

Tech Talk

Monthly Newsletter by Spectro Group



Director's Desk

It is difficult for us to believe how far Spectro has come. It seems only yesterday that we formed the company with a very few number of staff. Since that time in 1995, Spectro has grown to more than 500 employees in 12 branches and Joint Venture Laboratories round the country. One of the reasons that Spectro has been successful for 20 years is our entrepreneurial spirit and capability to adapt to the rapid technological changes. We want to thank each of our customers and friends for helping make Spectro successful for the past 20 years and We look forward to working with you over the next 20.



Kuldeep Dhingra
Managing Director



Sushant Gupta
Executive Director

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We are happy to share with you, our monthly Newsletter "Tech-Talk" which is designed to be an elemental source for leading information related to developing technologies, ingenious techniques and innovative approaches. This newsletter is contemplated to highlight electrifying forthcoming activities and resources of our organization.

We invite you to a new paradigm created by Spectro. Please visit our website to explore the details of our amplifying services using science to harness cutting-edge technologies.

Brief about Spectro

Spectro Group of Companies has created a globally recognized position in the field of Testing, Calibration, Auditing, Training, Inspection, R&D, Special Purpose Equipment Designing and Manufacturer and various other activities.

Spectro Analytical Labs Ltd. is a self-reliant Multidisciplinary Laboratory providing best of services. We are also in a process to explore services in the field of Geo-Technical, Welding, Safety Compliance, Clean Development Mechanism, Mining, Environment and various others.

Spectro Lab Equipments (P) Ltd. is one of the reputed manufacturers of Environment & Coal Laboratory Equipments and also deals with their sale and service setups. We are the exclusive manufacturers of equipments which include RCPT, Bomb Calorimeter, Ash Fusion Tester, Salt Spray Chamber, Proximate Analyzer and Stress Relaxation Tester.

Spectro Weld Institutes (P) Ltd. provides exemplary short-term courses and full time courses on specialized topics. The welder gets certification by AWS (American Welding Society). We are creating a pool bank of trained and certified welders for ready deployment for projects.

Delhi's air- Equally toxic in summers & winters

High level of air pollution in Delhi is generally associated with winters, when atmospheric inversion traps pollutants close to the ground and causes smog. The time has come when the view needs to be revised.

The air quality continues to be poor even when the temperature is high and this indicates that poor air in the capital is not just a seasonal phenomenon accentuated by weather conditions. On the contrary, in summer it's a double whammy. Not only the levels of fine and respirable particles (PM_{2.5}) remain high, there's a rise in toxic ozone (O₃), making Delhi's summer air dangerous for health.



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Spectro Completes 20 Years of Consistent Innovation & Entrepreneurship

On 5th May, Spectro Analytical Labs Limited has successfully completed 20 years of establishment. The journey of Spectro Analytical Labs Ltd. started in the year 1995 with the objective of providing accurate, precise and reliable Testing Services to the customers.

With a small set up at New Delhi, Spectro has become India's foremost Analytical Laboratory with more than 12 Branches and Joint Venture Labs all over the country. We started with only one vertical and during the period of 20 years we have inculcated expertise in almost seventeen verticals.

With the aim of adding more feathers to our cap, we are consistent with extending our verticals in those fields which have never been seen in the country before. We are proud to say that we have the maximum number of accreditations as per ISO/IEC 17025: 2005 in comparison to any other laboratory in India.

*Organization is a tune, to be sung together.
What we are today is because we believed in: Commitment to Excellence!!!*

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(Delhi's air- Equally toxic in summers & winters)

According to an analysis carried out by the System of Air Quality Weather Forecasting and Research (Safar), between April 17 and April 20, the daily average PM2.5 levels went up from a 'good' 80 micrograms per cubic meter to 163, which fall in the "poor" category.

During winters, cold air with high concentration of pollutants is trapped close to the earth's surface because a layer of warm air acts as a lid on top of this layer. Experts say particulate pollution, especially PM10, goes up in summer due to dust but this dust is coated with toxins due to polluted emissions from various sources.

"Air pollution in winter and summer are different in nature. In winters, It is more from combustion and in summers, it's often from the natural sources like dust," said Chhabra. While there are no scientific studies which confirm the number of people with respiratory illnesses is rising in Delhi, globally there is consensus that the incidence of respiratory conditions are rising.



Spectro Analytical Labs Ltd. offer world class Environmental services like Environment Monitoring, Indoor Air Quality Monitoring and Noise Pollution Survey. We are approved by MoEF and several other State Pollution Control Boards.

Spectro Lab Equipments (P) Ltd. is a prominent manufacturer of a wide range of Environmental Equipments, some of which includes; Particle Counter, High Volume Sampler, CO₂ Monitor, Flue Gas Analyzer, Respirable Dust Sampler, VOC Monitor, Sound Level Meter, Ozone Gas Monitor, Stack Sampler, Fine Particulate Sampler, Indoor Air Quality Monitor and various others.

*References
Time of India
Science Daily*

NDT ON CONCRETE STRUCTURES

Non Destructive Testing (NDT) is a group of analysis techniques used to evaluate the properties of a component, material or a system without damaging it. This technique is applied on new as well as old Concrete Structures so as to determine if the structure is suitable for its designed use.

The buildings which were constructed decades back have no data or design for their structures. In such cases, Non Destructive Testing is conducted to analyze the structural safety by checking the strength of columns, beams, slabs, staircase, etc.

Common Problems in Old Buildings

- ✧ Corrosion of reinforcement in RCC elements like beams, slabs, balconies, staircases, etc.
- ✧ Spalling of concrete cover
- ✧ Disintegration of concrete
- ✧ Cracking of Concrete in beams, columns, lintels, etc.
- ✧ Damage and disintegration of terrace, masonry walls, parapet walls, etc.

Detailed investigation is conducted to determine the extent of damage to suggest proper Rehabilitation measure.

Basic methods of NDT for Concrete Structures

Rebound Hammer Test- RH (Schmidt Test): This test is used to check the surface hardness of concrete. Rebound Hammer is a surface hardness tester depicting the link between strength of concrete and Rebound number of hammer.

Pull-out Test: This test measures the force required to pull a specially shaped steel rod from the concrete which has been casted into the concrete to a depth of 3 inches. The force required to pull out the concrete can be related to its compressive strength.

CAPO (Cut and Pull Out) Test: This test is used to determine the in-situ compressive strength of concrete in the pre-existing structures without making a pre-planning. It measures the force

required to pullout an embedded metal inserted into a concrete structure.

Ultrasonic Pulse Velocity (UPV) Test: The test instrument produces and introduces a wave pulse into the concrete and sense pulse arrival and measures the time taken by the pulse to travel through the concrete. This technique helps to assess the homogeneity and quality of concrete in relation to standard requirements.

Half Cell Potential Technique: This technique is used to evaluate the potential of concrete in promoting corrosion activity of reinforcement. It is a quick method to assess reinforcement corrosion over a wide area.



Spectro is proficient in conducting Non Destructive Testing for structures & buildings. We also conduct Remnant Life Assessment Studies for boilers, piping, pressure vessels, storage tanks, pumps, turbines, compressors, etc. We are accredited as per ISO/IEC 17025:2005 for NDT. Spectro is also accredited by Central Boilers Boards and a certified Remnant Life Assessment Organization and is a well known Material Testing Laboratory.

We provide assistance for structural engineering and strategies for earthquake resistance. We are associated with the leading structural engineers to provide services which are propitious to tackle several technical challenges and complex structural challenges.

Technical Showcase: XRF

An X-ray fluorescence (XRF) spectrometer is an x-ray instrument used for routine non-destructive chemical analysis of rocks, minerals, sediments and fluids. It works on wavelength-dispersive spectroscopic principles.

Application areas of XRF:

- ✧ Research in igneous, sedimentary and metamorphic petrology
- ✧ Soil surveys
- ✧ Mining
- ✧ Cement production
- ✧ Ceramic and glass manufacturing
- ✧ Metallurgy
- ✧ Environmental studies
- ✧ Petroleum industry
- ✧ Field analysis in geological and environmental studies
- ✧ Coating thickness analysis of metal finishing and alloys and precious metals assay
- ✧ Quality control in the electronics and consumer goods industry



Benefits of analysis by XRF include:

- ✧ Minimal or no sample preparation
- ✧ Non Destructive analysis
- ✧ No acids & no reagents
- ✧ Rapid analysis
- ✧ Qualitative, semi-quantitative, to full quantitative analysis

Spectro Group of Companies



Major Activities

Testing Calibration Training Inspection R&D Automation Reverse Engineering

- Metals & Alloys
- Non Destructive Testing
- Rubber & Polymers
- Food and Agro Products
- Coal, Solid Fuels & Petroleum
- Electrical & Electronics
- Pharmaceuticals & Drugs
- Building Materials
- Minerals & Chemicals
- Leather & Textiles
- Water & Environment
- Paper & Packaging Materials
- Hazardous Substances
- Clean Room Validation

Our Joint Venture Labs

Spectro Testing & Research Center Pvt.Ltd
Spectro Research Lab Ventures (P) Ltd. (Kanpur)
Spectro Testing (P) Ltd. (Jammu)
Spectro SSA Labs (P) Ltd. (Mumbai)
Spectro Global Experts Pvt. Ltd. (Bhubaneswer)
Spectro Shyam Labs (P) Ltd. (Kolkata)

Project Sites

Roorkee (Uttarakhand)
PATA (Uttar Pradesh)
Hyderabad (Telangana)
Durgapur (West Bengal)
Jaisalmer (Rajasthan)



We will be pleased to receive your valuable queries, feedback and suggestions on our email ID: newsletter@spectrogroup.com

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