect the quality of assaying & hallmarking, based upon their overall past performance on quality delivery, price and pre and post purchasing services, and maintains records of these evaluation and list approved suppliers and service providers.
4. Quotations are usually invited telephonically, reviewed and the terms of supplies are negotiated before purchase. Assaying In-charge prepares Purchase Order for items which may affect the quality of testing, with data like types, class, grade, precise identification, specification, inspection instructions, the quality required and other technical details as applicable which describes the services or supplies ordered. CEO reviews this Purchase Order and approves prior to release.
5. The Centre inspects or otherwise verifies and thus ensures that all critical purchased supplies and reagents and laboratory consumable materials that affect the quality of the testing are not used until verified as complying with defined specifications maintained in the Purchase Order and records of actions taken to demonstrate compliance are maintained.
6. Quality Manager takes action for identification, segregation of substandard purchased item(s) if any nonconformance is observed during inspection and record is maintained. Assay In-charge maintains records of such inspection/verification.
7. CEO is responsible for authorizing purchases of capital goods, laboratory consumables including certified reference materials e.g. Au. Ag, Cu, Pb, Acids etc.
8. Records of all purchases shall be kept.

(4.7 of IS 15820:2009)

2.7 Service to the customer

1. The procedure in this respect is that Centre always co-operate with the customer or his representative in clarifying the customer's request and various monitoring aspect in relation to work performed. The Centre ensures confidentiality about one customer to another customer. Customer or his representative can directly contact or communicate their requirements and provide feedback to CEO on services rendered, as and when required. Such communication or feedback will be received with positive mind, recorded and action shall be immediately initiated against any non-conformance issue. Other issues would be examined with a view to improve the system aiming to satisfy the customers.
2. Centre shall honour customer's request for delivery within specified time limit of a specific consignment to meet onward delivery commitments of the customer's customer(s). However, time norms for testing, assaying and hallmarking shall be adhered.
3. Centre shall consider request of local customers for delivery of hallmarked consignment at their doorsteps.
4. Any request for re-testing shall be accepted.

5. Centre shall encourage its customers to provide both positive and negative feedback on the rendered services. The centre will analyse these feedbacks and use the result of analysis to improve the management system, assaying and hallmarking activities and level of customer service.

(4.8 of IS 15820:2009)

2.8 Complaints

1. The procedure for receiving, recording, investigating and resolution of customer complaints shall be as follows. Complaints shall be received by the Quality Manager and recorded, including those conveyed telephonically. CEO shall examine each complaint, carry out necessary investigation and take appropriate action for quick redressal of the complainant. Complaints shall be resolved within one month. In case a complaint is not resolved within given time frame, the same shall be brought to the knowledge of BIS.
2. If the complaint is challenged, the final authority for resolving the same lies with BIS.
3. When a complainant or any stakeholder including BIS raises doubt concerning the Centre's compliance with the laid down policies and procedures, or with the requirements of this Manual or otherwise concerning the quality of assaying and hallmarking, the Centre shall ensure that those area of activity and responsibility involved are promptly audited in accordance with laid down procedures. Quality Manager shall plan the audit and convey the findings/report for management review.

4. The procedure for receiving, recording, investigating and resolution of customer complaints shall be as follows. Complaints shall be received by the Quality Manager and recorded, including those conveyed telephonically. CEO shall examine each complaint, carry out necessary investigation and take appropriate action for quick redressal of the complainant. Complaints shall be resolved within one month. In case a complaint is not resolved within given time frame, the same shall be brought to the knowledge of BIS.
5. If the complaint is challenged, the final authority for resolving the same lies with BIS.
6. When a complainant or any stakeholder including BIS raises doubt concerning the Centre's compliance with the laid down policies and procedures, or with the requirements of this Manual or otherwise concerning the quality of assaying and hallmarking, the Centre shall ensure that those area of activity and responsibility involved are promptly audited in accordance with laid down procedures. Quality Manager shall plan the audit and convey the findings/report for management review.

(4.9 of IS 15820:2009)

2.9 Control of nonconforming testing work

1. The centre has developed this procedure to identify non-conformity at any stage of assaying and hallmarking and to prevent it from further processing. It covers from receiving , sampling, XRF analysis, assaying, Hallmarking and delivery and to take necessary action based on detected nonconformity. The procedure for control of non-conforming testing work shall be as follows. Centre has identified the potential non-conformities as follows:

- Fineness is less than declared value in Hallmarked article (customer sample testing);
- Presence of prohibited elements in Hallmarked article;
- Error in reporting of results;
- Weight of gold is less than declared for the Hallmarked article;
- Error in weighing balances;
- Certified reference material is of lower purity;
- Hallmark is not distinct;
- Spurious Hallmarking done;

- Equipment out of calibration;
- Error in sampling;
- Assaying and/or Hallmarking Staff not competent;
- Unsatisfactory performance reported by BIS during its assessment;
- Sample of hallmarked article drawn by BIS during market surveillance at jeweller failed on test at BIS laboratory;
- Internal audit not done;
- Management review is found having not covered all aspects under review.

2. CEO shall examine and evaluate whether any one or more of the above mentioned non-conformities or others are occurring or in existence. Significance of non-conformity shall be determined. Correction shall immediately been done. Some corrections may be, for example any incoming material found nonconforming shall be rejected and returned to supplier. Later, root cause analysis shall be done and corrective action shall be taken.
3. Fresh sampling shall be done under supervision of Quality Manager in case improper sampling was the cause of non-conformity. Fresh sampling and testing shall be done if any flaw is observed in the fire assay process. The particular sample or whole batch shall be repeated.
4. Quality Manager/Assay In-charge shall be responsible for implementing the procedure. CEO shall be responsible for all corrections. corrective actions in case of repeated non-conformances are reported. Product may be recalled from the jeweller with advance notification if non-conformity is noticed in the system post facto delivery of Hallmarked article.
5. The Centre shall take a Profession Indemnity Insurance to cover the liability of hallmarked articles with respect to purity/fineness for minimum amount of Rupees two lakhs.

(4.10 of IS 15820:2009)

2.10 Improvement

The Centre has prepared following plan for continually improve the effectiveness of its management system. The method as will be followed is explained below:

i) Centre's personnel has been assigned responsibility for accomplishing particular Quality Objectives;
ii) Internal audit will be periodically conducted covering all operations included in its management system. The audit report will be discussed in management review;
iii) All operational data will be collected and analyzed including trends and risk analysis;
iv) All observed nonconformities shall be given priority taking corrective action to resolve and prevent recurrence;
v) Plan to take preventive action to prevent occurrence of potential nonconformity; and
vi) Management review shall be periodically conducted to discuss reports of internal and external audits, nonconformities, complaints. Improvement actions will be decided with assigning responsibility and fixing time bound targets. Regular monitoring by CEO shall be done.

(4.11 of IS 15820:2009)

2.11 Corrective action

1. The Centre has established following procedure and designated Quality Manager with responsibility for planning the corrective actions. Assaying In-charge will be responsible implementing and monitoring appropriate corrective actions when nonconforming work or departures from the procedures in the management system or technical operations have

emanated as a result of daily operations, internal or external audits, management reviews, feedback from customer and/or staff observations, complaints.

2. Quality Manager or his authorized person will investigate the various types of non-conformances observed/reported and determine the root cause(s) in each of the identified problems. Assaying In-charge will initiate corrective action where needed. The corrective action shall be to a degree appropriate to the magnitude and the risk of the problem. The technical operations of the Centre are not complex, therefore, elaborate method of root cause analysis is normally not required. CEO shall oversee that action(s) being taken will eliminate the problem and prevent recurrence(s). He will monitor the results to ensure that the corrective actions taken have been effective. Otherwise the procedure will be repeated with different alternatives till expected and satisfactory results are accomplished. All such cases shall be appropriately recorded and discussed at management review meeting for effecting continual improvement. Results shall also be monitored regularly to ensure effectiveness of corrective action.

(4.12 of IS 15820:2009)

2.12 Preventive action

1. Centre shall identify the improvements needed and potential sources of nonconformities, either technical or concerning the management system. The Quality Manager will be responsible for preventive actions, applying controls to ensure implementation of procedures across the centre as described as follows. The potential sources of non -conformance either of technical nature or concerning the management system will be identified. For the purpose, a thorough study and review of potential sources like feedback from staff and customers, internal quality checks, management reviews, inter laboratory testing, results, analysis of data, trend / risk analysis will be done.

2. Data/information will be analyzed and planning will be done with consent of CEO to develop actions and implement them with continuous monitoring to reduce and preferably eliminate the likelihood of occurrence of such non-conformities and to effect continual improvement.

(4.13 of IS 15820:2009)

2.13 Control of Records

1. Quality Manager is overall responsible for implementing in the Centre the procedure for control of records, which includes identification, collection, indexing, access, filing, storage, maintenance and disposal of quality and technical records. The policies of centre management is to maintain and control of records pertaining to management system and technical activities and maintain confidentiality, protect and ensure security of records, especially records in the computers. A list of records available at Annex III include reports from internal audits and management reviews as well as records of corrective and preventive actions etc. Technical records It includes original observations, derived data, internal / external calibration records, staff records, a copy of each assay report, contracts, external and internal test reports, customers papers and feedbacks and personnel responsible for the sampling, performance of test and checking of results.

2. CEO is responsible for maintaining and controlling other records such as contracts, rate card, Moral agreements etc.

3. Assaying In-Charge is responsible for maintaining and controlling all technical records, which result from carrying out tests.

4. Assaying In-Charge is responsible for maintaining and controlling all technical records, which result from carrying out tests.

5. Quality Manager continually educate centre's personnel to maintained legibility of all records and these records are stored and retained in a safe cupboard in an orderly manner so that they are readily retrievable. The records are indexed as per utility such as (a) date wise; (b) customer / unique identification wise; (c) batch wise etc. When files of records are full they are collected and appropriately numbered and stored in safe cupboard. The Centre provides the safe area with clean, dust and termite free environment in order to prevent damage or deterioration and the cupboard is kept under lock and key to prevent loss and unauthorized access to or amendment of these records.
6. Centre also maintains records in electronic form with a system of password protection to avoid loss or change of original data.
7. All confidential records are kept in a safe cupboard under lock and key.
8. Technical records are collection of data and information which result from carrying out tests and which include whether specified quality or process is achieved. They may include forms, contracts, work registers, check sheets, control graphs, external and internal test reports and calibration certificates, customer's notes, papers and feedback.
9. Centre carefully retains records of original observations, signed documents, derived data and sufficient information to establish an audit trail, calibration records, staff records and copy of each test report for a defined period after completion of the work involved.
10. Centre ensures that the Assay Note (record) for each test contains sufficient information to enable the test to be repeated under condition as close as possible to the original. The records generated include all test data and the test results, identity of personnel responsible for the performance of each test and checking of result, hallmarking and delivery.
11. Centre records observations data and calculations at the time they are made and ensures that they are identifiable to the specified task. Centre ensures that when mistakes occur in records, each mistake is crossed out and not erased, made illegible or deleted and the correct value entered alongside. All such alterations to records are signed or initialed by the person making the correction.
12. All records including that for articles hallmarked for each licensed jeweller shall be maintained for a period of minimum three years. Quality Manager will collect all records after retention time is over and dispose them of through burning them out or deleting them from the computer files in case of stored in electronic media.

(4.14 of IS 15820:2009)

2.14 Internal Audit

1. The Centre's policy is to conduct an internal audit of its all activities once in a year, in accordance with a predetermined schedule to verify that its operations continue to comply with the requirements of the documented management system based on IS 15820:2009 in order to continually improve its effectiveness. The procedural details are described below.
2. Quality Manager will be responsible for planning and organizing of internal audit [IA] and coordinating the corrective actions. An annual program for internal audit will be prepared to verify that the Centre's operations continue to comply with the requirements of the documented management system and IS 15820:2009. The Centre will have its own trained internal auditors. However, in order justify impartiality of audited function, the management may obtain the services of a trained external auditor to effectively carry out internal audit as per pre - determined schedule.
3. Quality Manager will provide overall supervision while the audit is being conducted. All concerned personnel will be informed well in advance about programme. Documents like Audit Check List, Observation & Finding Form - IA, Nonconformance Report - IA will be provided to each auditor for recording the audit findings and corrective actions that arise from them. Auditors will be independent of the activity to be audited.

4. The Centre is committed to take timely corrective actions and notify the customers orally/ in writing, if the audit finding cast doubt on the effectiveness of the operations or on the correctness/validity of test results.
5. A follow up audit of activities may be required when nonconformance was reported to verify implementation and effectiveness of the corrective action taken and record the same and finally closing the non-conformity.

(4.15 of IS 15820:2009)

2.15 Management Review

1. The Centre is committed to conduct a review at least once a year with CEO in chair of the its management system and assaying and hallmarking to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements. The review may also be done at any time depending of need of any situation that may arise as a result of audit by BIS, customer complaints etc. The review shall cover and take into account of activities, including but not limited to the following

i pending issues of previous management review meeting;
ii suitability of policies and procedures;
iii reports from managerial and supervisory personnel;
iv outcome of recent internal audit or audit by BIS;
v assessment by any other external body;
vi the results of Inter-laboratory comparisons or proficiency test;
vii customer feedback, complaints;
viii corrective and preventive actions;
ix changes in the volume and type of work;
x recommendations for improvement;
xi other relevant factors such as quality control activities, resources and staff training;
xii progress made / accomplishment of quality and business objectives including opening of new facilities to take advantage of growing market demands and competition;

2. During the meeting CEO will explain the quality policy and overall objectives in order to have in-depth clarity about customer requirements and as well as statutory and regulatory requirements.
3. The Quality Manager will be responsible to convene the management review meeting and ensure that finding from management reviews and the actions that arise from them has been appropriately recorded and those actions identified during the review are implemented within the agreed timescale by the concerned persons.

(5.1 of IS 15820:2009)

3.1 General

The various factors to control the correctness and reliability of operation of assaying and Hallmarking are:

i Human factor
ii Accommodation
iii environmental conditions
iv Test methods
v Equipment
vi Measurement traceability
vii Sampling
viii The handling of articles items and
ix Hallmarking

(5.2 of IS 15820:2009)

3.2 Personnel

1. The Centre shall:

i ensure the competence of all key personnel who operates specific equipment, perform tests, evaluate results, and sign test reports;
ii identify training needs relevant to the present and anticipated tasks of the centre and
iii formulate and state the targets with respect to education, training and skills of the Centre's personnel.

2. The procedural details are described as follows. The Centre shall define the criteria of competence for all key personnel in the following manner:

i CEO shall assess each technical person, namely Assaying In-charge, Deputy Assaying In-charge, Sampler, Laboratory Chemist, Laboratory Technician according to the defined criteria and approve their competence;
ii Centre shall assign the responsibility to Quality Manager and Assaying In-charge for providing appropriate training to staff;
iii CEO has selected the Assaying In-charge, (personnel performing specific task) on the basis of the person's basic education, training, experience and demonstrated skills, as required and maintained the record and supporting documents. He has undergone training in lab management, Sampling, Assaying and Hallmarking.
iv CEO, Assaying In-charge and Quality Manager, who are responsible for giving opinions and interpretations, have gathered, in addition to the appropriate qualifications, training, knowledge and experience of assaying work, specifically the following:

a) knowledge on technology used for manufacturing gold/silver articles, their testing or the way they are used or intended to be used and of the defects or degradation which may occur during or in service;
b) knowledge of the general requirements expressed in the legislation and standards,
c) understanding of the significance of deviation found with regard to the normal use of gold articles.

3. Centre will periodically identify training needs and provide training to its personnel as per procedure stated below. Need based and essential training has already been given to the personnel. The procedure is as follows:

i Centre first selects the person and puts him/her on trial for few days. During this period Assaying In-charge identifies the training needs based upon

(a) basic education
(b) knowledge
I current level of skill
(d) grasping power and
(e) overall personality, relevant to the present and anticipated tasks of the centre

ii A training program is then prepared and records maintained;

4. Centre puts such trainees under close supervision of senior staff member and periodically their progress is reviewed by Assaying In-charge and further fresh inputs are given.
5. CEO evaluates effectiveness of the training actions taken.
6. Centre has clearly defined and recognized the line of authority and responsibility and maintaining as current job descriptions for managerial, technical and key support personnel involved in tests within the organization, each person being aware of both the extent and limitations of his/her responsibility. A set of written instructions is issued to them. The CEO has authorized specific and competent personnel

i to perform particular type of sampling
ii assaying
iii to issue test reports
iv to give opinion and interpretations and
v to operate balance and other equipment etc.

7. The records of the relevant authorization(s), competence, educational and professional qualifications, experience, training and skill of all technical personnel, including contracted personnel are maintained.
8. Centre ensures that this information is readily available and it includes the date on which authorization and /or competence is confirmed.
9. The centre is maintains records of the relevant authorization, competence, qualification, training, skills and experience of all technical personnel.
10. The centre has ensured that the personnel of the centre observe professional secrecy.

(5.3 of IS 15820:2009)

3.3 Accommodation and Environmental Conditions

1. The Centre follows procedure to facilitate correct performance of the test by means of providing appropriate facilities for assaying and hallmarking, including but not limited to energy sources, lighting and environmental conditions.

2. The Centre has a well maintained building with facilities for continuous supply of electricity and running water, suitably illuminated and ventilated. The environmental conditions suitable for working shall be maintained. It also has space separators for ease of operation and fire safety, closed circuit TV systems for security, ergonomically designed work tables, sitting arrangements and up-to-date communication outfits and arrangements. These facilities are to ensure correct performance of tests.

3. The Centre shall monitor, control and record environmental conditions as required by the relevant specifications, methods and procedures or where they influence the quality of the results. Due attention shall be paid, for example, to following:

i Dust, electromagnetic disturbances, radiation, humidity, electrical supply, temperature in the entire Centre, with specific reference to sound and vibration levels in microbalance, XRF machine and laser marking machine;
ii Proper exhaust arrangement for furnaces and parting chamber.
iii Proper treatment of exhaust fumes before discharge into the atmosphere.
iv Uninterrupted power supply arrangement / power backup arrangement.

Conditions for Accommodation and Environment.

Sl. No.	Description	XRF Room	Sampling Room	Balance Room	Fire Assay Room	Hallmarking Room
Accommodation						
1.	Ergonomically designed seating arrangements and work tables.	✓	✓	✓	--	✓
2.	Appropriate lighting on each work station	✓	✓	✓	✓	✓
3.	Weighing Balances	✓	✓	✓	--	--
4.	Vibration free work tables	--	--	✓	--	✓
5.	Furnaces with temperature controllers	--	--	--	✓	--
6.	Furnaces with exhaust system and arrangements for treatment of fumes before discharge	--	--	--	✓	--
7.	Fuming hood with scrubber system	--	--	--	✓	--
8.	Personal protective equipment for Lab. Technicians as per need	--	--	--	✓	--
9.	Uninterrupted power supply arrangement	✓	✓	✓	✓	✓
Environment						
10.	Dust Free Atmosphere	✓	✓	✓	✓	✓
11.	Humid Free Atmosphere	✓	✓	✓	✓	✓

4. The infrastructure and test equipment are daily verified by the Quality Manager and the person is empowered to stop activity when any defect/break-down in the system is noticed which may give rise to adverse environmental conditions jeopardizing the results of activities. The Quality Manager is also empowered for taking quick corrective measures.
5. Weigh-in room, the most sensitive area of the Centre where high precision balances are installed, is effectively separated against any type of incompatible activities and vibrations.
6. Access to areas of the Centre's facility is restricted except the receipt and delivery areas, waiting areas and wash rooms. However, these areas (except inside of wash rooms) are under CCTV.
7. Technical staff will have access to various areas of the Centre. Security personnel will be engaged to manage security aspects of the entire centre. Any visitor will first meet the

CEO or Quality Manager and they accompany him/her if visit to Centre's operational areas is required.

8. Centre has taken measures to ensure good housekeeping. Personnel is encouraged to maintain good housekeeping on regular basis. This is verified by CEO/Quality Manager on daily basis.

(5.4 of IS 15820:2009)

3.4 Test Methods

1. The procedure for the inspection and controlled movement of articles at various stages shall be based on the test methods specified in the Indian Standards including sampling, handling, storage and preparation of items to be tested, and where appropriate, an estimation of the measurement uncertainty as well as statistical techniques for analysis of test data.

2. The Assaying In-charge is responsible for all tests and assay works including maintenance and control of associated data and records.

3. The procedure shall entail the following aspects:

i. Receiving;
ii. Preliminary examination by XRF method for homogeneity check and detection of prohibited elements/metals ;
iii. Segregation of defectives. Segregation based on article types;
iv. Sampling and sample collection;
v. Assaying;
vi. Hallmarking;
vii. Inspection for correct marking and any damage/defect incurred;
viii. Packing and return of cornets, if any; and
ix. Final dispatch / delivery.

4. The assaying of gold and gold jewellery/artefacts shall be carried out as per IS 1418 and assaying of silver and silver jewellery/artefacts shall be carried out as per IS 2113.

5. The procedure shall include identification and segregation of non-conforming and rejected articles at following stages;

i. Preliminary examination by XRF method (method as given in IS 1418/2113).
ii. Marking

6. The CEO shall be the authority for review and disposition of non-conforming product.

7. The laser marking on articles conforming either to IS 1417 or IS 2112 based on preliminary examination and assaying results shall be legible and durable and of the design of Hallmark provided by BIS. The details of procedure for laser marking as given in the Operating Manual supplied by the equipment manufacturer.

8. All items shall be Hallmarked with a linear design with inbuilt security component, in the order defined below:

i. BIS Logo
ii. Fineness
iii. Centre’s Mark/Logo
iv. Year of marking denoted by a letter (as defined by BIS)
v. Licensee Jeweller’s Identification Mark/Logo

9. The permissible sizes (height) of the hallmark are:

For Gold (mm)	For Silver (mm)
1.5	4.0
1.0	2.0
0.75	1.5
0.5	1.0
	0.75

10. Marking shall be done on all parts which can be easily removed or replaced or are detachable.
11. Any gold/silver article/ornament which is not solid or which is made with hollow centre and then filled with cement, lac or other foreign substance which is either metallic/non-metallic will be additionally marked with the weight of gold as declared by the licensee jeweller. Otherwise such article/ornament shall not be Hallmarked.
12. The laser marking machine shall be used through a password to avoid unauthorized use. Vigilance shall be maintained to prevent any misuse of the password.
13. Record (hard or soft copy) shall be maintained of laser marking done for different BIS licensees.
14. Assaying In-charge/Quality Manager shall apply appropriate checks in a systematic manner on all calculations and data transfer during internal quality control procedures and before test results are approved. Records of such calculations shall be maintained for at least three months or as directed by BIS.
15. Data transfer activity is applicable to weigh-in section, the Centre has ensured that

i A computer software has been developed for the Centre, documented and validated as suitable for use before putting in to practice for generating test reports. However, change in configuration/ modifications will be validated when applicable. The document is held as confidential by CEO;

ii Centre has established and implemented a procedure for protecting the data. Password system is adopted to protect electronic storage of test results. This procedure includes, but not limited to, integrity and confidentiality of data entry, data storage, data transmission and data processing. The document is also held as confidential by CEO;

iii The Centre has entered in to contract with AMC providers for computers to ensure proper functioning and these are provided with the environmental and operating conditions e.g. dust, dirt and temperature controlled atmosphere, UPS, antivirus software etc. necessary to maintain the integrity of test data.

(5.5 of IS 15820:2009)

3.5 Equipment

1. The centre is having all equipment of required accuracy/least count and reference material as per Annexes A and B of IS 15820:2009 to perform assaying and Hallmarking. The list is given as Annex I.
2. The equipment shall be operated only by authorized personnel. The Centre shall ensure safe handling, transport, storage, use and planned maintenance of all measuring equipment to ensure proper functioning and in order to prevent contamination or deterioration.
3. A calibration programme shall be prepared for those instruments/equipment where the accuracy properties have significant effect on the results and needed to be maintained,

verified and calibrated for correct performance of tests. Such equipment shall be identified to indicate the status of calibration, including the date when last calibrated and the date of expiry when recalibration is due. The Centre shall undertake intermediate checks to maintain confidence in the calibration status of the instrument. The Centre shall into consideration the correction factors that may arise due to calibration of an equipment. If necessary, suitable modification in the computer software shall be done.

4. The Centre shall ensure to safeguard the test and calibration equipment from adjustments which would invalidate the test results.

(5.6 of IS 15820:2009)

3.6 Measurement Traceability

1. The Centre shall ensure that all equipment used for tests, including equipment for measurements of environmental conditions and having a significant effect on the accuracy or validity of the test result are calibrated before being put into use. A calibration programme shall be designed as explained under para 109 under Section 5.5 of this Manual.

2. The calibration shall be done by a NABL accredited Lab to ensure that measurements made during calibration are linked and traceable to the National/International Standards. Reference standard of measurement (to be used for calibration) is calibrated by a competent body that has traceability to National or International Standards.

3. Reference material shall be traceable to National / International Standard reference materials. Records of receipt, consumption, testing of reference materials shall be maintained ensuring identification and traceability.

4. Checks shall be done to maintain confidence in calibration status of XRF machine and microbalance and record(s) to be maintained.

(5.7 of IS 15820:2009)

3.7 Sampling

1. The Centre shall carry out sampling as given in Annex D of IS 15820:2009 guidelines for sampling given in Annex E of the Indian Standard.

2. The centre shall carry out sampling of gold articles using special tools to get a representative sample as mentioned in IS 1418 for gold. The sampling of silver articles shall be done using special tools mentioned in IS 2113.

3. Records on the sampling procedure used, identification of samples, sampling personnel, and environmental condition shall be maintained.

4. Sampling shall be done maintaining traceability to the article/lot from which the sample(s) taken.

(5.8 of IS 15820:2009)

3.8 Handling of test Items

1. The procedure for handling of test items shall be as follows. The Centre shall receive jewellery/artefacts only from jeweller holding a valid licence from BIS for testing as per the relevant Indian Standard and thereafter Hallmarking. Some times these are also collected by the Centre from jeweller. Articles are covered under transit insurance with systematic identification of each article in the Packing List / Issue Voucher giving details of description, weight and fineness. Material can also be received from a customer for verifying the quality of purchased item(s) with Hallmark. Lots of individual items shall be segregated, for example rings, ear tops, bangles etc.

2. A receipt of the lot shall be issued to the jeweller, simultaneously allotting a unique code number. This code number shall be maintained throughout the processing, storage and handling of the lot till its assay results have been finalized.

3. If any abnormality is observed in the received lot, it shall be recorded by the receiver in the Centre's copy of the receipt/in the computer. When there is doubt as to the suitability of an item for test, or when an item does not conform to the description provided in the Packing List/Issue Voucher, or test required is not specified in sufficient details the receiver immediately shall consult the jeweller/customer for further written instructions before proceeding further and appropriate record of the discussion and decision shall be maintained.
4. A room with safe is available with adequate locking arrangements in the Centre for storage of articles during working hours and overnight.
5. Security system with closed circuit TV and monitoring system is available for keeping round-the-clock watch centrally about internal activities and also about nearby surroundings of the centre as a preventive measure.
6. The Centre shall ensure identity of the lot during final packaging for:

i Un-assayed articles / articles after first stage of sampling;
ii Hallmarking articles articles / articles;
iii Rejected articles articles / articles and
iv Cornets (left after assaying of gold articles)

7. Items are suitably protected in final packaging for transportation (if required) delivery.
8. The centre shall take insurance for articles / articles under process / stock and high cost equipments for minimum amount of Rs. 10 lakhs.

(5.9 0f IS 15820:2009)

3.9 Assuring the Quality of Test Results

1. Centre shall follow a well defined quality control procedure for monitoring the validity of tests undertaken. The resulting data shall be recorded in such a way that trends are detectable and where practicable, statistical techniques can be applied to analyse the results. All test data shall be computerized on daily basis with lot-wise day-to-day rough calculation maintained in a page numbered Register, at least for three months.
2. The monitoring is done in a planned manner and reviewed every quarter and include following activities

Sl. No.	Details
a)	Regular use of certified reference materials
b)	Participation in inter laboratory comparison program
c)	Replicate test using the same methods and test parameters

3. The CEO and Quality Manager shall carry out analysis of quality control data (test data) (XRF and fire assay for gold and XRF and assay of silver articles) and check quality data of laser marking. Where such data is found to be outside pre-defined criteria, planned action shall be taken to correct the problem and to prevent incorrect results being reported.

(5.10 of IS 15820:2009)

3.10 Reporting the Results

The Centre shall issue test report providing at least the following information as per IS 1418/ IS 2113:

i Identification of the sample with its description including source and date of receipt;
ii The procedure adopted for sampling;
iii Method of test;
iv If relevant, any deviations from the method specified in this standard;
v Gold content of the sample, in parts per thousand by mass, as single and mean values;
vi Absence / presence of prohibited elements;
vii Any unusual features observed during the determination;
viii Date of test; and
ix Signature(s) of Assay In-charge and/or testing personnel.

ANNEX I

LIST OF EQUIPMENT, CHEMICALS/REAGENTS FOR ASSAYING AND HALLMARKING

PART A: EQUIPMENT COMMON FOR ASSAYING & HALLMARKING OF GOLD/SILVER

Sl No.	Name of Equipment	Least count/ Sensitivity
1.	Sampling Tools (Cutting Pliers, Chisels, Micro Drills, Scrappers) Assay Cleaning Brush	
2.	Magnifying Glass	
3.	Micrometer	10 X
4.	Jeweller's Rolling Mills	0.01 mm
5.	Tongs and Forceps	
6.	Trays (Aluminium and Stainless Steel)	
7.	Emery Papers (different grades)	
8.	Hydrometer	
9.	Hot Plate	
10.	Antivibration Table/Platform	
11.	Laser Marking Machine	
12.	Air-conditioner	
13.	Arrangement for Uninterrupted Power Supply	

PART B: ASSAYING OF GOLD JEWELLERY/ARTEFACTS (Reference: IS 1418:2009)

EQUIPMENT			
Sl No.	**Name of Equipment**	**Least count/ Sensitivity**	**Range**
1.	XRF Machine with reference standards and software (capable of detecting Cd, Ir and Ru elements etc).		
2.	Weighing Balance (to be installed in dust free room on antivibration platform)	0.001 mg for more than 990 fineness and 0.002 mg for 990 fineness	
3.	Balling Pliers		
4.	Hammer and Anvil (hammer of minimum 400 g weight) or Power Press		
5.	Cupellation Furnace		0 - 1150^{0}C
6.	Annealing Furnace		0 - 900^{0}C
7.	Thermometer	1^{0}C	0 - 120^{0}C
8.	Cupels		
9.	Scorification Dishes		
10.	Emery Papers (different grades)		
11.	Parting Trays with Thimbles of Platinum or Unglazed Silica		
12.	Parting Flasks		
13.	Porcelain Crucibles		
14.	Dissolution Basket (Pt/Ir or Pt/Rh)		
15.	Pure Graphite Crucibles		
16.	Numbering Device/Number Punch		
17.	Furnace for Melting		0 - 1050^{0}C

18.	Fume-hood with Scrubber		
	CHEMICALS & REAGENTS		
1.	Borax, anhydrous		
2.	Pure Gold for Check (Proof) Samples		
3.	Lead Foil or Foil + Lead Bids		
4.	Pure Copper (foil/wire/disc), Silver, Nickel, Palladium		
5.	Parting Acid No. 1		
6.	Parting Acid No. 2		
7.	Distilled Water		
8.	Reference Gold of 916 and 750 fineness for XRF calibration		

PART B: ASSAYING OF SILVER JEWELLERY/ARTEFACTS (Reference: IS 2113:2002)

EQUIPMENT			
Sl No.	**Name of Equipment**	**Least count/ Sensitivity**	**Range**
1.	XRF Machine with reference standards and software (capable of detecting Cd and Pb elements etc).		
2.	Weighing Balance (to be installed in dust free room on antivibration platform)	0. 01 mg	
3.	Silver Assay Weights		
4.	Hammer	1 kg	
5.	Desiccator		
6.	Vacuum Pump for filtration		
7.	Platinum tipped Forceps		
8.	Potting Trough		
9.	Glass Plate		
10.	Tapping Trough		
11.	Shaking Machine		
12.	Thermometer	1^0C	0 - 200^0C
13.	Assay Bottles		
14.	Turn Table		
15.	Metallic Trays (for carrying skiff)		
16.	Whattman Filter Paper No. 1		
17.	Whattman Filter Paper No. 42		
18.	Wedgewood Dishes		
19.	Wedgewood Cups		
20.	Sintered Glass Crucible No. 3 (medium Porosity) G3 & G4		
21.	Burette/Dropping Pippette		
22.	Metallic/Plastic Funnel		
23.	Glass Siphon		
24.	Watch Glass		
25.	Glass Beaker		
26.	Wash Bottle with Fine Jet		
27.	Teflon Cups and Ceramic or Stainless Steel Dishes		
28.	Drying Oven		
	CHEMICALS & REAGENTS		
1.	Concentrated Nitric Acid (Specific Gravity 1.42)		
2.	Concentrated Hydrochloric Acid (Specific Gravity 1.16)		
3.	Distilled Water		
4.	Reference Silver of 925 and 850 fineness for XRF calibration		

ANNEX II

DETAILS OF PROCEDURES			
Clause No. of IS 15820:2009	**Title**	**Para No. of Manual**	**Page No.**
Management Requirements			
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4.2.6	Management System	2.2	9
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4.3.2	Document Approval and Issue	2.3	11
4.3.3	Document Changes	2.3	11
4.4	Review of request & Contract	2.4	12
4.6	Purchasing services & supplies	2.6	13
4.7	Service to customer	2.7	13 - 14
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Technical Requirements			
5.2	Personnel	3.2	19 - 20
5.3	Accommodation & Environmental Conditions	3.3	20 - 22
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ANNEX III

LIST OF RECORDS		
Sl. No.	**Record No.**	**Title**
1.		Quality Plan
2.		Record of Licenses of Jewelers for whom Hallmarking done (List of Clients)
3.		Contract with Jeweller for Assaying & Hallmarking Services (Contract with Clients)
4.		List Measuring Instruments, Assaying Equipment and Devices with Schedule and Record of Maintenance and Calibration
5.		Stock Reference Standard Materials and Their Purity Certificates (except check gold)
6.		Record of Check Gold Consumption and Purity Certificates (Issue, Use and Stock)
7.		Record of Daily Tests (XRF)
8.		Record of Daily Fire Assay (Gold)
9.		Record of Assay (Silver)
10.		Record of Payments Received from Jewellers
11.		Intermediate Checks – Assay Balance
12.		Laboratory Consumable Materials, Including Cupules (Issue, consumption and stock)
13.		List of documents from external sources
14.		Annual Programme - Internal audit
15.		Yearly Schedule - Internal audit
16.		Observations & findings – Internal audit
17.		Nonconformance – Internal audit
18.		Schedule for Management Review Meeting [MRM]
19.		Minutes of Management Review Meeting [MRM]
20.		Schedules of Rates for Assaying & Hallmarking Services – BIS
21.		Preventive Maintenance Plan of Utility Equipment
22.		Purchase Indent
23.		Purchase Order
24.		Goods Receipt cum Inspection Record
25.		Stock Register
26.		Performance of Suppliers
27.		Performance of Service Providers
28.		Approved Suppliers & Service Providers
29.		Incoming Inspection Record - Laboratory consumables (Metals)
30.		Incoming Inspection Record - Laboratory consumables (Nitric Acid)
31.		Incoming Inspection Record – Laboratory Consumables (Distilled Water)

32.		Attendance Log
33.		Record of Training [Needs, Programme, Provided]

34.		List of Employees with Responsibility Matrix
35.		Appointment letters of Quality Manager & Assay In-charge
36.		Authorized specific personnel for particular type of work
37.		Authorized personnel for implementing Corrective actions
38.		Authorized signatories for authenticity and issue of Test Reports
39.		List of Internal auditors
40.		Competence of Key Personnel & Employees

The above list is not exhaustive. Records to be added as per works done and need.

ANNEX IV

SITE PLAN

ANNEX V

ORGANIZATION STRUCTURE