

FUNCTIONS OF INSTRUMENTATION LABORATORY

CPCB has established its Central Laboratory at its main building at Parivesh Bhawan, East Arjun Nagar, Shahdara, Delhi and the Instrumentation Laboratory is an integral part of it. The main functions of the Instrumentation Laboratory are as follows:

- **Analysis of Environmental samples:** The main function of Instrumentation laboratory is to provide technical services to other divisions and laboratories of CPCB, SPCBs and Regional Directorates & Institutions with respect to the Elemental analysis, Trace metals, Total Organic Carbon and Total organic halides etc.
- **R&D Projects:** Laboratory also carries out various projects and in-house studies to assess the environmental quality of air and water in terms of analytical observations of various elements, trace metals, Total Organic Carbon and organic halides by using advanced instrumentation like EDXRF, ICP-MS, ICP-AES, Mercury Analyser, TOC Analyser and TOX Analyser and issue the reports on the basis of inferences drawn during the study.
- **Analytical Quality control Exercise:** Performance evaluation of Environmental laboratories of Central and State Pollution Control Boards, State Pollution Control Committee's and Government / Public Sector, Private laboratories recognized under E(P)A 1986 through Analytical Quality Control (AQC) exercise. Analytical Quality Control (AQC) exercise is one of the major part of a quality assurance system (QA), wherein the quality of analytical data being generated in the laboratories is controlled through minimizing or controlling errors to achieve a target of accuracy. Future course of action and further renewal of EPA recognition will be based on the performance of participating laboratories in AQC exercise.
- **NABL Accreditation:** The Central Laboratory of CPCB, Delhi has been accredited by National Accreditation Board for Testing and Calibration of Laboratories as per the IS: 17025 and for successful compliance of NABL, various quality control assurance programmes are being observed throughout the year. The effectiveness of these programmes are assessed by the periodical internal and external audits. The laboratory is now under transition from ISO 17025: 2015 to 17025:2017.

- **Implementation of Occupational Health and Safety Management System:** To ensure the safety of its Laboratory personnel and building assets, CPCB has implemented the OH&SMS programme and secured the certification from BIS as per IS 18001:2007 and now under transition to OHSMS 45001:2018. To follow the standard, regular safety measures are being taken up and monitored periodically.
- One of the major functions of instrumentation laboratory is to formulate technical specifications of the advanced instruments for analysing trace metals, elements, Mercury, Total Organic Carbon, Total Organic halides (*Adsorbable, Purgeable and extractable Organic halides*) and the processing equipment required for these instruments for CPCB-Head Office, Regional Directorates, SPCBs and other institutions. Laboratory is also involved in the technical evaluations of the bids invited from various companies to procure these instruments.
- The Laboratory is also actively associated with Recognition of Environmental Laboratories under EPA-1986. Following activities are being taken up for the Recognition of Laboratories:
 - *Scrutinization & Technical evaluation of proposals of environmental laboratories*
 - *Communicating/ forwarding of comments/observations of environment laboratories to MoEF&CC/Labs.*
 - *To assist organizing the periodical Expert Committee meeting at Parivesh Bhawan*
 - *To prepare the Agenda for Expert Committee meetings.*
 - *To put up the agenda of eligible cases of government/semi govt laboratories Board meetings*
 - *To put up the approved cases for Gazette Notification*
 - *To update list of recognized laboratories for its placing on CPCB Website*

Salient features

- The wet pre-treatment area of laboratory and analysis area are well separated. Each instrument has been allocated to a separate room to provide appropriate environment condition required for particular instrument
- Availability of water purification system for the production of Milli-Q/ Nano pure water for the activities of the laboratory

- Sufficient power backup facilities provided to each instrument through Uninterrupted Power Supply devices
- Various Facilities for digestion of samples like open digestion system through Hot plate, Close digestion system through Microwave Digester and Water bath
- Robust evacuation system for acid fumes like Fume hoods with efficient blowers and powerful exhaust fans at digestion area
- Gas distribution system for the unhindered supply of gases to different instruments
- Separate analytical chamber for operating Mercury Analyser
- Robust sample processing facilities for soil/ sediment/ sludge and industrial wastes using Ball Mill Grinder
- Occupational safety measures have been adopted by using PPEs, cylinders are tied with chain, regular monitoring of X-Ray radiation
- Well-equipped fire fighting system with fire alarms