

NEWSLETTER

LPD Lab Services

TEL: +44 (0)1254 676 074

One-Stop Shop for Industrial Process Problem Solving, Consulting and Routine Analysis

Welcome to the autumn edition of LPD Lab Services newsletter. LPD have continued building throughout 2018 and have been extending services, brought in new clients and resolved some fascinating problems. Over this year LPD have developed the laboratory and invested in new infrastructure enhancing the laboratory environment. LPD's technical delivery and reputation for solving problems continues to grow and results allowed a further investment in technical expertise and equipment capability.

This has involved recruiting an Analytical Inorganic Chemist, Mike O'Hare and also the purchase a couple of new analytical systems. First is a Pyrolyser working with our GS-MS for improved organic, polymer and rubber analysis and secondly a Potentiostat instrument for electrochemical analysis aimed at corrosion problem solving and assessing coating protection.

Mike O'Hare – Analytical Inorganic Chemist

In July 2018, Mike O'Hare joined the company as an Analytical Inorganic Chemist. He brings 30 years of analytical experience and his main responsibilities are chemical determination using techniques such as AAS, ICP-MS, IC, UV/Vis, pH, wet chemical analysis and gravimetric analysis. He has a hands-on approach and is involved in customer troubleshooting, quantitative and qualitative analysis.

Mike also brings a skilful resource to a growing trend in volume routine rapid turnaround inorganic analysis. Mike studied material science and obtained an HND from Manchester Polytechnic. He has spent most of his career working in chemicals, pigments and metals working across rheology, chemical analysis, mechanical testing and SEM. This wealth and depth of experience builds on the capabilities of the growing LPD Lab Services staff and consultants.



New Laboratory Equipment and Service – Pyrolysis GC-MS

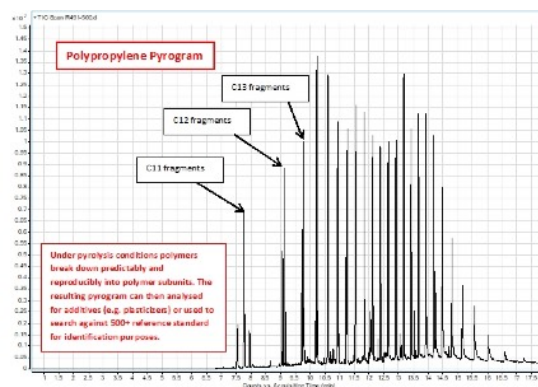
Looking at the challenges LPD Lab Services constantly face in pushing the boundaries of organics, polymers and rubbers, particularly in complex degradant cases of analysis and sample preparation, LPD have now invested in a Pyroprobe 5200 pyrolyser which directly links up to the GC-MS instrumentation coupled with expanding organic mass spectra databases.

Our in-house expert Dr Adam May commented "I have used pyrolysis GCMS for many years and this system now provides a nationally unique capability. The pyrolysis instrument will be the only system outside of academic institutions delivering commercial characterisation and analysis!"

So why is pyrolysis going to help with our client investigations?



This hybrid technique links a pyrolyser to a GC-MS allowing direct sample preparation and injection into the GC-MS. The process, put simply will break apart large, complex organic molecules into smaller,



more analytically useful characteristic fragments by the application of heat from room temperature to 1400°C in a controlled environment with the absence of oxygen allowing volatile species and additives to be assessed.

This new technique eliminates the need for complex derivitisation or solvent extraction steps and clarifies interpretation. Our consultancy services provides an in-depth evaluation of results and recommendations to improve customer's products and processes. Pyrolysis GC-MS technique is now in service and can be applied to various applications such as Polymers and Plastics, Hydrogenation of Vegetable oil or Crude oil, Paint, Adhesives, Tapes, Caulking, Food Packaging, Rubber, Elastomers, Resins, Paper, Inks and coatings. For more details on how the Pyrolysis GC-MS can be used for your product please contact Mike Ellicott or Dr Steve Jenkins.

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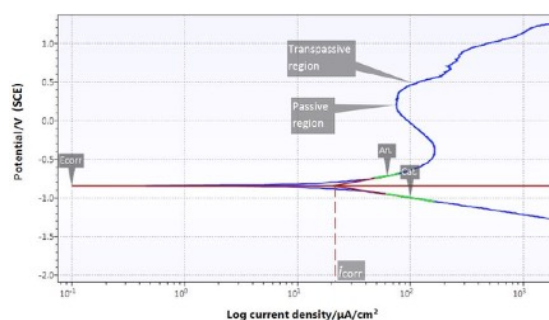
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New Laboratory Equipment and Services – Potentiostat instrument for Electrochemical Analysis

LPD Lab Services have also invested in a Potentiostat instrument which can be operated in Potentiostat or galvanostatic or impedance modes to expand the scope of metallurgy analysis and corrosion investigation services.

LPD have experts in Metallurgy in-house who already provide a wide variety of services like alloy compositional analysis, Tensile testing, Metallography, SEM-EDX, Optical Microscopy, XRF, Hardness testing and Failure analysis.



As case examples, in potentiostatic mode, the lab has assessed different anodised layers on aluminium and their effectiveness of sealing this corrosion protective processes. The potentiostat electrochemically has been used to compare the likelihood of 2 stainless steels to pit. Synthetic sea water was used as the electrolyte. The results provided a quantitative assessment of the passivity of the coatings and a measure of their resistance to a salt water environment, corrosion rates and time to failure can be measured.



Material systems can be checked where dissimilar materials or plating systems are at risk of galvanic corrosion too. This technique and process allow LPD Lab Services to support client's projects with direct comparisons for future process developments or assess process modifications and improvements.

The LPD Lab Services website now has been updated with details on each of the techniques, applications and new staff. For more details click through to the website LPD Lab Services Techniques.

LPD Lab Services – Outsourced Development / R&D labs, the Future is Bright

A common complaint across many industries is finding R&D and development groups under resourced and poorly invested! No more, LPD Lab Services have generated a new business model allowing clients to outsource some or all of the function. LPD Lab Services have created a new business model allowing clients to outsource projects; part or all of their Development / R&D function. Our service offers independent product assessment, routine analysis and technical consultancy. In-house, we have many years practical experience in supporting New Product Development using analytical evidence, developing IP and competitive advantage plus technical problem solving to the required quality standards and all for the client's exclusive use.

Case study: Project to Investigate Process and Product Failures

LPD was approached to provide analytical consultancy and technical expertise in the product manufacture of a high value metal product. The manufacturing site chosen to deliver the product had quality issues with a high failure rate across the product surface and within its core. The reject rates were greater than 10%, customer returns were being driven by the unique selling point and design of the product. The manufacturing site is based outside the UK and little detail was known about the actual manufacturing process.

LPD undertook the project with little process information and had to establish the failure mechanisms within the product itself. The analytical evidence was developed and generated by failure type pareto studies, optical microscopy and SEM/EDX so the primary mechanisms for the product failure and surface fracturing were understood. LPD provided a pragmatic process manufacturing improvement plan, devised and rolled out simple quality control checks allowing the product to be manufactured with a far lower failure rate and a product that met the market requirements.

Confidentially, capability and credibility are key to our success at delivering R&D / Development projects. To understand more about functional outsourcing or technical project management or analytical testing capability please visit our website www.lpdlabservices.co.uk or you could call us on 01254 676074 and discuss the problem/technique. Alternatively, you could arrange to meet the team and see the laboratory located in Blackburn, Lancashire