Annual Report, FY 2022-23

Central Laboratory, Sahibabad

Bureau of Indian Standards

(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

Plot No. 20/9, Site-IV, Industrial Area Sahibabad, Ghaziabad-201010, Contact: cl@bis.gov.in


BIS


BIS
भारतीय मानक ब्यूरो
केन्द्रीय प्रयोगशाला
अंतर्राष्ट्रीय योग दिवस 2022
"Yoga for Well Being"
BUREAU OF INDIAN STANDARDS
CENTRAL LABORATORY
INTERNATIONAL YOGA DAY 2022
(21 जून 2022 / 21 JUNE 2022)


स्वच्छता
पखवाड़ा
2023

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MESSAGE FROM HEAD CL:

Shri Manish Kumar (Scientist E)
Director & Head (Central Laboratory)

Central laboratory (CL) being the biggest laboratory of Bureau of Indian Standards is entrusted with extensive range of testing responsibilities. However, the opportunity as well as associated challenges are equally big. The scope of central laboratory extends to test more than 800 Indian standards; hence no doubt CL plays a pivotal role in ensuring the quality culture within country. Moreover, with the realm of operationalization of various new quality control orders in Mechanical, Electrical and Chemical sections, Central laboratory has made significant progress to ensure timely and reliable test results for meeting and promoting regulatory compliance in India's industrial sectors.

Our initiative and investment in automated equipment and technologies has revolutionized our testing processes, elevating accuracy, and efficiency in all sections of central laboratories. This latest state of art technology equipment's in CL has boosted the credibility of achieving repeatable and reliable results within optimum time frame.

During year 2022- 23, CL was enabled in setting new testing facility for Paver testing, Hand blender, Conduits, electrical appliances, containers, plastic feeding bottles, poultry feed, skin powder for infants, lipsticks to name a few but also augmenting its capacity for certain sections and timely execution of proposals. Due to which Mechanical section could enhance its footwear, plywood, toy, cement, helmet, and metal testing. Similarly, Chemical section enhanced its testing in area of pesticides and building materials testing and Electrical section developed its air delivery setup for testing of fans and single-phase motor testing setup. Referral Assay Lab also contributed immensely by enhancing its output in testing of gold samples by procuring micro balance. However, all this involved a meticulous planning, cumulative effort, and unwavering leadership support, as a result of all this in 2022- 23, Central laboratory has earmarked a milestone of testing more than 27,601 samples and achieving a notional income of Rs 2257.134 Lakhs, which is indeed a remarkable achievement for us.

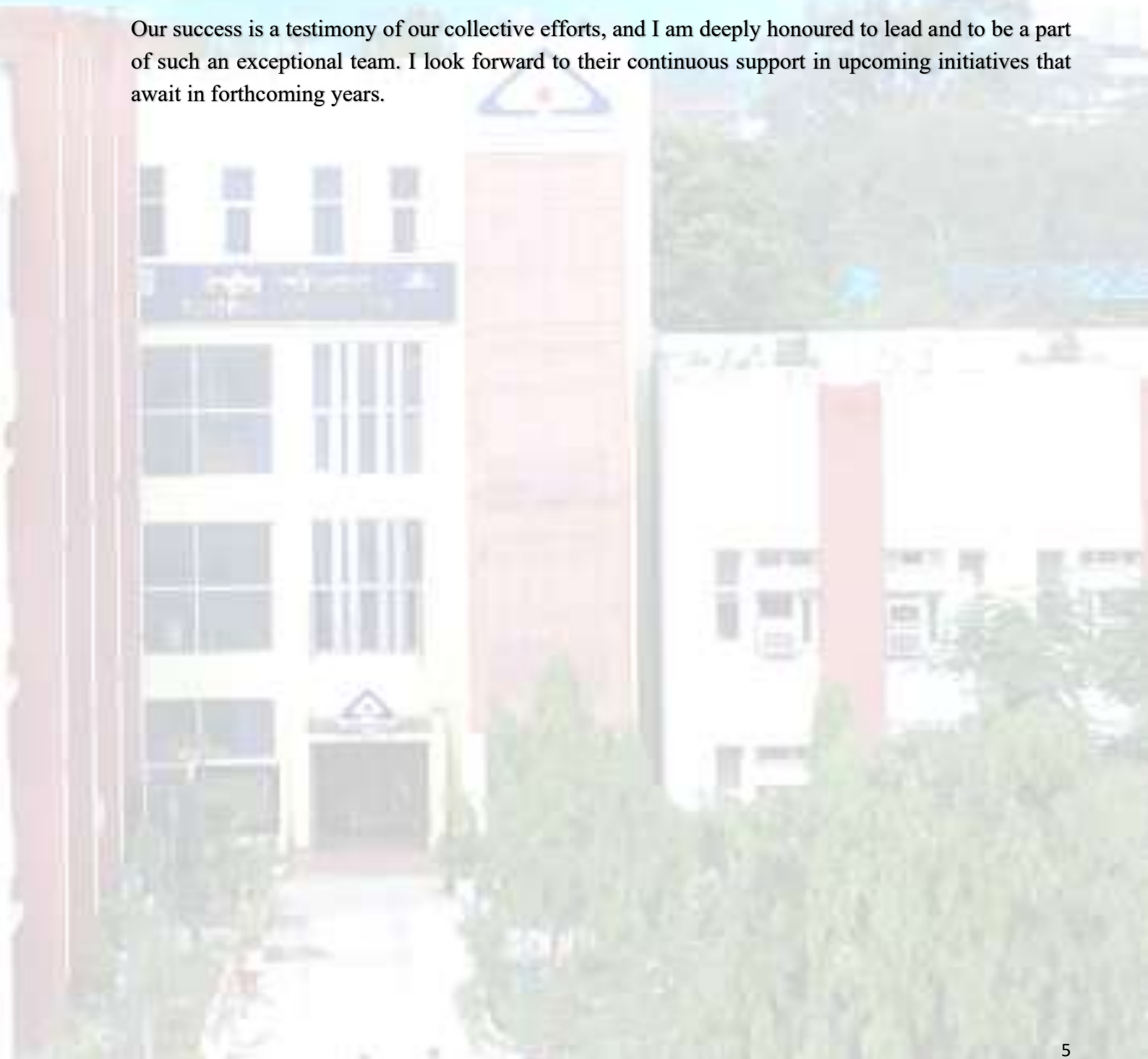
Nethertheless, initiatives such as conclave, industry meet, exposure visit for Industries, outreach programme for academia has enhanced our transparency resulting in cultivating a strong relationship with our stakeholders and has enhanced our collective ability to address the various challenges faced

during testing from equipment handling to its optimization and has also raised appetite for research and analysis.

In alignment with our dedication to environmental responsibility, we have integrated numerous sustainable initiatives into our laboratory operations. These include the installation of a Gas manifold system, Sewage Treatment Plant (STP), Effluent Treatment Plant (ETP), Scrubbers, and ongoing projects like solar panel initiatives and the potential implementation of an underground firefighting tank. These measures are aimed at reducing our environmental footprint.

As we cherish the triumph over the past, let me take the opportunity to extend my heartfelt gratitude to my seniors for their unparalleled leadership and their never-ending support and guidance. Also, my sincere appreciation goes to all members of the Central Laboratory family for their dedication, hard work and passion towards achieving our objective. We would not have done so much without the support and trust of our valued stakeholders.

Our success is a testimony of our collective efforts, and I am deeply honoured to lead and to be a part of such an exceptional team. I look forward to their continuous support in upcoming initiatives that await in forthcoming years.

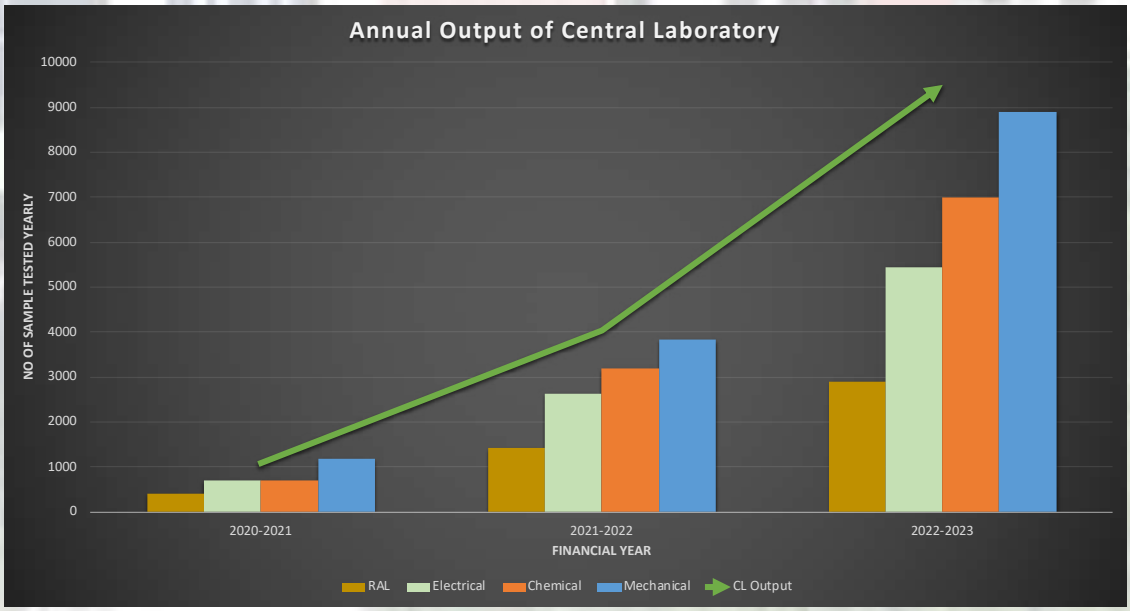


OVERVIEW OF CENTRAL LABORATORY

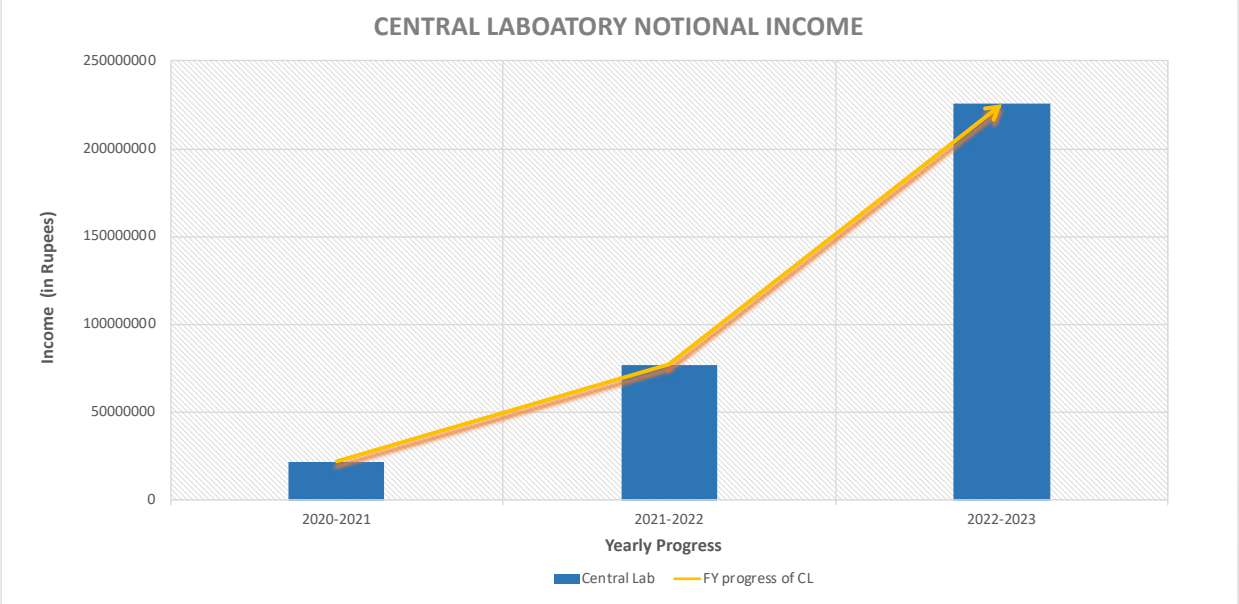
In order to support the activities of conformity assessment schemes, BIS has established eight laboratories in the country, to cater to the testing needs of the samples generated from various conformity assessment schemes of BIS, beginning with the establishment of the Central Laboratory at Manak bhavan, New Delhi (HQ) in 1962. The foundation of current location (Sahibabad) was laid in 1973 by Sh. C. Subramanium, Minister of Industrial Development, Science and Technology and President of Indian Standards Institute. In 1981, testing started in Sahibabad location. In 1982, testing completely shifted from BIS HQ to Sahibabad.

Central laboratories have facilities for testing of products in the fields of chemical, microbiological, electrical and mechanical disciplines. In order to ensure that Central laboratories follow internationally accepted practices, the Central Laboratory at Sahibabad has been accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) as per the international standard IS/ISO/IEC 17025. Central lab has complete test facilities for testing as per 388 Indian Standards and, in addition, partial test facilities are also available for 467 Indian Standards. During the year, the Central lab has tested 20056 samples of various products covered under the Certification Scheme, including the testing of Gold Samples at the Referral Assaying Laboratory at Sahibabad. During the year, around 600 samples were tested under Quality Assurance Activities by the Central Laboratory. These also include the samples tested during participation in proficiency testing and inter-lab comparison programs.

Central Laboratory has made efforts to augment the testing capacity in previous years which has resulted in an outstanding increase in the testing output of CL from 8845 reports in 2021-22 to 20056 reports in 2022-23. CL has also made a significant contribution to the BIS hallmarking scheme. The Referral Assay Lab of CL substantially increased its testing output from 1420 in FY 2021-22 to 7545 in FY 2022-23, showcasing unparalleled growth.



With the increase in the output of test reports, the notional income of Central Lab has also increased many-folds. The notional income of Central Lab increased from Rs. 218.8397 lakhs in FY 2020-21 to Rs. 769.7598 lakhs in FY 2021-22 to Rs. 2257.134 lakhs in FY 2022-23.



Moreover, Central Lab has also executed the civil works of the laboratory premises which includes strengthening of the building with beautification, construction of a new road with more than 60 vehicle capacity parking, and Installation of a centralised firefighting system.

Central Lab also facilitates Exposure visits for the students and Manufacturers, Capsule courses, ITP visits at CL, and various stakeholder visits to impart to them the testing activities of Central Laboratory. During the year, CL has done more than 70 such visits to such stakeholders in our country.

In the year 2022, in the esteemed presence of DG BIS, Honourable Minister (Ministry of Consumer Affairs, Food & Public Distributions) Shri Piyush Goyal inaugurated the modernized and renovated Admin Block, upgraded Helmet, Toy and Food Lab and newly established Footwear Lab on June 27, 2022. Later, on November 1, 2022, DG BIS inaugurated advanced testing facilities for electric motor and air delivery test set-up for electric fans, showcasing our commitment to modernization and automation.

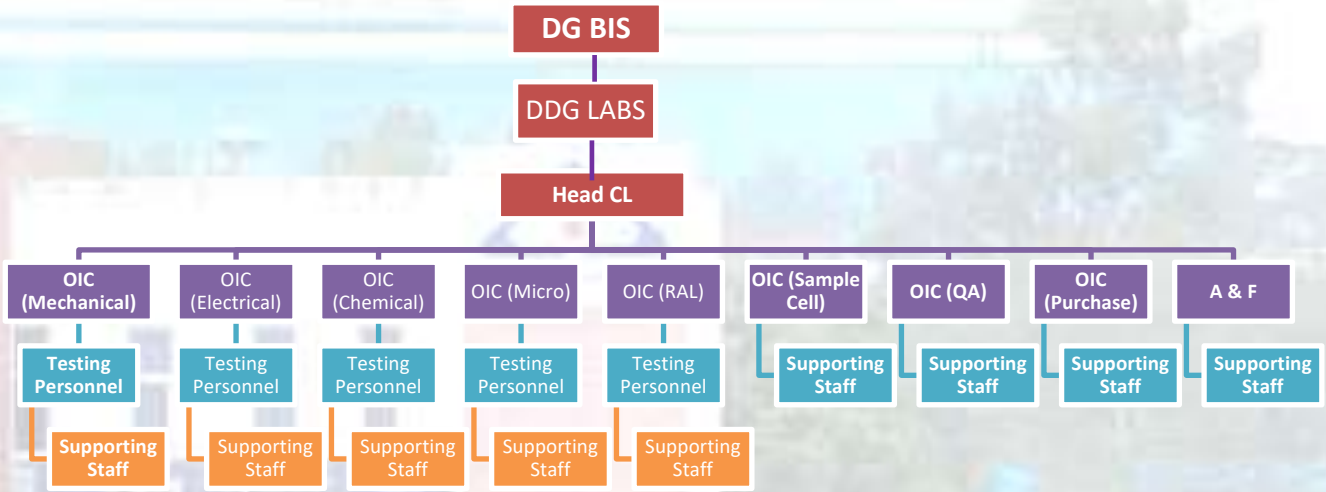
The Central Laboratory has testing facilities for more than 800 products. The executive team of Central Lab consists of 12 Scientific Officers, One AD (A&F) and one Head of the Lab. Based on the testing field and discipline, the testing laboratory is divided in following five parts:

a. Mechanical;
b. Electrical;
c. Chemical;
d. Microbiology &
e. Referral Assay Lab.

Apart from the testing sections, Central Lab also has four following allied sections which provide constant support for continuous and un-interrupted working of the testing labs:

a. Sample Cell
b. Admin & Finance
c. Building Maintenance
d. Quality Assurance

OUR ORGANIZATIONAL STRUCTURE:



QUALITY POLICY OF BIS LABORATORIES

BUREAU OF INDIAN STANDARDS
QUALITY POLICY

BIS Laboratories provide dedicated testing services to facilitate smooth operation of Bureau's product conformity assessment schemes with high degree of credibility, integrity, competence, impartiality and consistent operation.

BIS laboratories are, therefore, committed to provide timely and efficient services to meet the following objectives:

(i) To become the national benchmark of excellence in laboratory quality management system in the country.

(ii) To follow the requirements of IS/ISO/IEC 17025, customers, regulatory authorities and organizations providing accreditation.

(iii) To maintain the highest degree of professional ethics and integrity among the laboratory staff.

(iv) To undertake laboratory activity in impartial manner and to maintain confidentiality for all information obtained or created during the performance of laboratory activities.

(v) To maintain effectiveness of laboratory activities by employee motivation, continuous monitoring, optimum utilization of available resources, transfer of knowledge through sustained training and continual up-gradation of facilities and resources with technological advancements.

(vi) To perform test activity in accordance with methods prescribed in relevant Indian Standard.

Director General

Place: New Delhi
Date: 10-06-2021

NABL ACCREDITATION OF CENTRAL LAB:

Central Lab has been granted accreditation by NABL as per IS/ISO/IEC 17025 (Accreditation Certificate Number TC-11330, issue date 28.01.2023 valid till 27.01.2025)

National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

CENTRAL LABORATORY, BUREAU OF INDIAN STANDARDS

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

20/9, SITE-4, SAHIBABAD INDUSTRIAL AREA, GHAZIABAD, UTTAR PRADESH, INDIA

in the field of

TESTING

Certificate Number: TC-11330

Issue Date: 28/01/2023 **Valid Until:** 27/01/2025

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : BUREAU OF INDIAN STANDARDS

Signed for and on behalf of NABL

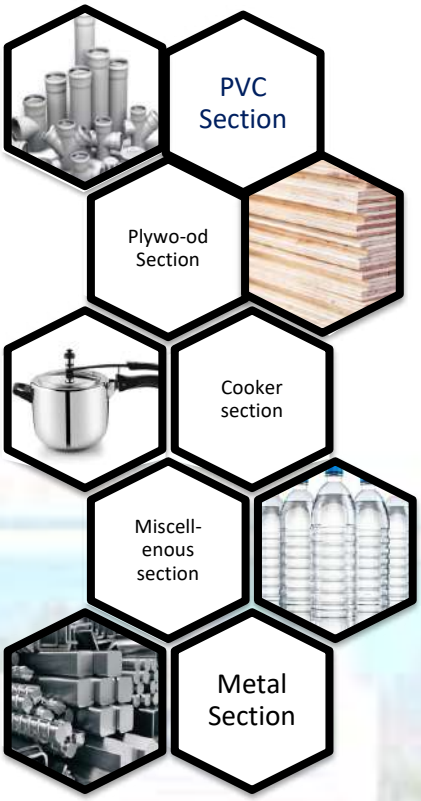
N. Venkateswaran
Chief Executive Officer

LIST OF PRODUCTS FOR WHICH CL IS CENTRE OF EXCELLENCE

MECHANICAL TESTING SECTION

The mechanical testing section has testing facilities for more than 400 products falling under 15 subsections. The team of Mechanical section consists of 4 officers in charge, 8 Laboratory Officers, 6 Technical assistants, 4 Technicians and 2 Multi-Tasking Staff.

The mechanical section has 15 sub-sections which are as follows



The Mechanical Laboratory consists of various sub-sections, namely the Cooker testing section, where domestic pressure cookers are tested for safety and performance. The Gas Stove section tests LPG Gas Stoves and Gas Geysers for mechanical parameters, with a focus on safety and performance due to mandatory certification requirements. The LPG Cylinder section tests various LPG-related products and has a complete facility as per IS 3196: Part 1. In the Cement Section, multiple cement products are tested, with complete facilities available for most. The Paver Section is in the process of creating a complete test facility. The Toy Section ensures toy safety with a complete test facility as per IS 9873: Part 1. The Metal Section tests nearly 150 products for endurance and durability, with complete facilities for most. In the Helmet Section, various protective helmets are tested, with a unique high-velocity impact absorption test facility. The Plywood Section tests 14 types of plywood, with most products having complete test facilities. The Sanitary Section evaluates 18 product types, with partial test facilities for most. The PVC Pipe Section tests 24 products and mostly has complete test facilities. The Medical Section assesses 22 products, including personal protective equipment, with complete test facilities. The Fire Extinguisher section tests various types, with complete test facilities for most. The Footwear Section tests different footwear types for safety, with a partial test facility currently. Additionally, the Mechanical section houses a workshop with various tools for sample preparation.) A calibration laboratory has also been developed in Mechanical Lab for various parameters.

- State-of-the-Art Test Facility

The testing facility has undergone automation and modernization to meet industry requirements and technological advancements. This includes incorporating automation features into newly acquired equipment and retrofitting old machinery, such as adding a tensile testing machine in the plywood testing section, an impact testing machine in the helmet section, and a CO/CO2 meter in the LPG stove

section. Additionally, the mechanical lab has upgraded its facilities with state-of-the-art equipment, including hardness testers and optical testing machines, to enhance testing capabilities and accuracy across various sectors. Cutting machines have also been integrated into the workshop to optimize sample preparation processes in the Central Lab.

Impact Absorbtion

Impact absorption test in the helmet section is a state-of-the-art facility in the Central Laboratory. It is one of the most important high-velocity impact absorption test apparatus, which is one of the best equipment in our country for testing two-wheeler helmets as per IS 4151:2015. During the test, the helmet is subjected to impacts from different angles and at various speeds to evaluate its ability to absorb and distribute the energy generated during a collision.

Dynamic strength Tester

Dynamic strength test equipment for toys is designed to evaluate the mechanical strength and durability of toys under various dynamic forces. This equipment typically includes mechanical systems that can simulate the repetitive stresses and impacts that toys may endure during play.

CO/CO2 Meter

This detector primarily senses carbon monoxide (CO) and carbon dioxide (CO2) gas produced during the incomplete combustion of LPG and measures the CO/CO2 ratio of the exhaust gases of any burner.

Optical Prismatic Error

This dedicated machine is used to measure the deviation in the light path as it passes through the optical material, causing objects to appear shifted or displaced from their actual position.

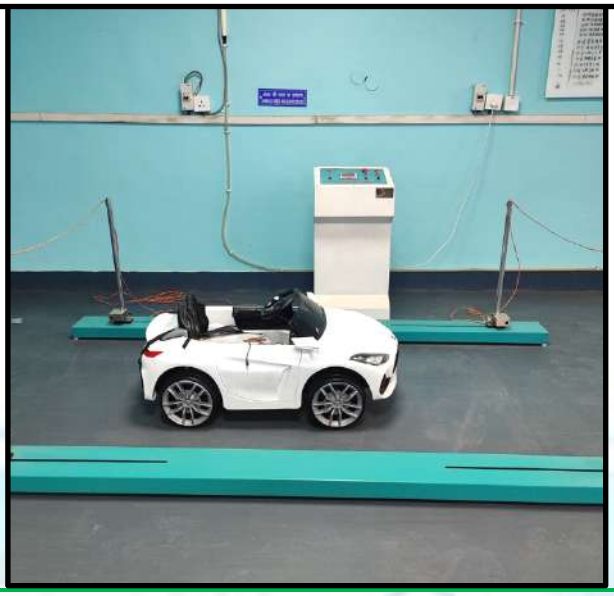
Slip Resistance tester

Slip resistance testing for footwear assesses a shoe's grip and stability on various surfces, typically using a tribometer to measure the coefficient of friction between the shoe sole and the surface.

Vickers Hardness

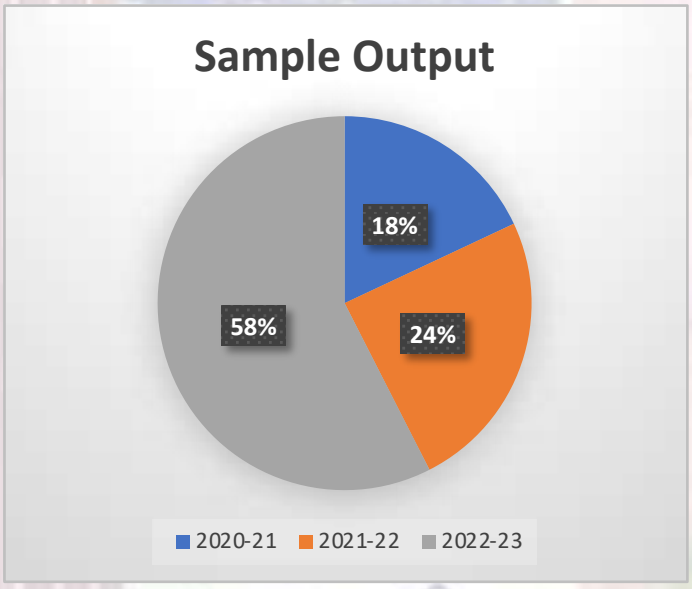
The Vickers hardness test provides a precise and reliable measure of a material's resistance to deformation i.e. hardness. This tester is used to measure the hardness of materials, especially metals and ceramics. It operates on the principle of pressing a diamond indenter into the surface of the material under a specific load and measuring the resulting hardness.

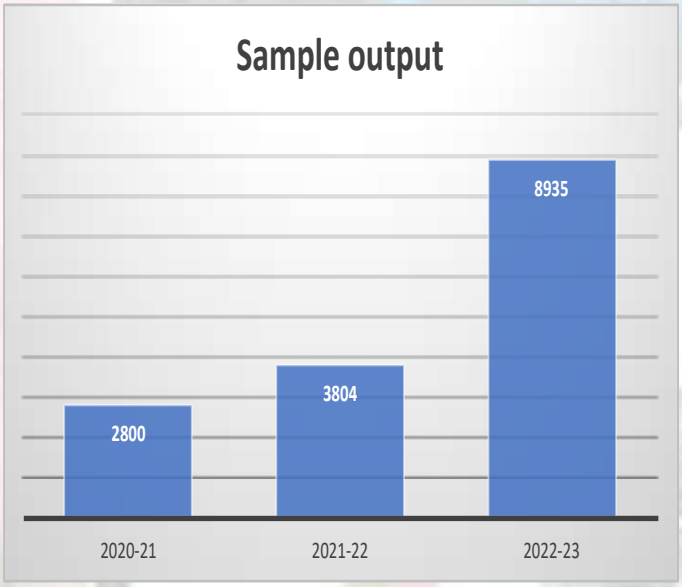
Average Speed Tester



An average speed tester for toys is a device or system used to measure and display the average speed of toy vehicles or objects. It typically consists of sensors, a timer, and a digital display. Toys, such as cars or drones, are placed on a designated track or path, and the tester records the time it takes for the toy to travel from one point to another.

- Sample flow/Output of Mechanical Section





- EXCLUSIVE TEST FACILITY AT THE MECHANICAL SECTION

- IS 2925 (1984): Specification for industrial safety helmets (Second Revision)
- IS 15558 (2005): Mini domestic water heater for use with LPG - Specification
- IS 4151 (2015): Protective helmets for motorcycle riders - Specification
- IS 9973 (1981): Specification for visor for scooter helmets
- IS 16018 (2012): Wheeled fire extinguishers - Performance and construction - Specification

➢ CREATION OF NEW TEST FACILITY

IS 15298 (Part 2):2016	Personal Protective Equipment - Safety Footwear
IS 15298 (Part 3): 2019	Personal protective equipment – Part 3 Protective Footwear
IS 15298 (Part 4) : 2017	Personal protective equipment – Part 4 Occupational Footwear
IS 5557 (Part 2): 2018	All rubber gum boots and ankle boots: Part 2 occupational purposes
IS 6719: 1972	Solid PVC Soles and Heels
IS 6721: 1972	Specification for PVC sandal
IS 11544: 1986	Specification for slipper, rubber
IS 12254:1993	Polyvinyl chloride (PVC) Industrial boots - Specification (First Revision)
IS 5557: 2004	Industrial and protective rubber knee and ankle boots - Specification (Fourth Revision)
IS 5676: 1995	Moulded solid rubber soles and heels – Specification (Second Revision)
IS 6664: 1992	Rubber microcellular sheets for soles and heels - Specification (First Revision)
IS 10702: 1992	Rubber hawai chappal - Specification (Second Revision)
IS 13893: 1994	Polyurethane soles semirigid - specification
IS 13995: 1995	Unlined moulded rubber boots - Specification
IS 16645: 2018	Moulded Plastics Footwear Lined or Unlined Polyurethane Boots for General Industrial use Specification
IS 16994: 2018	Footwear for Men and Women for Municipal Scavenging Work
IS 1989 (Part 1): 1986	Specification for leather safety boots and shoes: Part 1 for miners
IS 1989 (Part 2) : 1986	Specification for leather safety boots and shoes: Part 2 for heavy metal industries (Fourth Revision)
IS 3735: 1996	Canvas Shoes, Rubber Sole
IS 3736: 1995	Canvas boots, rubber sole - Specification (Second Revision)
IS 3976: 2018	Safety Rubber Canvas Boots for Miners Specification
IS 11226: 1993	Leather safety footwear having direct moulded rubber sole specification (First Revision)
IS 14544: 1998	Leather safety foot wear with direct moulded polyvinyl chloride (PVC) sole - Specification
IS 15844: 2010	Sports Footwear Specification
IS 17012: 2018	High ankle tactical boots with pu - Rubber sole - Specification

IS 17037: 2018	Anti riot shoes - Specification
IS 17043: 2018	Derby shoes - Specification
IS 15844-1: 2023	Sports Footwear: General Purpose
IS 15844-2: 2023	Sports Footwear: Performance Sports Footwear
IS 6721:2023	Sandal and Slippers
IS 10702:2023	Hawai Chappal
IS 14544 : 2022	Leather safety and protective footwear with direct moulded polyvinyl chloride PVC sole
IS 15658:2021	Precast concrete blocks for paving — specification

➢ UPGRADATION OF EXISTING TEST FACILITY

IS 9873 (Part 4) : 2017	Upgraded the developed state of art testing facility for testing of toy by procuring Horizontal Thrust Tester
IS 9873-Part 1 (2019)	Upgraded toy testing by procuring Pressure sensitive polytetrafluoroethylene (PTFE) tape for sharp edge testing as per Cl. 5.8.2.3
IS 4151 : 2015	Converted partial to complete test facility of Helmet by adding Diffusive transmittance & Spherical & Cylindrical error and prismatic error Machine and augmented capacity by modernization and upgradation of columns from wire guided system of Impact cum penetration machine.
IS 2925 : 1984	
IS 15683 (2006)	Upgradation of Portable fire extinguishers – performance and construction is done by procurement of Leakage Test setup and Discharge test setup.
IS 16018 : 2012	Upgradation of Wheeled fire extinguishers – performance and construction is done by procuring Leakage Test setup and Discharge test setup.
IS 303 : 1989 IS 710 : 2010 IS 4990 : 2011 IS 1659 : 2004	• Manual MOR MOE test machine was used to test static bending test for various plywoods which reduces the efficiency due to manual operation, computerized MOR MOE test machine with intelligent interface is procured to overcome the bottleneck and augmented the capacity of plywood section. • Two number of BOD incubator & End immersion bath are procured to overcome the bottlenecks and to augments the existing capacity from 50 to 100. • The sample preparation is the major activity in plywood samples. For seamless sample preparation, one heavy duty cutter with additional hand cutter have been procured as a backup of the existing machine.

CHEMICAL SECTION

The chemical section of the central laboratory is a state-of-the-art testing laboratory (with chemical test facility for more than 300 Indian Standards), where we perform rigorous testing on basic consumer products that form an integral part of our daily lives. The Chemical Section employs cutting-edge technology and advanced analytical methods such as ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry), GCMS/MS (Gas Chromatography - Mass Spectrometry), LCMS/MS (Liquid Chromatography - Mass Spectrometry), HPLC (High Performance Liquid Chromatography) and other analytical instruments through which we conduct comprehensive assessments to detect and quantify trace elements and contaminants in packaged drinking water, toys, food products, chemicals, etc.

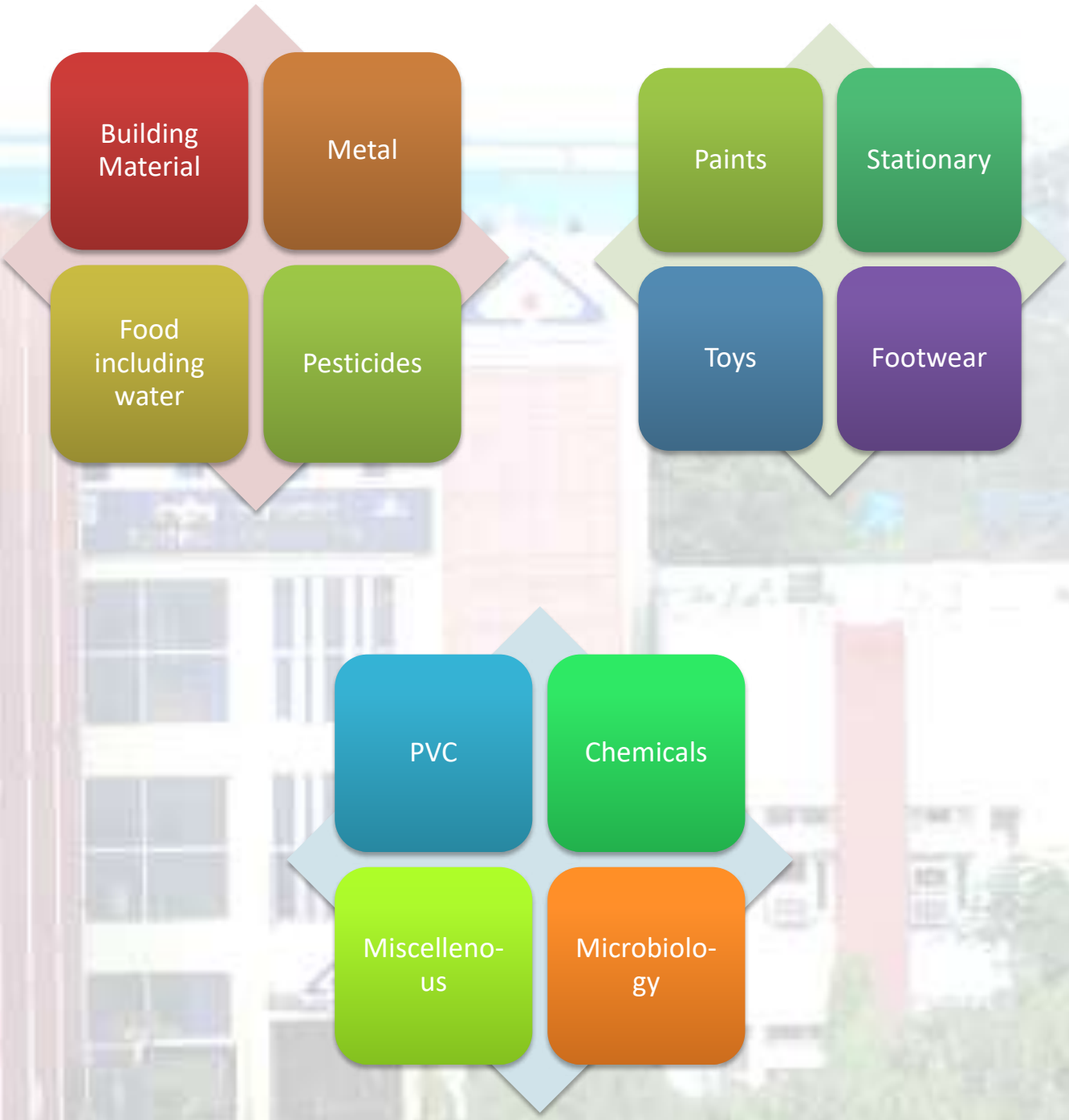
The Chemical testing section has testing facilities for more than 350 products falling under 12 subsections. The team's Chemical section consists of 04 officers in charge, 03 Laboratory Officers, 6 Technical assistants, 4 Technicians and 2 Multi-Tasking Staff.

When it comes to metals testing, we employ Spark Emission Spectrometry, a technique known for its ability to deliver consistent and reproducible results.

In addition to our work with water and metals, we perform evaluations on a diverse range of products including insecticides, herbicides, paper, stationery products, cement and various chemicals that fall under Quality Control orders.

Furthermore, we extend our testing to commonly used items like soaps, detergents, paints, and primers.

The Chemical section has 12 sub-sections which are as follows:



➢ State-of-the-Art Test Facility

In our state-of-the-art chemical laboratory, employ cutting-edge technology and advanced analytical methods such as ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry), GCMS/MS (Gas Chromatography - Mass Spectrometry), LCMS/MS (Liquid Chromatography - Mass Spectrometry) and HPLC (High-Performance Liquid Chromatography), through which we conduct comprehensive assessments to detect and quantify trace elements and contaminants in water samples.

When it comes to metals testing, we employ Spark Emission Spectrometry, a technique known for its ability to deliver consistent and reproducible results.

GC-MS/MS

Gas Chromatography-Mass Spectrometry (GC-MS) is a powerful analytical technique used in chemistry and biology to separate and identify complex mixtures of compounds. It combines two essential components: a gas chromatograph, which separates the mixture into its individual components, and a mass spectrometer, which analyzes the mass and structure of these components.

LC-MS/MS

LC-MS/MS, short for Liquid Chromatography-Mass Spectrometry/Mass Spectrometry, is a powerful analytical technique used in chemistry and biochemistry. It combines the separation capabilities of liquid chromatography with the high sensitivity and specificity of mass spectrometry to identify and quantify complex mixtures of molecules in various samples.

ICP-OES

Inductively Coupled Plasma-Optical Emission Spectroscopy, is an analytical technique used for elemental analysis. ICP-OES equipment utilizes a high-temperature plasma source to atomize and ionize samples, and then measures the emitted light at specific wavelengths to identify and quantify the elements present.

HPLC

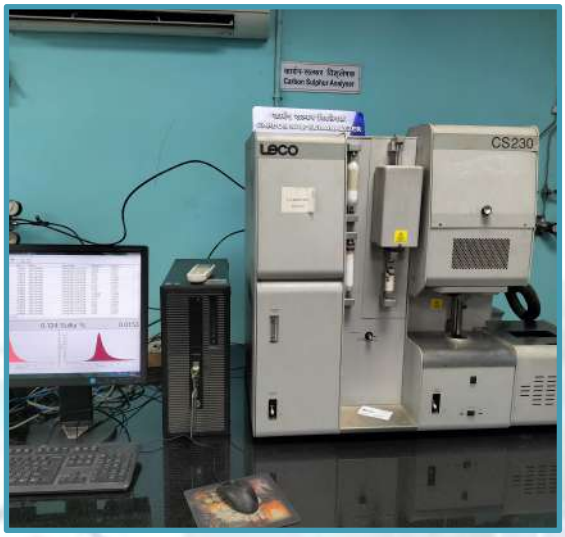
High-Performance Liquid Chromatography (HPLC) equipment is a versatile and widely used analytical tool in chemistry. It is designed to separate, identify, and quantify components in a liquid sample by forcing it through a column filled with a stationary phase, allowing different compounds to be separated based on their chemical properties and interactions.

Spark OES Spectrometer

A Spark-OES (Spark Optical Emission Spectrometer) is an analytical instrument used primarily for the qualitative and quantitative analysis of metallic elements in solid samples. It operates by generating a high-energy spark or arc discharge on the surface of the sample, which excites the atoms in the sample to emit characteristic wavelengths of light. By measuring the emitted light, the Spark-OES spectrometer can identify and quantify the elemental composition of the sample.

Carbon Analyzer, is a vital instrument employed in chemical laboratories for the precise quantification of carbon content in various samples. It operates on combustion principles, where the sample is heated to release carbon compounds, which are then measured and analyzed to determine carbon concentrations.

CS Analyser



➢ EXCLUSIVE TEST FACILITY AT THE CHEMICAL SECTION

- Various Chemicals such as Hexane, Benzene, Terephthalic Acid, Sulphuric Acid etc.
- Paints and Primers such as Ready Mixed Paints, Cement Paints etc.
- Statinery products such as Plain copier paper, Writing and printing papers, packages for explosives etc.
- Pesticides such as Delta Methane, Malathion, Chlorpyrifos etc.

- **Creation of New Test Facilities:**
  - **New Facility Created:**

S. No.	IS	Title
1	IS 7129	POTASSIUM CARBONATE ANHYDROUS
2	IS 9873: Part 6	Chemical Testing of phthalates in Toys
3	IS 4105	Specification for Styrene (Vinyl Benzene) (Second Revision)
4	IS 9875	Lipstick
5	IS 2080	Specification for stabilized hydrogen peroxide
6	IS 3205	Specification for precipitated barium carbonate, technical New test facility created
7	IS 9873(Part 3)	Safety of Toys Part 3 Migration of Certain Elements
8	IS 6356	Toothpaste
9	IS 1069	Quality tolerances for Water for Storage Batteries

  - **Facilities Upgraded:**

S. No.	IS	Title
1	IS 14151(Part 1)	Irrigation Equipment - Sprinkler Pipes - Specification : Part 1 Polyethylene Pipes
2	IS 553	Specification for rosin (Gum Rosin)
3	IS 1580	Bituminous compounds for waterproofing and caulking purposes – Specification
4	IS 1374	Poultry feeds
5	IS 5339	Skin powder for infants - Specification
6	IS 12540	Specification for acrylonitrile
7	IS 3470	Hexane, food grade - Specification
8	IS 517	Specification for Methanol (Methyl Alcohol)
9	IS 6100	Specification for sodium tripolyphosphate, anhydrous, technical
10	IS 2052	Compounded feeds for cattle - Specification
11	IS 1051	Specification for pyrethrum extracts
12	IS 14314	Thinner
13	IS 1848 (part 1& 2)	Writing and printing paper
14	IS 14490	Photo copier paper
15	IS 6956	Cover paper
16	IS 15410	Containers for Packaging of Natural Mineral Water and Packaged Drinking Water
17	IS 15609	Polyethylene Flexible Pouches for the. Packing of Natural Mineral Water and Packaged Drinking
18	IS 14625	Plastics Feeding Bottles
19	IS 798	ortho phosphoric acid
20	IS 12744	Primer
21	IS 16141	Imidacloprid Suspension Concentrate

ELECTRICAL SECTION

The Electrical testing section has testing facilities for more than 70 products falling under 6 subsections. The team Electrical section consists of 3 officers in charge, 4 Laboratory Officers, 3 Technical assistants, and 1 Technicians.

The Electrical section has 6 sub-sections which are as follows:

The Electrical Laboratory consists of various sub-sections, namely the cable section has a test facility of Electric cables, Overhead Conductors, Conduits, CTDS, Insulating Mats, etc. are tested for Electrical parameters, with a focus on safety and performance due to mandatory certification requirements. The Electrical Wiring Accessories section has a test facility for Switches, Sockets, insulating Taps, Electrode Holders, Ceiling Rose, MCB, RCCB, etc. The Toy Section ensures toy safety with a complete test facility as per IS 15644. The electrical Appliances section has a test facility for Electric Iron, Juicers, Food mixers, Room heaters, Storage water heaters, Immersion rods, geysers, Hand blenders, and safety of Domestic Appliances, etc. to ensure the safety and performance. The motor section has a test facility for Single-phase AC Motors, Ceiling fans, Exhaust
fans, Fan regulators, etc. In the Energy meter testing section, there is a fully automatic test bench for accurate results.
DG BIS, Shri Promod Kumar Tiwari, inaugurated the advanced Electrical Lab on November 1, 2022, featuring cutting-edge facilities like the Electrical Motor Testing Setup and Ceiling Fan Air Delivery Test Setup. Embracing modernization and automation is our commitment.

The electrical section has increased its testing capacity to 480 samples/month in 2022-23 from 150 samples/month in 2021-22 with the help of augmentation of test facilities, automation of equipment and optimum utilization of manpower.

CL has been designated as the "Centre of Excellence" for Electrical Appliances.

➢ State-of-the-Art Test Facility

In our advanced Electrical laboratory, we utilize cutting-edge technology and advanced analytical methods, including an Automatic Eddy Current Dynamometer for motor testing, an Automatic Tensile Testing Machine for Cable testing, and Air delivery setups for ceiling fans.

Fully Automatic Eddy Current Dynamometer for motor testing

A Fully Automatic Eddy Current Dynamometer is an advanced testing instrument used for assessing the performance and efficiency of electric motors. It operates by applying a controlled load to the motor and measuring its response, allowing for precise characterization of parameters like torque, speed, power, and efficiency. This automated system ensures accurate and repeatable testing, making it an essential tool in motor development, quality control, and research applications.

This is a specialized equipment designed to assess the tensile strength and performance of cables. It operates by subjecting the cable to controlled levels of tension until it reaches its breaking point, providing valuable data on the cable's durability and load-bearing capacity.

Automatic Tensile testing Machine for Cable testing

Air delivery setups for ceiling fans

Air delivery setups for ceiling fans utilize sensors and smart technology to optimize airflow and comfort automatically. This satup is a state of art facility of electrical section which is utilize for determine the Air delivery of different size of ceiling fans automatically.

➢ EXCLUSIVE TEST FACILITY AT THE ELECTRICAL SECTION

- All types of Energy Meter
- Ceiling Fan & Electronic Regulator
- Single Phase AC Motor
- MCB and RCCB

➢ Creation of New Test Facility

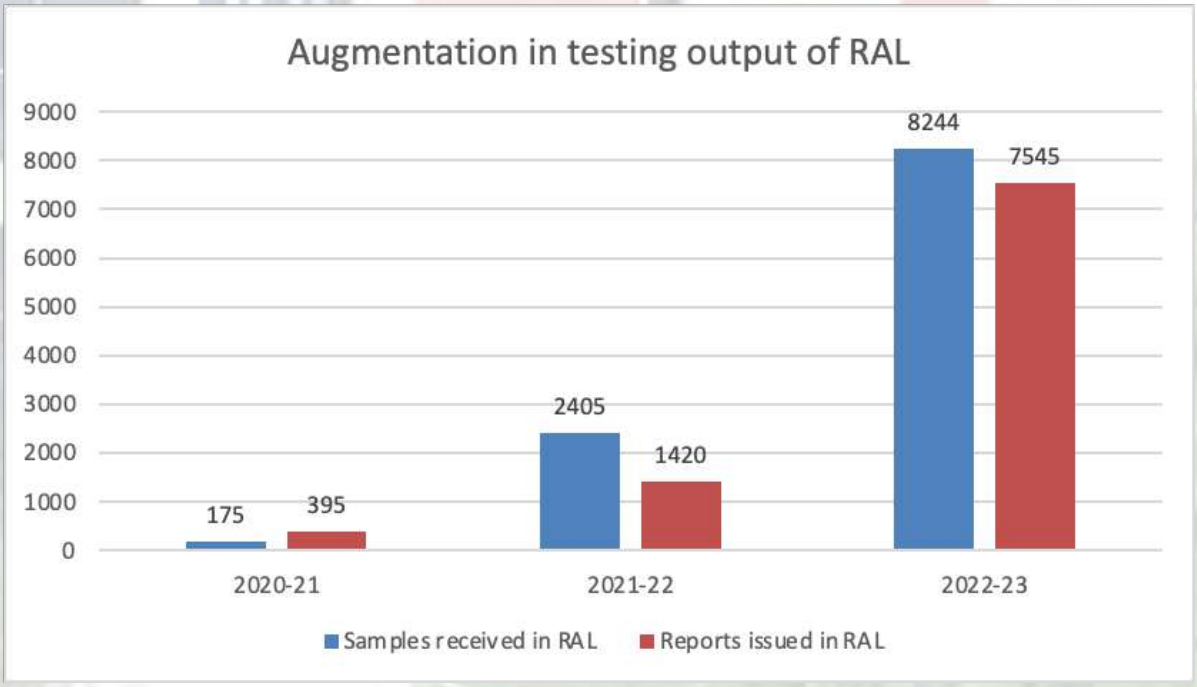
IS 302-Part -2/Sec 14	•Hand Blender
IS 3419 : 1989	• Specification for fittings for rigid non-metallic conduits
IS 302 (Part 2/Sec 76) : 1999	• Safety of household and similar electrical appliances
IS 9537(part 4)	• Specification for conduits for electrical installations: Part 4 pliable self - Recovering conduits of insulating Material

REFERRAL ASSAY LABORATORY (RAL):

In 2000, the Indian government introduced the Hallmarking scheme for gold and extended it to silver articles in 2005. The Bureau of Indian Standards (BIS) established Referral Assay Laboratories to test samples under these schemes. BIS's Central Laboratory also set up a Referral Assay Lab (RAL) in 2017 for hallmarked gold jewellery and artefacts, following IS 1417:2016 standards.

Gold samples are tested using X-ray fluorescence spectroscopy and Fire Assay methods, involving stages like cupellation and parting to remove impurities and determine the gold content.

In 2020, CL RAL had a monthly testing capacity of 70-80 samples, but with additional resources and manpower, it increased to 700 samples per month (an 8-fold increase). In May 2022, CL RAL became the first BIS lab to exceed 800 monthly test reports, issuing 804 in that month.



➢ AUTOMATION AND UPGRADATION IN TESTING FACILITIES IN RAL:

a. Procurement of Microbalance integrated with PC for RAL:

With the **aim of doubling the gold testing capacity** of RAL at Central Lab, Purchase Order for one additional Microbalance was placed successfully in March 2023.

b. Installation of two new fume-hoods with centralised scrubber in RAL:

RAL identified the requirement of **new fume-hoods with centralised scrubber** of double capacity than the existing one in order to double the testing output of RAL. For better protection of surrounding environment and compliance to the CPCB guidelines, a purchase order was placed on GeM portal for **installation of the fume-hoods with centralised Scrubber.**

c. Installation of Silver Recovery Plant in RAL:

RAL of CL installed a silver recovery plant in RAL for the purpose of recovering Silver reagent, from the used parting acid, used as CRM in Fire Assaying of gold samples as per IS 1418. Since for one sample of 22 K (916 fineness), apprx 0.7 gm Silver CRM is used. Therefore with testing capacity of 1000 samples per month in future, **this project intends to** recover 8.4 Kg of silver (99.99 % pure) annually, which means **saving more than Rs. 8 Lakhs per year of the Bureau.** After recovery of the silver from used parting acid, the acid waste is transferred to the Effluent Treatment Plant (ETP) for its environmental friendly disposal.

d. Purchase of Cupellation Feeder for substantial reduction in exposure time to hazardous lead fumes in RAL during cupellation:

It was observed that the testing personnel are prone to a prolonged exposure to the lead fumes during the charging of samples in cupellation furnace. Since the testing of multiple samples (usually a batch of 10 samples) is carried out simultaneously and therefore, all the samples are charged into the furnace one by one. It increases the total charging time in the cupellation furnace. This results in a lead fume exposure time of approximately 5 mins.

The Referral Assay Lab of CL **purchased an cupellation feeder** for charging all the samples simultaneously into the cupellation furnace. After the use of this feeder, now the **lead exposure time has been decreased drastically from 5 minutes to 10 seconds.**

e. Use of Full-face Respirators and PPEs for enhanced safety of testing personnel:

For ensuring better safety of testing staff, full face respirators were procured in RAL for each testing personnel. These full face respirators helps testing personnel in avoiding the direct exposure with hazardous chemical fumes.

SUSTAINABILITY AND SAFETY PROJECTS OF CENTRAL LABORATORY:

- DISPOSAL OF HAZARDOUS CHEMICAL WASTE

Safely disposing of chemical waste is vital for the environment and human health. In the central laboratory's chemical section, waste management starts with segregation, labeling, and compatible container storage. Waste is then incinerated, treated chemically, or sent to approved facilities. Compliance with regulations prevents environmental harm.

The Central Lab partners with an MoEF & CC-approved company, endorsed by CPCB and authorized by UPPCB, for chemical waste disposal. Additionally, hazardous waste from gold sample **assaying in** RAL is legally handled by an another UPPCB-authorized Common Hazardous Waste Transport, Storage and Disposal Facility (CHW-TSDF) through an agreement with the Central Lab.

- INSTALLATION OF CENTRALISED SCRUBBER FOR FURNACES AND FUME-HOODS IN RAL

The Referral Assay Lab of Central Laboratory, like a vigilant guardian of environmental safety, has recognized the urgent need to enhance its protective measures. With a discerning eye on environmental well-being and a commitment to adhering to CPCB guidelines, the lab has set its sights on a significant upgrade - the installation of a centralized scrubber system, boasting double the capacity. This bold move is set to cover all fume hoods and cupellation furnaces within RAL, ensuring not only a safer workspace but also a cleaner and greener surrounding environment. It's a proactive step towards a brighter, more responsible future.

- INSTALLATION OF EFFLUENT TREATMENT PLANT (ETP) IN RAL

The installation of the Effluent Treatment Plant at RAL of CL signifies a proactive approach towards managing hazardous waste in laboratory operations. It reflects the laboratory's dedication to safeguarding the environment, maintaining the highest safety standards, and fostering a culture of responsible waste management.

- **INSTALLATION OF STP (SEWAGE TREATMENT PLANT)**

To advance the sustainability project, the central laboratory has implemented a sewage treatment plant, a pivotal step towards achieving the overarching sustainability objectives of the laboratory. With the installation of this modern STP, the central laboratory now possesses the capability to efficiently manage and treat its sewage, thereby facilitating the sustainable development of our laboratory facilities.

➢ INCORPORATING RAINWATER HARVESTING SYSTEM

The Central Laboratory has implemented a rainwater harvesting system aimed at the conservation of rainwater resources. This technology is designed to collect, store, convey, and purify rainwater runoff originating from various sources within the laboratory premises, encompassing an area of 4.7 acres. This sophisticated rainwater harvesting system comprises a network of seven strategically located pits distributed throughout the entire landscape.

➢ ACCESSIBILITY OF FIREFIGHTING SYSTEM IN ALL AREA OF CL

A robust fire safety system, in collaboration with the Central Public Works Department (CPWD), is being diligently instituted at the Central Laboratory. This system features a substantial three hundred-thousand-liter water storage tank, accompanied by a dedicated pump room. The primary function of this infrastructure is to facilitate the efficient distribution of water to all designated firefighting points situated throughout the Central Laboratory premises. This comprehensive firefighting system stands as a critical component in safeguarding the laboratory against potential fire hazards, ensuring the safety and security of personnel and valuable assets.

(Underground water tank for fire-fighting system) (fire-fighting system near admin block)

- **USE OF PROPER PPE KITS**

In order to optimize the safety and protection of the testing personnel, the Central Laboratory has implemented a comprehensive provision of personal protective equipment (PPE). This ensemble comprises laboratory coats, safety shoes, full-face respirators, masks, heat shields, eyewear, and gloves.

MODERNISATION AND INFRASTRUCTURAL DEVELOPMENT

➢ Event Wall

Recognizing the importance of highlighting our standard promotion, training sessions, and exposure visits, Central Lab has undertaken an initiative to create an Event-Wall. This platform allows us to showcase vibrant images capturing recent lab events in a dynamic and engaging manner. The Event-Wall has been thoughtfully designed to enable periodic updates, ensuring a fresh display of our latest accomplishments and activities.

➢ Art Wall

Central Lab's Art-Wall, near Toy & Gold Lab on the third floor, proudly features drawings from the World Standards Day 2022 competition. It showcases excellence, fostering enthusiasm for science and workplace dedication among employees.

➢ Granite Flooring

The corridors and lobbies within the administrative, electrical, mechanical, and chemical blocks have undergone a comprehensive renovation, entailing the replacement of their erstwhile flooring with high-quality granite. The previous flooring materials had surpassed several decades of service and had significantly deteriorated as a result of prolonged wear and tear. This extensive refurbishment project, involving the installation of granite flooring, was executed with the help of the Central Public Works Department (CPWD).

Cross-Over Bench and air-curtains in Microbiology Lab

Our Cross Over Benches, essential in pharmaceutical, chemical, and food sectors, act as protective dividers, ensuring staff safety during transitions in key areas. Paired with air curtains, they prevent pests, dust, and wind, maintaining a clean and controlled environment. Installed in our Central Lab's microbiology lab, reinforcing safety standards.

Modernisation of Administrative Block

In the previous fiscal year, the Central Laboratory embarked on a comprehensive renovation project for its administrative block, encompassing both interior and exterior elements. This extensive initiative encompassed refurbishments to the flooring, wall treatments, and furniture throughout the entirety of the administrative block. The culmination of this endeavour was marked by the official inauguration of the renovated block on June 27, 2022, presided over by the esteemed Minister of Consumer Affairs, Mr. Piyush Goyal. This project underscores the laboratory's commitment to maintaining a contemporary and functional workspace while aligning with the highest standards of excellence.

- **Creation of Madhubani Wall Painting**

As part of its modernization initiative, the Central Laboratory has undertaken the creation of Madhubani-style paintings, a traditional art form originating from the Mithila region of India and Nepal. This endeavour is an expression of the laboratory's commitment to preserving and upholding the cultural heritage of the nation. Within the framework of this program, a total of nine Madhubani paintings have been meticulously crafted and adorning the walls throughout all the blocks and the ramp area of the laboratory premises.






- **Car Parking and Road Construction:**

As part of the comprehensive road modernization project at the Central Laboratory, a designated parking facility has been established. This parking lot, situated in a shaded area, can accommodate a total of 25 vehicles. Additionally, to ensure enhanced durability and the capability to withstand the specific load demands of the laboratory, all pre-existing road infrastructure has undergone extensive renovation, involving the installation of cemented road surfaces. This strategic enhancement not only contributes to prolonged road longevity but also effectively caters to the transportation and sample movement within the Central Laboratory.

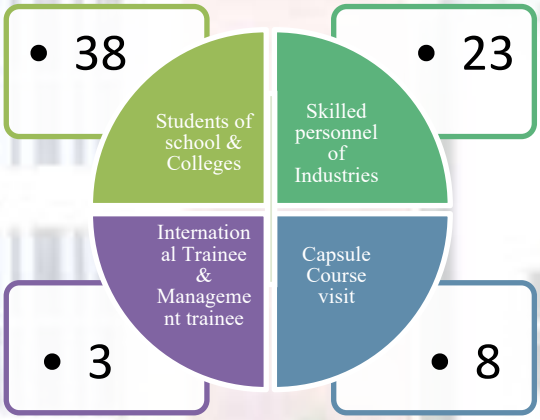
- **Installation of Fountain:**

The inauguration of the fountain installation, presided over by DG BIS on November 1, 2022, marks a significant milestone for the Central Lab of BIS. This captivating fountain has swiftly become a distinguished landmark, contributing to the aesthetic enhancement of our facilities. Notably, it stands as the inaugural fountain among all BIS Labs, embodying our commitment to innovation and the upliftment of our work environment.

CL EMERGES AS A LEARNING CENTRE:

The Central Laboratory plays a pivotal and instrumental role in providing immersive insights into the intricate world of testing activities, extending its enlightening embrace to a diverse array of stakeholders. These include the inquisitive minds of students from schools and colleges, the skilled personnel of various manufacturing industries, international trainees, and management trainees. In its noble pursuit of knowledge dissemination, the Central Laboratory serves as a beacon, casting its illuminating light on the inquisitive minds and future visionaries.

During the year, the Central Laboratory has organized over 70 exposure visits for various stakeholders. This initiative has established the Central Laboratory as a rapidly emerging hub for experiential learning.



➢ CERTIFICATE COURSE ON ASSAYING AND HALLMARKING (13TH JUNE TO 18TH JULY 2022):

A Certificate Course on the Hallmarking Scheme was organised at the Central Laboratory in its Referral Assay Laboratory with the aim of bridging the competence gap of personnel involved in assaying and hallmarking and making them available for the Assaying and hallmarking Centres and also to complement the "Skill India" program of the Government of India. The certificate course was organised in coordination with NITS.

➢ MEETING BETWEEN BIS AND A SOUTH KOREAN DELEGATION

The BIS central laboratory hosted a crucial meeting led by Mr. Changsoo Lee from Korea's TBT Affairs. Representatives from India and South Korea discussed standardization and TBT rules. Lee's expertise guided the discussions. The meeting focused on aligning standards, including product specs, safety rules, and quality control. A roadmap for future cooperation emerged, strengthening trade ties between India and South Korea. Overall, it was a pivotal event in harmonizing standards for mutual trade benefits.

MAJOR EVENTS OF CL

- Inauguration by Honourable Minister Shri Piyush Goyal on 27th June, 2022:

  Honourable Minister Shri Piyush Goyal Inaugurated the Renovated and modernised Admin Block, Helmet Lab, food lab, of Central Lab on 27th June, 2022 in the esteemed presence of DG BIS

- Inauguration of Foutain and Air Delivery test setup for ceiling fan by DG BIS, Shri Pramod Kumar Tiwari (IAS) on 1st November 2022.

  On November 1, 2022, DG BIS, Shri Promod Kumar Tiwari inaugurated state-of-the-art testing facilities of electrical motor testing setup and ceiling fan air delivery test setup, demonstrating the central laboratory's commitment to embracing modernization and automation.

- Drawing Competition on the occasion of World Standard Day on 13th October 2022:

  Central Lab marked World Standards Day 2022 with a vibrant drawing competition, engaging numerous employees. The event showcased their enthusiasm and creativity, reflecting a shared commitment to science and standardization.

- BIS Annual Foundtion Day Celebration (6-01-2023):

  On the occasion of BIS Foundation day, Central Lab organised various events and games for employees of CL.

- **भारतीय मानक ब्यूरो, केंद्रीय प्रयोगशाला, हिन्दी त्रैमासिक बैठक - चतुर्थ** (31-3-2023).

- Exposure visits of school students and teachers:

To foster a science-based temperament in school students and cultivate their interest, Central Lab has arranged 37 exposure visits for nearby schools. These insightful visits were supervised and coordinated by Branch Offices of CRO.

- Exposure Visit for Licensee organised by various Bos:

To enrich the quality infrastructure of Indian industries and BIS licensees, Central Lab has organized 35 exposure visits and conducted 6 capsule courses, contributing significantly to industry personnel training.

- Visits of International Trainees under International Training programme organised by NITS:

  Central Lab hosted two visits for International Trainees under International Training programme on "Management Systems" under 'International Technical and Economic Co-operation' as a part of the educational -cum - sightseeing study tour.

- International Women's Day Celebration on 6th & 7th March 2023:
  On the occasion of International Women's Day, a program was organized by CL on March 6 and 7, 2023. Dr. Meenu Valiya, Director and Oncology Specialist, delivered a lecture on the increasing impact of cancer in women. A question-and-answer session was also conducted.


MAX
MAX


केन्द्रीय प्रयोगशाला
CENTRAL LABORATO
भारतीय मानक ब्यूरो

- Republic Day celebration at CL on 26-01-2023:

  Central Lab commemorated Republic Day on 26-01-2023 with uplifting speeches, the unfurling of the national flag, and a heartfelt rendition of the national anthem by dedicated employees.

- Vigilance Awareness Week from 31st October to 6th November, 2022:

  Vigilance Awareness Week observed from 31st October to 6th November, 2022 at CL where various events like Pledge, essay writing, quiz competition and poem were organised.

- New Year Celebration on 2nd January 2023:
  Central Lab welcomed 2023 on January 2nd with celebrations, featuring an inspiring address by Sh. Manish Kumar (Sc-E & Head CL) for all employees.

ADDITIONAL WORKS ASSIGNED/ CONTRIBUTIONS BY OFFICERS POSTED IN CL DURING FY 2022-23:

- **The list of Action Research Projects (ARPs) completed out by the Officers posted at Central Lab in FY 2022-23:**

S. No.	Name of Officer	ARP Title
1	Sumit Bhardwaj, Sc. D	IS 302 (Part 2/Sec12): 1993, Safety of household and similar electrical appliances - Specification: Part 2 particular IS 398 (Part 3): 1979 Specification for aluminium conductors for overhead transmission purposes: Part 3 aluminium
2	A.K. Mohindroo, Sc. D	IS 8597 (SPECIFICATION FOR FLAT BELT CONVEYORS) IS 6832 (SPECIFICATION FOR FIXING SCREWS AND FIXING WASHERS FOR BUCKETS FOR BUCKET ELEVATORS) IS 12986 (Part 1) (GLASS FIBRE REINFORCED POLYESTER RESIN GAS HOLDERS - SPECIFICATION: PART 1 WITH STEEL FRAME) IS No: 14263 (TAPERS FOR AGRICULTURAL PUMPING SYSTEMS SPECIFICATION)
3	Pavan Kumar Ora, Sc. C	IS 6797:1972, Methyl Ester of Beta-Apo-8'-carotenoic Acid
4	Jatin Tiwari, Sc. B	IS 302 : Part 2 : Sec 76 : 1999 Safety of household and similar electrical appliances: Part 2 particular requirements: Sec 76 electric fence energizers IS 302 : Part 2 : Sec 8 : 1994 Safety of household and similar electrical appliances : part 2 particular requirements, section 8 electrical shavers hair, clippers and similar appliances IS 7084 : 1973 Specification for bitumen - Based filling compounds for electrical purpose IS 302 : Part 2 : Sec 11 : 1994 Safety of household and similar electrical appliances:

		Part 2 particular requirements: Sec 11 tumbler dryers
5	Devesh Kumar, Sc.B	IS 5135 : Part 2 : 1994 Specification for Hand Rotary Duster : Part 2 Shoulder Mounted Type (First Revision) IS 7863 : 1975 Specification for fbrtilizer physical mixtures
6	MD Afsar Imam, Sc. B	IS 304 : 1981 Specification for high tensile brass ingots and castings (Second Revision) IS 1545 : 1994 Solid drawn copper and coppe alloy tubes for condensers and heat exchangers - Specification (Third Revision)
7	Vipul Bohara, Sc. B	IS 3011:1973 - Specification for Ferrosilicozirconium IS 2024:1988 - Specification for Ferrosilicochromium
8	Vishal Kumar, Sc. B	IS 9898:1981- Specification for heliotrope, surveying. IS 10695:1983- Specification for pocket stereoscope. IS 11445:1985- Specification for parallax bar (Stereometer). IS 4613:1993- Javelins - Specification (First Revision)
9	Mukund Madhav Mishra, Sc. B	IS 2907:1998- Specification for Ferrous rivets IS 6649:1985- Specification for hardened and tempered washers for high strength structural bolts and nuts.
10	Raju Sharma, Sc. B	IS 7372 : 1995 Lead - Acid storage batteries for motor vehicles - Specification (First Revision) IS 2007 : 1974 Method for calibration of vertical oil storage tanks (First Revision) IS 7624 : 1990 Lead – Acid starter batteries for diesel – locomotives and rail cars – Specification (First Revision)

- **The list of Case studies completed by the Officers posted at Central Lab in FY 2022-23:**

S. No.	Name of Officer	Case Study Title
1	Vipul Bohara, Sc. B	Case Study on BIS ISI Scheme "Stringent standards or relaxed Compliances, the consumer vs industry - Market perceptions of BIS ISI scheme" published on BIS website in year 2022
2	Devesh Kumar, Sc. B	Case Study on "Journey of BIS labs from Self-reliant to PPP: A case study" published on BIS website in year 2022

- **The list of lesson plans submitted or edited by the Officers posted at Central Lab in FY 2022-23:**

S. No.	Name of Officer	Lesson Plan Title
1	Vipul Bohara, Sc. B	BALL POINT PEN with the concept of Surface Tension and Gravity (IS: 3705-1980) IS 417 - FOOTBALLS, VOLLEYBALLS, BASKETBALLS, NETBALLS, THROWBALLS AND WATER-POLO BALLS IS 9020 Power Thresher
2	Jatin Tiwari, Sc. B	Plugs and sockets (IS 1293) Electric motor driven food-mixers (IS 4250) STATIONARY STORAGE TYPE ELECTRIC WATER HEATERS: IS 2082:2018
3	Vishal Kumar, Sc. B	Vacuum Flask Water Tank Domestic Pressure Cooker
4	Mukund Madhav Mishra, Sc. B	Bicycle, Helmet, Roto Moulded tank & vacuum flask

The list of scientific studies carried out at Central Lab in FY 2022-23:

S. No.	Name of Officer	Scientific Studies Title
1	Vipul Bohara, Sc. B	Study on reproducibility of XRF results on hallmarked gold jewellery; Study on XRF vs Fire Assay for Testing of Gold Jewellery; Study of Pollution being emitted during Fire Assay Testing of Gold Jewellery as per IS 1418 as assigned by DG BIS.
2	Devesh Kumar, Sc. B	SOP preparation for timely testing of water samples for BIS labs

CENTRAL LABORATORT TEAM:

•Shri. Manish Kumar joined BIS in 2006. He holds B. Tech degree in Electrical and Electronics, NIT Varangal. He has over 17 years of working experience in all activities of BIS and was instrumental in development of LIMS portal.

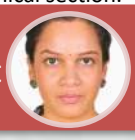
Shri Manish Kumar,
Scientist- E/Director and Head(CL)

•Shri A K Mohindroo joined the BIS in 1989. He holds B. Tech degree in Mechanical Engineering from Institution of Engineers, Kolkata.

Shri A K Mohindroo
Sc.D/Joint Director,
OIC (Sample Cell)

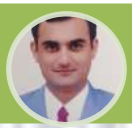
•Smt. Shalu Varshney joined BIS in 2006. She holds B. Tech in Civil Engineering from DTU and M. Tech from IIT Delhi. She has worked in Standard formulation, Conformity Assesment and is currently officer in charge for Mechanical section.

Smt. Shalu Varshney
Sc.D/Joint Director, OIC (Mechanical)



•Shri Pavan Kumar Ora joined the BIS in 2006. He holds B. Sc. degree in Life Science, M. Sc. degree in Microbiology from MDSU Ajmer and M. Sc. degree in Chemistry from NIMS Jaipur

Shri Pavan Kumar Ora
Sc.C/Joint Director,
OIC(Chemical)



•Shri Sumit Bhardwaj joined BIS in 2012. He holds M. Tech degree in Process Control Engineering and B. Tech. degree in Electrical Engineering. .

Shri Sumit Bhardwaj
Sc.D/Joint Director,
OIC (Electrical)

•Shri MD Afsar Imam joined BIS in 2020. He holds a B.Tech. degree in Metallurgical & Materials Engg from NIT Jamshedpur and M. Tech degree in Process Control Engg in Materials Science from IIT Bombay.

MD Afsar Imam
Sc.B/AssistantDirector,
OIC (Mechanical)

•Shri Gian Chand joined BIS in 1985. He holds a B. Com (Pass) degree from Delhi University and M.A in Public Administration from the Kota Open University(Raj).

Shri Gian Chand
Assistant Director,
Admin and Finance

•Shri Vipul Bohara joined BIS in 2020. He holds a B.Tech. degree in Metallurgical & Materials Engineering from NIT Raipur.

Shri Vipul Bohara
Sc.B/Assistant Director,
OIC (RAL and Quality Assurance)

•Shri Devesh Kumar joined BIS in 2020. He holds a Bachelor's degree in food engineering and technology from Tezpur University.

Shri Devesh Kumar
Sc.B/AssistantDirector,
OIC (Chemical)

•Shri Mukund Madhav Mishra joined BIS in 2020. He holds B. Tech degree in Mechanical Engineering from MNNIT ALLAHABAD.

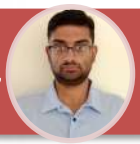
Shri Mukund Madhav Mishra
Sc.B/AssistantDirector,
OIC (Mechanical)

•Shri Vishal Kumar joined BIS in 2020. He holds B. Tech degree in Mechanical Engineering from IIT Dhanbad.

Shri Vishal Kumar
Sc.B/Assistant Director,
OIC (Mechanical)

• Shri Jatin Tiwari joined BIS in 2020. He holds B. Tech & M. Tech dual degree from IIT Kanpur.

Shri Jatin Tiwari
Sc.B/Assistant Director,
OIC(Electrical)



•Shri Raju Sharma joined BIS in 2021. He holds B. Tech degree in Electronics and Instrumentation from National institute of technology, Silchar.

Shri Raju Sharma
Sc.B/Assistant Director,
OIC (Electrical)

•Shri Simesh Kumar Joined BIS in 2022. He holds B. Sc. degree in Chemistry (Hons.) from Ramjas College, Delhi University and M. Sc. degree in Chemistry from IIT Delhi.

Shri Simesh Kumar
Sc.B/Assistant Director,
OIC (Chemical)