

# Tech Talk

Monthly Newsletter by Spectro Group

## Director's Desk

With great enthusiasm, I want to thank you for making our Newsletter a success. Your positive response and feedback for our Newsletter encourages us to present before you the best current articles. 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 to examine the resources on our website which includes details of our amplifying services using science to harness cutting-edge technologies and experience the Spectro difference.

## 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 & Manufacturing and various other activities.

Spectro Analytical Labs Ltd. is a self-reliant Multidisciplinary Laboratory providing top class services. We are also in a process to explore services in the field of Geo-Technical, Welding, Safety Compliance, CDM, Environment, etc.

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.

## Air Pollution- Indians losing years of life

"The air inside Delhi schools is "very unhealthy" and could affect lung functioning resulting in respiratory illness among children," Greenpeace India said. Greenpeace carried out an air-quality monitoring survey inside five prominent schools across Delhi and found that the particulate matter (PM) 2.5 levels is four times the Indian safety limits and 10 times that of the World Health Organization.

Particulate Matter (PM) is a microscopic solid or liquid matter suspended in the Earth's atmosphere. PM may also include dust, dirt, soot, smoke and liquid droplets. Particles less than 10 micrometers in diameter (PM 10) pose a health concern because they can be inhaled and gets accumulated in the respiratory system.

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*Kuldeep Dhingra*  
Managing Director



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Spectro's Automation Division is a Technology Solution Provider Wing in Virtual and Real world Instrumentation domain.

We have successfully completed several projects like

1. Cyclic UTM (Servo Controlled)
2. Computerized Servo Hydraulic CTM
3. Automation of old CTM/ UTM
4. Slip Test for TMT Couplers with graphical output
5. CTOD Test for Metals with graphical output
6. Equipments: Bomb Calorimeter, Ash fusion tester, Rapid Chloride Permeability Tester

Some of our ongoing Projects include

1. Adhesion Testers
2. TR- 10 Test for elastic polymers
3. Automated Load Testing machine
4. Cyclic Temperature Shock Tester
5. Vibration Machine- 3 degrees of freedom
6. Gas leakage testers for packaging products

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(Air Pollution- Indians losing years of life)

Based on a study conducted by US Environmental Protection Agency, Greenpeace India claimed that the PM 2.5 is a "very unhealthy" level that "will mean reduced lung functioning, increase in asthma and respiratory illnesses". "This establishes the fact that air pollution levels inside Delhi schools are alarmingly high and that children are consistently breathing contaminated air.

The new figures came after the WHO estimates showed 13 of the 20 most polluted cities in the world were in India and Delhi being the worst-ranked city.

"Other studies have also shown that air pollution reduces productivity at work, increases the incidence of sick days, and raises health care expenses that could be devoted to other goods," Greenstone concluded. One initial step would be for India to increase its monitoring efforts and take advantage of new technology that allows for real-time monitoring.

## Managing Air Quality

Air pollution in urban areas is growing alarmingly across India for which, it has become important to take preventive actions against this issue. Apart from just monitoring the air quality, government is taking corrective actions to solve the problems and make the air suitable to breathe.

Delhi Pollution Control Committee (DPCC) is committed to sustainable development by ensuring improvement in

Environmental Quality of National Capital- Delhi. Some of the actions taken by government to reduce air pollution in the country includes; introduction of Metro in Delhi to promote use of mass public transport, operating CNG mode public transport, supplying improved diesel and gasoline.

## Portable PM Monitor

Portable PM Monitor is used to monitor the suspended particulate concentration in the air. It is based on optical scattering technique. The data is used to ensure that PM in the air is at levels that protect public health and the environment.



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

*Spectro Lab Equipments (P) Ltd. is a prominent manufacturer of Portable PM Monitor (Model- SLE-PPM105) which has fast detection speed, high accuracy & easy to operate.*

## Acknowledgement

The Times of India  
Science Daily

## LC-MS/MS- A Tool for Accurate Analysis of Mycotoxins in Food

Mycotoxins are a group of naturally occurring chemicals which are extremely toxic and are produced by the fungi like *Fusarium*, *Penicillium* and *Aspergillus*. These fungi are present on plant products and can increase quickly in case the food is not properly stored. Many of the mycotoxins are carcinogenic and are capable of spoiling millions of tons of cereals and food items. Even at very low concentrations, they are fatal and cause serious health issues.

The elementary mycotoxins regulated in the EU and US are total aflatoxins, ochratoxin A, deoxynivalenol, patulin and zearalenone. As per the Food and Agricultural Organization (FAO), more than 25% of the world's agricultural production is contaminated with mycotoxins. When the environmental conditions of temperature and humidity are able to develop fungal spores, production of mycotoxins starts occurring. The contamination can occur anywhere, at the field, during transportation, storage or processing.

LC system coupled with Triple Quadrupole Mass Spectrometer is a fast method used to analyze or quantify mycotoxins in food items. The developed methods employ LC-MS/MS technique for determining chemically diverse mycotoxins.

HPLC post-column derivatization system is commonly used for analysis mycotoxins and antibiotics. It is specifically designed to optimize the sensitivity and selectivity of post-column analysis in HPLC analysis.

Before mass spectrometer, HPLC separates the sample to chemical compounds. Coupling of LC with MS provides a greater opportunity for the analysis of mycotoxins.

During the last two decades, techniques based on LC-MS has become common in mycotoxin research in the field of food and feed safety because of its sensitivity, selectivity and quantitation range.



*Spectro possess LC-MS/MS to carry out testing of mycotoxins and pesticides residue in different food and feed products.*

*Spectro is the only lab in Delhi, which has Post derivatization column by Pickering laboratories, intended for specific applications like detecting certain classes of compounds including mycotoxins & carbamates at very low concentrations.*

*Moreover, we also carry out tests for Phthalates, Azo dyes, Brominated compounds, Dioxins, etc. in plastics, textiles and polymer products. We have LC-MS/MS Make: Agilent Technologies Model: 6410 Triple Quadrupole.*

*Acknowledgement*

*Agilent eNewsletter, March 2015*

*Perkin Elmer*

*AB Sciex*

## Cyclic Corrosion Test Chamber

A cyclic corrosion test chamber has emerged in recent years, mainly within the automobile industries, for the purpose of accelerating real-world corrosion failures. It is one of the industry's most leading-edge, flexible and robust creations. Providing a broad array of controlled cycles to the user, it meets the stringent industry standard specifications.

The traditional Salt spray chambers which were used as the standard way to simulate corrosion in the labs failed to provide typical naturally occurring environment. With the aim of providing better correlations to outdoors, Cyclic corrosion tests chambers were invented. These chambers demonstrate the modern corrosion testing innovations.

Cyclic corrosion chambers which are capable of multiple automatic cycles include; Solution spray, Salt fog, Humidity fog, Dry cycle, Controlled humidity, Immersion cycle, etc. By

practicing cyclic corrosion test, the manufacturers and suppliers can predict the service life expectancy of their products more accurately.



*Spectro Lab Equipments (P) Ltd. is one of the prominent manufacturers of Cyclic Corrosion Test Chambers. We own this sophisticated chamber to serve various industries. We provide services to carry out this particular test as per National & International Standards for several automobile parts, electrical items, metallic parts, and other coated & uncoated materials to check their resistance towards corrosion.*

# Spectro Group of Companies



## Major Activities

Testing    Calibration    Training    Inspection    R&D    Automation    Reverse Engineering

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

## Our Joint Venture Labs

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

## Our Collection Centers

PATA (U.P.)  
Roorkee (Uttarakhand)  
Durgapur (West Bengal)  
Jaisalmer (Rajasthan)  
Hyderabad (Telangana)



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

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