

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.



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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.

Kuldeep Dhingra
Managing Director

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.

Precious Metals in E-Wastes

The Electronic waste (E-waste) needs specific treatment as they contain a great variety of valuable metals that can be recovered. Electronic waste or e-waste is the term used to describe old, end-of-life electronic appliances such as computers, laptops, TVs, DVD players, mobile phones, etc., which have been disposed by their original users.

Problems with Electronic Wastes

Y80 to 85% of electronic products are discarded in landfills or incinerators, which can release certain toxics into the air.

Y20 to 50 million metric tons of e-waste are disposed worldwide every year.

YFor every 1 million cell phones that are recycled, 35,274 lbs of copper, 772 lbs of silver, 75 lbs of gold and 33 lbs of palladium can be recovered.



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Spectro Updates

Spectro's Automation Division

Spectro focuses upon providing our customers with products and solutions for automation, instrumentation and optimizing the industrial processes. Our discrete automation division provides solution and services to increase industrial productivity and energy efficiency. Spectro has well-equipped Automation Division for carrying our development of instruments with advanced technologies. In the past few years, our Automation Division has brought up several technological changes. To name a few, our well automated instruments include:

• Bomb Calorimeter

• Ash Fusion Tester

• Rapid Chloride Permeability Tester

• Thermal Conductivity Tester

• Cyclic & Computer controlled UTM

Upcoming Programmes by Global PT Provider (P) Ltd.

Global PT Provider (P) Ltd., which is an associate company of Spectro Analytical Labs Ltd. is accredited as per ISO/IEC 17025:2005. A complete array of Proficiency Testing Services is being offered all under one roof. Some of our upcoming PT Programs include:

• Analytical Quality Control (AQC/Water)

• Chemical Composition of Tool Steel

• Chemical Composition of Copper Alloy

• Chemical Composition of Aluminium Alloy

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(Precious Metals in E-Wastes)

E-waste, which is growing on par with municipal waste, is throwing a great challenge for environment and human health.

Printed circuit boards (PCBs) are found in electrical and electronics appliances. Generally, PCBs are composed of 40% metals, 30% plastics and 30% ceramics. PCBs are coated with base metals (tin, silver or copper) to make them conductive.

E-waste is classified as hazardous material therefore should be managed properly. However, the presence of precious metals in e-waste such as gold, silver, platinum, gallium, palladium, germanium and selenium makes it attractive for recycling. Recovering precious metals from e-waste can also provide additional income within the disposal process of end of life electronics.

Spectro provides operational and technical consulting solutions for analyzing the composition of precious metals in PCBs with high precision and accuracy.

Spectro is privileged to be recognized from BIS for providing services related to Electrical & Electronic Testing for Safety Compliances of various Consumer Products.

m TV sets & Monitors

m Printers

m Tablets

m **Telephone Answering Machines**

m Power adaptors

m Microwave ovens

| UPS/ Invertors

| Batteries



Contaminants in Paper-paperboard for Food Contact Materials

Paper and paperboard for food contact materials are a problematic group of packaging. At the Union level, food contact materials are generally regulated under the EU Framework Regulation EC 1935/2004 which covers all food contact materials including packaging, machinery and kitchen ware. According to Art.3 of the Framework regulation, "no food contact materials shall transfer constituents into food at levels that endanger human health".

In a study, the non-targeted screening of contaminants was applied to 80 samples of these materials. 83 compounds were identified by Gas Chromatography- Mass Spectrometric detection (GC-MS). The most common contaminants found in paper and paperboards were found to be alkylbenzenes, photoinitiators, phthalates, isopropyl naphthalenes, mineral oil saturated hydrocarbons (MOSH), mineral oil aromatic hydrocarbons (MOAH), anthraquinone and bisphenol A. Most of them originate from recycling processes; contaminants from paper pulp processing were also present. Not all the samples contained all the contaminants; bisphenol A was the only substance present in all the samples.

By testing virgin and recycled paper and paper-board packaging materials, the scientists demonstrated the applicability of the procedure elucidating the presence and migration of contaminants into dry food. For certain products like pizza boxes, Italian regulation prescribes the use of virgin fibers. On the other hand, the nonylphenols, N-Methyl-2-pyrrolidone (NMP) and nonylphenol di-ethoxilate

(NDP) were found at highest concentration in recycled paperboard. The scientists explain that bisphenol A is a contaminant of recycled fibers in contrast to nonylphenols which are added in the recycling process. In summary, recycled paper and cardboard were shown to be sources of some endocrine disrupting chemicals and may not be safe for food contact applications.



Spectro provides all the facilities to test different types of paper & packaging materials and identify the presence of contaminants in these materials. Our objective is to provide the best services in this field in order to make sure that whatever food is packed in these materials are contaminant free and can be consumed safely.

References

Research Gate

Food Packaging Forum

Food & Beverage News

Technical Showcase: FTIR

Fourier Transform Infrared Spectroscopy (FTIR) is a technique used to get an infrared spectrum of absorption, emission or Raman scattering of a solid, liquid or gas.

Fourier transform spectroscopy obtains the information about how much a sample absorbs light at each wavelength in a less intuitive way. It shines a beam consisting of several frequencies of light at once and measures how much of that beam is absorbed by sample. The beam is then modified to contain different combination of frequencies. This process is repeated many times after which a computer collects all the data to infer what absorption is at each wavelength.

Features like high signal-to-noise ratio of the spectrum, accurate wavenumber, shorter scan time, high resolution, wide scanning range and reduced interference from stray light makes FTIR more prominent.

FTIR spectrometer is broadly used in polymer science, petrochemical engineering, organic synthesis, food analysis and pharmaceutical industries for the identification and confirmation of materials like plastics and adhesives. One of the important applications of FTIR includes determination of quality of compounds used in food and cosmetics products and concentration of UV stabilizers, antioxidants or filler in plastics.



Spectro possess this high-tech instrument to serve various industries like Polymer & Rubber, Pharmaceutical, Chemical, Metal & Alloys, Food & Agriculture as well as the Quality Control Laboratories. We have FTIR Make- Agilent Technologies Model- Cary 630.

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
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)

Our Collection Centers

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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