



## Looking East in 2011

2011 has, so far, been an exciting year for Innoval Technology. In January we were very pleased to announce that 2010 had been a profitable year, despite it being a challenging one for the industry.

This was swiftly followed by a new addition to Innoval Technology's Board when Rod Jones joined as a non-executive Director following his recent retirement from Rio Tinto Alcan. Rod's wealth of experience from his career in the global aluminium industry is proving invaluable to us as we look at new opportunities to grow the business.



Welcoming Rod Jones to Innoval Technology

As we develop our new 5-year Business plan, 'Growth' has certainly been at the forefront of our minds. We are anticipating an increase in demand for our services, primarily from sales to Rolled Product manufacturing companies worldwide, including from emerging regions such as China and South America, and from industry investors.

2011 has seen the company expand in three different areas: Products, Markets and People. Firstly, after several years of development, I'm delighted to announce the arrival of our Process Models. We've drawn upon the many years of process and materials expertise within Innoval Technology to create a suite of models which can be used to optimise almost every aspect of aluminium rolling. You can find more about all five process models later in this newsletter.

With its rapidly expanding aluminium industry, China is becoming an important new market for us. Earlier this year we spent a considerable amount of time translating the material from our Aluminium Rolling Technology Course into Simplified Chinese. It was then used to successfully train two groups of employees at Asia Aluminum Group, one of the largest fabricated aluminium manufacturers in China. We are considering running an 'open' course in China. If this is of interest to you, please get in touch.

With the aim of further increasing awareness of Innoval Technology within the Chinese market, in July we attended Aluminium China in Shanghai. We were pleasantly surprised at the number of visitors to our booth (shown above), and

I'd like to thank everyone who took the time to stop by.



Senior Process Engineer and foil specialist Vicente Martin

Finally, we've added two more people to our team. Sally Barlow has joined our Administration team and is working alongside Catherine Sparks. Many people may remember Sally from Alcan's Banbury Laboratory. To support the growing demand for our services, we have started to recruit experienced practitioners to add to Innoval Technology's unique breadth of experience. Vicente Martin joins our Process Improvement team from Inasa Foil in Spain, and he will work alongside Dan Miller and Kyle Smith on rolling projects.

Dr Tom Farley  
Managing Director, Innoval Technology Ltd

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# Surface Studies at Meyer Aluminium

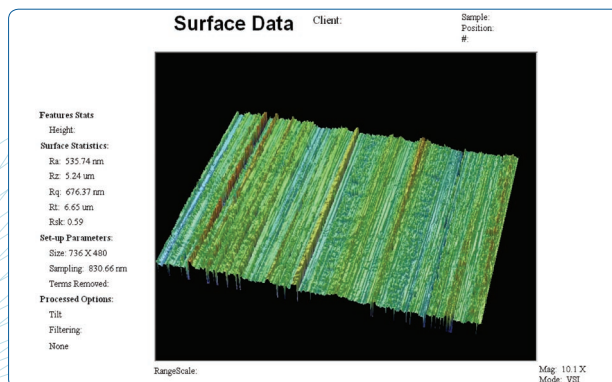
# MEYER

Meyer Aluminium Ltd (Meyer) is the world's largest producer of aluminium circles, with sales in more than 40 countries. Circles account for approximately 85% of the company's output and they are widely used in applications such as cookware, reflectors and ventilation.

Meyer, which operates rolling mills in both Hong Kong and Thailand, wanted to improve quality through improving their in-house roll grinding facility. They had already acquired a good quality 2nd-hand roll grinding machine, but needed assistance in ensuring the foundation was correctly designed to avoid the all-too-frequent problems with resonant vibrations. Meyer also wanted to ensure good operating practices were developed for the grinding process.

During the first phase of this project Mark Foster, a surfaces and lubrication expert from our Materials Development team, led a visit to Meyer's plant in Hong Kong, together with one of Univib's vibration experts. They assessed potential locations for the new grinder, and discussed the specifications for both the existing and the new grinders. Mark and the team also observed the roll grinding operation and made a record of the grinding practices. Roll replicas were taken during the grinding of a cold mill work roll to trace the development of the surface topography. These replicas were then examined by our labs in Banbury.

The vibration analysis ensured that the grinder was placed in a suitable location. It is now working successfully and has achieved the objectives Meyer set for it. Mark's observations, together with discussions on the requirements for future products, complemented the replica analysis. Mark was also able to make valuable



Data from the roll replicas were analysed using a Wyko interferometric optical device to calculate surface roughness parameters and to determine how these changed during the grinding process

suggestions for the operating practices on the new and existing grinder.

Kenneth Yuen, Meyer's Technical Manager, had this to say about the project:

"The roll replicas gave us some valuable information about our grinding process. These, together with the other recommendations, have enabled us to significantly improve our grinding operating practices. I'm very happy with the outcome of this project and we will continue to work with Innoval in the future."

The image on page 1 shows a hydroformed reflector for a street light manufactured using sheets from Meyer Aluminium.

Mark Foster can be contacted at [mark.foster@innovaltec.com](mailto:mark.foster@innovaltec.com)



Hard-anodized cookware products manufactured using circles from Meyer Aluminium

## Technical Audits for Hypo Alpe Adria

Hypo Alpe Adria is an international banking and financial services group with locations in 12 countries throughout the Alps-Adriatic region of Europe. It has been in existence for more than 110 years, employs around 8,000 people and serves more than 1.2 million customers.

The Mergers and Acquisitions division of Hypo Alpe Adria approached Innoval Technology to carry out technical audits on a rolling facility and a group of packaging plants in Croatia and Poland. Following visits to each factory, we gave our expert opinion on the technical standard and competitiveness of each plant, as well as advice on a series of proposed investments.

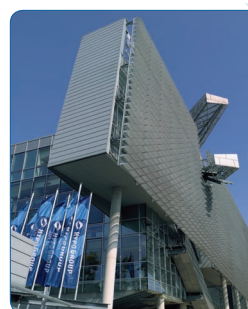
Alexander Nikolic, Senior Project Manager for Mergers & Acquisitions at Hypo Alpe Adria, comments:

"We approached Innoval Technology because we needed an independent assessment by a team of experts who could completely understand the equipment and the products. The technical audits were carried out quickly and efficiently by four of Innoval's consultants over the space of two weeks. Their advice and opinions enabled us to make our decisions with confidence."

For more information about our Technical Due Diligence services, please contact Dr Gary Mahon at [gary.mahon@innovaltec.com](mailto:gary.mahon@innovaltec.com)



**HYPO ALPE ADRIA**  
SUPPORTIVE. FRIENDLY. FAIR.



Hypo Alpe Adria's Headquarters in Klagenfurt am Wörthersee, Austria.



Foil lacquering observed during the audit.

# Introducing our New Process Models!

Since Innoval Technology began, over eight years ago, one of our goals has been to generate our own intellectual property from the vast knowledge and experience that resides within the company.

We decided to develop a suite of Process Models to take advantage of the unique breadth of process experience, product expertise and understanding of aluminium metallurgy that is at our disposal.

From the start, it was important for us to make the models very easy to use and, as you can see from the 'input' screen to the right, this is certainly the case. In terms of performance, we believe they are the most accurate available to the aluminium rolling industry today. We hope that, with our Process Models, optimising the rolling process to increase productivity, improve quality or save energy will now become much quicker and simpler.

At present, there are five models available:

**The Innoval Rolling Model** is a physics-based model which predicts rolling loads, motor power and torque, roll gap friction, strip and roll temperatures and rolling productivity.

**The Innoval Ingot Preheating Model** is also a physics-based model which predicts the internal temperatures at any location inside any ingot during the preheating operation. Typically this model is used to reduce process energy consumption.

**The Innoval Coil Heating & Cooling Models** are similar to the Ingot Preheating Model in that they predict the temperature at any location inside the coil resulting from the application of a heating or a cooling gas flow over the coil's surface.

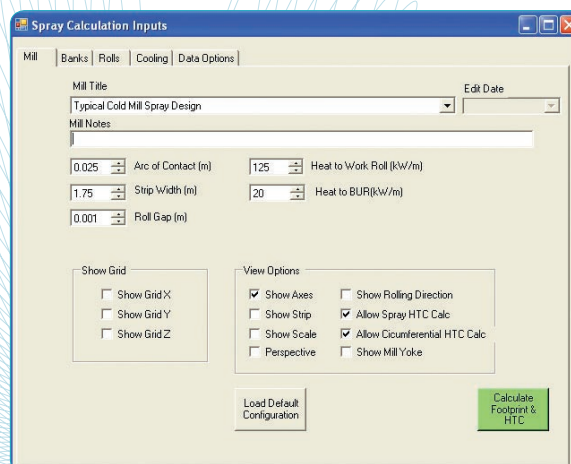
**The Innoval Spray Impact Model** contains all the key understanding to design efficient spray cooling systems to cool the rolls in any hot or cold rolling mill.

**The Innoval Mill Vibration Model** is a finite element-based model that uses available mill data to predict all the key natural resonant modes of vibration of any rolling mill.

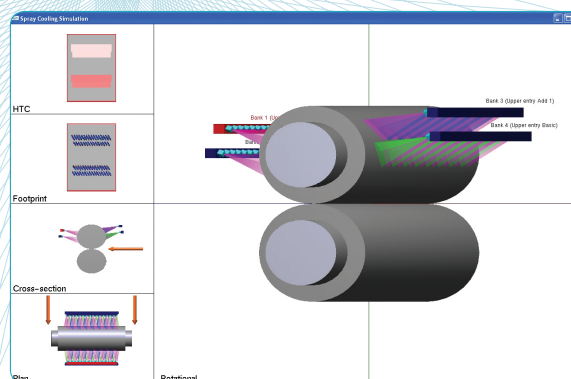
"We have used Innoval rolling expertise and process models for various R&D projects. The support we received from Innoval's engineers was excellent."

Bruno Magnin, Research Unit Manager Rolling & Finishing, Constellium, Centre de Recherches de Voreppe, France.

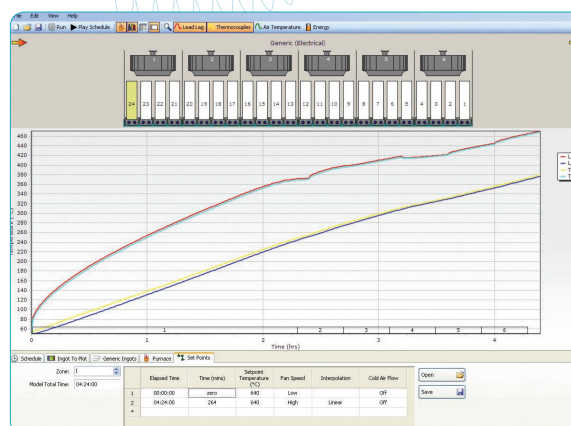
For more information about any of these models, please contact Dr Tom Farley at [tom.farley@innovaltec.com](mailto:tom.farley@innovaltec.com)



Spray Calculation Inputs from the Innoval Spray Impact Model



One of several Output screens from the Innoval Spray Impact Model



Output data from the Innoval Ingot Preheating Model

## Aluminium Rolling Technology Course

14-18 May 2012

12-16 November 2012

[http://www.innovatec.com/rolling\\_tech.htm](http://www.innovatec.com/rolling_tech.htm)



# Cutting-Edge Technique Sheds New Light on Surfaces

Innoval Technology's Materials Team have developed a new analytical technique for measuring oxide growth on the surface of metals and plastics.

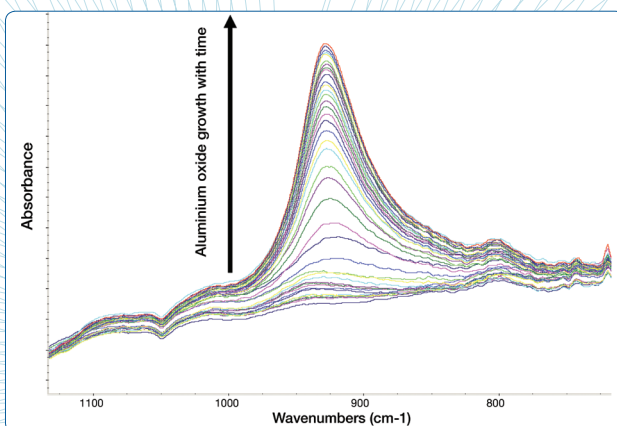
The new technique, called Environmental FT-IR, shows how a material's surface alters as the temperature changes. The specialised equipment, a modified FT-IR spectrometer, allows a sample to be heated within a controlled environment and changes to the surface observed in real time.

The technique gives valuable information about the

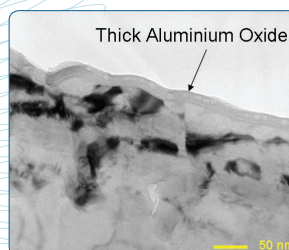
composition of oxides and their formation kinetics, both of which can affect how a surface performs.

So far, our Environmental FT-IR has proven beneficial to the aluminium heat exchanger industry where it has demonstrated how the surfaces of different alloys behave during the brazing process. We are expecting this ground-breaking technique to prove equally useful to automotive sheet manufacturers, and the aluminium industry in general.

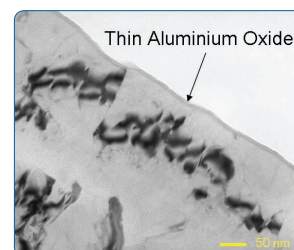
For more information about Environmental FT-IR, and to request a research paper on the technique, please contact Alan Gray at [alan.gray@innovaltec.com](mailto:alan.gray@innovaltec.com)



Oxide growth on super purity aluminium



Thick Aluminium Oxide

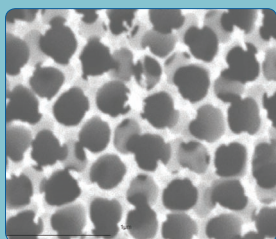


Thin Aluminium Oxide

Transmission electron micrographs of oxide layers

## More News ... More News ... More News ...

### Innoval Technology leads Work Package in EU FP7 Collaborative Project



INCAS (Integration of Nanoreactor and multisite Catalysis for a Sustainable chemical production) is a 4 year EU-supported project with a total value in excess of 8.5m Euros which aims to develop new and environmentally-friendly industrial catalyst systems. A key part of the project is the development and assessment of anodised aluminium substrates. Innoval Technology is providing expertise on anodic alumina membrane technology, as well as creating small scale facilities for membrane assessment and development by the project partners.

Managed by the European Research Institute of Catalysis in Brussels, the partnership includes European academic centres of excellence at the universities of Messina, Eindhoven, Munich and Valencia as well as leading industrialists from the world of catalyst synthesis and engineering (Shell, Bayer, Hybrid Catalysis, Sasol and Repsol). Financial support from the EU FP7 programme for this project (NMP2-LA2010-245988) is gratefully acknowledged.

For more information about this project, visit [www.incasproject.eu](http://www.incasproject.eu) or contact Eoghan McAlpine at [eoghan.mcalpine@innovaltec.com](mailto:eoghan.mcalpine@innovaltec.com).

### Double Sales for Diamond Mill

You may remember in issue 5 of 'innform' we introduced our collaboration with Danieli. Innoval Technology supplies technical know-how and industry expertise to their 'Diamond Mill' technology.

Recently Danieli announced two sales of their Diamond Mill, which sees the company making a spectacular entry into the aluminium rolling mill market. A four-high cold mill has been sold to Thailand-based Nikkei Siam Aluminium Ltd, and a six-high cold mill will be installed at Aleris in Belgium. We are looking forward to supporting Danieli to ensure the fast, trouble-free start-up of both mills.

