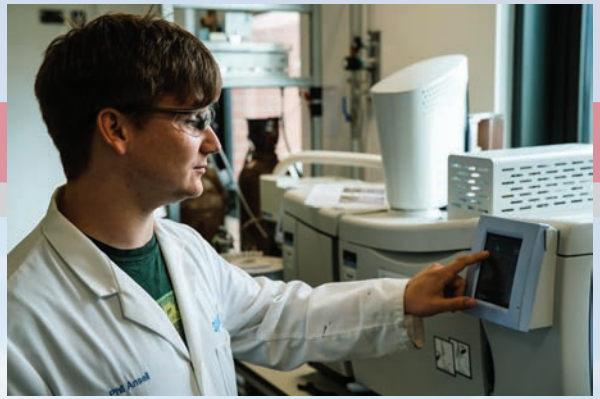
MATERIALS AND MANUFACTURING ACADEMY

# Coatings to Prevent Corrosion

**- PHIL ANSELL**



Before I started the EngD I was working in Cardiff Bay in the service industry as a bar man, a supervisor, barista, chef and pot wash. Anything to keep my self-engaged and prevent myself falling into a boredom induced bouts of depression. I found this role to be personally dissatisfying as a graduate with a 2.1 BSc in chemistry and few employment prospects in relevant industries within the region.

Having completed an MRes and an EngD within the Materials Academy, I have recently moved into a new job as AkzoNobel sponsored technology transfer fellow in Swansea University. AkzoNobel, the industry sponsors of my EngD, is one of the top coatings producers in the world and a major manufacturer of specialist chemicals. It is now my role to manage the technical relationship between AkzoNobel and Swansea University. This involves thinking of innovative new ideas and avenues of research to pursue which will lead to new globally leading coatings to prevent corrosion, and overseeing existing and future research projects within the materials academy which compliment AkzoNobel's planet possibleTM approach to sustainability. My research aims to develop green, environmentally friendly and sustainable alternative coating additives which replace the toxic, carcinogenic and environmental damaging additives currently used in coatings for corrosion inhibition. I am also responsible for training and maintaining specialist analytical devises which were designed and built by Swansea University. This role I find to be extremely interesting and engaging. It not only allows me to build on the research and expertise developed during my EngD which is academically stimulating whilst enabling me to contribute to solving real world environmental problems, but also enables me to affect the people pipeline by bringing new EngD graduates through the M2A scheme on AkzoNobel sponsored projects to create more doctoral graduates with the skills to support much needed change through collaborative R&I with industry.

Through my EngD I have developed a myriad of transferable skills and specialised knowledge which have made me much more employable, and suited to the highly skilled position I now hold. The EngD involved taught modules with include specialised technical subjects targeted for my research project (e.g. Steel Processing Technology, Corrosion and Coating, Advanced Steel Metallurgy and Electrochemistry) as well as modules focused on continual professional development (e.g. Interpersonal Skills for Engineers, Financial Issues for Management, Investment Appraisal in Engineering and Ethics in Engineering). Also working closely with industry in academia on prevalent industrial problems has given me real world problem solving skills alongside an academic depth of knowledge. Upon completing my EngD I was head hunted for three jobs in engineering fields. I was delighted to have so many fantastic employment options which came as a direct result of my participation in the materials academy EngD scheme. I was delighted to accept my current role as my favourite option (although the lowest paid one!) because of my passion and interest for the research I began in my EngD and continue to pursue on behalf of AkzoNobel.

The scheme has changed my life entirely. I am now a world leading expert in corrosion and electrochemistry. I have spoken at an international world leading corrosion conferences on the research I conducted throughout my EngD. I am most proud of the positive environmental impacts which my research in anti-corrosion will bring and my contribution to a solution to a critical global industrial problem i.e. the inhibition of corrosion without toxic and non-REACH compliant inhibitors. Corrosion related issues cost 5% of the worlds GDP. Using our materials efficiently, particularly metals is a global sustainability issue. Achieving longevity for metal products through corrosion inhibition is therefore essential for global sustainability. The most widespread and effective corrosion inhibitor to date is toxic, carcinogenic and environmentally damaging. The REACH directive has prohibited it use and rightly so.

**During my EngD research I have developed and tested several viable, green, sustainable and environmentally friendly replacements. I am also proud of the 3rd year students which I had the privilege of mentoring.**

Swansea University
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