

NEWSLETTER

LPD Lab Services

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

Welcome to LPD Lab Services' Autumn 2014 newsletter in which we cover topics from Corrosion Investigations, increase of our SEM capacity plus Failure Analysis, Quality Improvement and Competitor Reverse Engineering.

Please feel free to contact the office should you wish to discuss any of these, or indeed any other topic. Our friendly team of staff are always at hand to answer any of your questions.

Corrosion Investigations

Corrosion, degradation and oxidation is a very common cause of failure of components. Metallic corrosion takes many forms, for example: pitting, uniform, underfilm or galvanic, resulting in sometimes unexpected failures. Corrosion can vary greatly depending on the material, environment and component assembly.

At LPD, we have extensive experience in analysing the corrosion related failures. A combination of optical and scanning electron microscopy (SEM) with EDX elemental analysis and surface analysis, such as XPS and SIMS, can provide both a deep understanding of the problem and identify causes. Once the corrosion problem is understood advice can be given to the customer on possible preventive measures.

LPD Lab Services Invest in a 2nd Scanning Electron Microscope



LPD Lab Services have taken delivery of a second SEM instrument to increase the laboratory's analytical and technical consultancy capacity. The amount and complexity of problem solving and investigation work the company has been conducting has been steadily increasing, so as a critical materials analytical tool to best respond to customer demand, a newer FEI XL30 has been purchased. This allows interchange of samples between the laboratory's 2 instruments with the possibility of now analysing even thicker specimens than currently possible with the original LaB6 instrument. The new instrument uses a tungsten filament so cannot quite achieve the low accelerating voltage resolution performance of the original XL30, but otherwise is as capable in every respect including EDX chemical analysis and backscattered electron imaging.

Coupled with additional optical microscopy capabilities and the fact that the lab has 3 members of technical staff who are all experienced in SEM/EDX means the company can be more responsive and flexible tackling a greater number of projects in parallel.



Corrosion in reinforced concrete near sea defences.

Failure Analysis, Quality Improvement and Competitor Reverse Engineering

The laboratory is normally called upon to apply their manufacturing experience and analytical techniques to determine the cause of complex production problems, quality issues, product field returns or sticking points in product or process development and industrialisation. Failure analysis can be conducted on complex assemblies of sub-components or chemical formulations. If there is a change point where a problem switched on or off, root cause investigations are best conducted as a paired good / bad comparison as this allows concentration of efforts on key factors or interactions. In this case the laboratory can advise on the appropriate choice of samples.

Reverse engineering techniques can be applied by the lab to customer's own products to investigate unusual failures and also help remove some of the 'black art' in processing to then drive product development forward. Equally this approach can be used to uncover competitor product manufacturing steps for application or adapting in the customer's products to improve quality or reduce manufacturing costs.

Close co-operation between the client and lab staff allows time and cost efficient building on the customer's internal technical experience. Clear communication ensures the customers can take advantage of the laboratory's pragmatic advice.

Contact Us

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