

Tech Talk

Monthly Newsletter by Spectro Group

Director's Desk

Wish you all a very Happy New Year.

I want to take this opportunity to thank you for making our Newsletter a success. Your positive response and feedback for our Newsletter has encouraged us to start with a new volume. We are pleased to share with you the new edition of 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 underline 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 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, Certification, 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 Equipment and also deals with their sale and service setups. We are the exclusive manufacturers of equipment which include RCPT, Bomb Calorimeter, Ash Fusion Tester, Salt Spray Chamber, Proximate Analyzer, 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.

Reusing Cooking Oil: Source of TFA

National Diabetes, Obesity and Cholesterol (N-DOC) Foundation, IIT Delhi and Diabetes Foundation of India (DFI) have together conducted a study and have revealed that reusing oil in cooked food adds a heavy dosage of **trans-fatty acids (TFA)** which are considered to be the worst kind of fats and can be call out as a big health-hazard.



As per a random survey conducted on 402 women across Delhi, it was found that nearly 43.3% of the women reuse the oil more that two to three times.

Contd.

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Kuldeep Dhingra

Managing Director

CTOD Test: Another extension in our scope

Crack-Tip Opening Displacement Test is carried out to test the Fracture toughness in order to check whether a material is appropriate for strenuous working conditions or not. This method uses fatigue pre-cracked specimens. These are tested in displacement controlled monotonic loading at a constant rate of increase in stress intensity factor during the initial elastic deformation. It is practiced on those materials which undergo plastic (irreversible) deformation before undergoing failure. The testing material resembles the original one, but the dimensions can be reduced proportionally. Spectro has developed skills to carry out CTOD test efficiently as per **BS 7448-1 Standard**.

Contd. (Reusing Cooking Oil: Source of TFA)

“Most of us have a belief that in comparison to outside food, home-cooked food is health-wise safe, but considering the cooking pattern, we are in double loss,” said Dr. Anoop Mishra, chairman of N-DOC.

Expert says that TFAs are double-trouble for our heart and can cause cancer, infertility, asthma, pregnancy problems, hypertension, liver dysfunction and brain functional decline.

Dr. Swati Bhardwaj, senior Research Officer, DFI said “On refrying the oil again and again, the oil develops TFA which keeps on increasing every time the oil is used.” Accepting the fact that majority of the households can not afford to dispose away the oil once used.



For this, Dr. Bhardwaj recommended that the quantity of used oil should be very small that could be thrown away or else it can be used for preparing vegetables.



Spectro possess Gas Chromatography-Flame Ionization Detector to analyze the presence of trans-fatty acids in different Food products. We have all the facilities to test Food products (raw or cooked) to carry out several Physical, Chemical & Microbiological tests.

Acknowledgement

HealthSite.com

MayoClinic.com

Bantransfats.com

Corrosion Mechanism in Stainless Steel

Stainless steels are normally highly corrosion resistant with a gratifying performance in most environments. The resistance towards corrosion depends upon the constituent elements, resultantly particular grade reflect divergent response on exposure to corrosive environment. Thus it is essential to choose correct grade of Stainless Steel for a given application.

Pitting Corrosion: It is a localized form of corrosion that can crop up due to exposure to specific environment containing Chlorides.

Crevice Corrosion: It is initiated by the exceptionally low availability of oxygen in a crevice. The level of crevice corrosion is dependent on the geometry of the crevice, narrower and deeper the crevice, more severe is the corrosion.

Bimetallic (Galvanic) Corrosion: It may arise when the unlike metals are in contact within a common electrolyte. When the current starts flowing, the less noble metal starts corroding very swiftly.

Intergranular Attack & Weld Decay: On prolonged heating between 450-850°C, the carbon in the steel, disperse to the grain boundaries and precipitates chromium carbide.



It results in the removal of chromium from the solid solution and dispenses chromium content adjoining to the grain boundaries, which becomes prone to attacks on getting exposed to corrosive environment.

Acknowledgement

British Stainless Steel Association

Boselon.com

Spectro serves various industries by providing best-of-services in Corrosion testing. We own a team of well-experienced professionals to carry out related testing for metals and alloys

Major Corrosion Tests we conduct:

- ☐ Cyclic Corrosion Test started as per International Standards
- ☐ Hydrogen-Induced Cracking (HIC) Test, NACE TMO284
- ☐ Salt Spray (Neutral / Fog), ASTM B117
- ☐ Copper Accelerated Acetic Acid Salt Spray (CASS) Test
- ☐ Inter Granular Corrosion Test, ASTM A 262
- ☐ Sulfide Stress Corrosion Cracking (SSCC), NACE TM 0177

Technical Showcase: LC-MS/MS

Liquid Chromatography-Tandem Mass Spectrometry is a very powerful analytical technique which is a combined form of Liquid Chromatography with the Triple Quadrupole Mass Spectrometry. LC-MS/MS has become the most prevalent hyphenated techniques providing accurate confirmation and quantification of trace level analytes in a complex matrix.

LC-MS/MS works on the principle of fragmenting the charged ions and detecting the resulting fragments because of which it possess high sensitivity and selectivity which makes it effective and useful in purity studies of drugs.

LC-MS/MS is widely used for proteomic analysis of complex samples where there is a chance of peptide masses to get overlap with high resolution mass spectrometer.



This instrument is broadly used in pharmacokinetic studies of pharmaceuticals. It is used for non-volatile compounds, amino acids, vitamins, proteins, peptides and residue analysis for pesticides, mycotoxins, etc.

Spectro possess this high-tech instrument to carry out related testing in different food products and water samples. Moreover, we also carry out tests for Phthalates, Azo dyes, Brominated compounds, Aflatoxins, Dioxins, Pesticide Residues, etc. We have LC-MS/MS Make: Agilent Technologies Model: 6410 Triple Quadrupole.

Major Activities

Testing

Calibration

Training

Inspection

Clean Room Validation

R&D

- Ü Metals & Alloys
- Ü Food and Agro Products
- Ü Electrical & Electronics
- Ü Rubber & Polymers
- Ü Coal Solid Fuels & Petroleum
- Ü NDT
- Ü Building Materials
- Ü Leather & Textiles
- Ü Paper & Packaging Materials
- Ü Hazardous Substances
- Ü Water & Environment
- Ü Minerals & Chemicals

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.)

Rajkot (Gujarat)

Durgapur (West Bengal)

Jaisalmer (Rajasthan)

Hyderabad (Telangana)

Roorkee (Uttarakhand)



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

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