

## Proud of our illustrious heritage

Innoval Technology was formed in 2003 following the closure of Alcan's Banbury Technical Centre. 'Banbury Laboratories', as it was known, was responsible for some of the most significant technological developments in aluminium, including the leading aluminium automotive sheet technology used by Jaguar and Ford.

A group of ex-employees led by Peter Band, himself a former Technical Director of Banbury Laboratories, has compiled a series of essays documenting the achievements emanating from seven decades of research and development. *Recollections* is an attempt to record aspects of the life and work at the Banbury Laboratories as told by scientists and engineers who spent some or all of their working careers in Banbury. This fascinating document recounts Innoval's heritage and there are several contributions from our current team, including Geoff Scamans, Dan Miller and myself.



The modern-day aluminium Jaguar F-Type

an independent company with no Alcan ownership. One of the things that really makes Innoval stand out from other process support providers is the breadth of our rolling and rolled product expertise, and we have Banbury Laboratories to thank for that. When the labs closed in 2003, the majority of the rolling team joined Innoval, which means our engineers have been working in World-Class mills all over the globe for decades. Furthermore, several of our engineers are also metallurgists with a wealth of downstream product knowledge in, for example, automotive sheet.

industry. Through Innovate UK, formerly the UK Government's Technology Strategy Board, and in collaboration with companies such as Constellium, Novelis and Jaguar Land Rover, we are leading the way on development projects to increase the use of aluminium in automotive applications. We already have a huge amount of experience in this industry, again thanks to Banbury Laboratories, so we have developed a unique training package to support sheet suppliers wanting to make the move into automotive. You can read more about this on page 4.

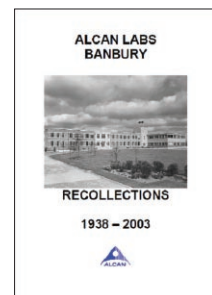
*Recollections* is available to read via Innoval's web site and I'd thoroughly recommend it.



Early Banbury project with Bertone Fiat on an aluminium X19 (1986)

*Recollections* describes the final days of Banbury Laboratories and the subsequent emergence of Innoval Technology as

We have been building on our heritage and this, combined with our new and growing expertise, enables us to meet the challenges of today's aluminium



Recollections: 65 years of aluminium research

Dr Tom Farley,  
Managing Director, Innoval Technology Ltd

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# Training & Problem Solving in 4 days at ACCH



Aluminium Chue Chin Hua Co., Ltd, located near Bangkok, Thailand, produces aluminium raw material to support Chue Chin Hua Group's production of finished consumer and industrial products.

The Chue Chin Hua Group is one of the leading kitchenware manufacturers in Thailand, producing under the trade name of "Crocodile". In addition, the company supplies aluminium coil and flat sheet products for various industries. In October Dan Miller and Vicente Martin visited the plant near Bangkok to provide training on various topics from continuous casting through to finishing. The training also included six workshops relating to process and product related difficulties, the exact topics of which were chosen by the plant at the start of the visit.

Once Dan and Vicente had completed a tour, Dan facilitated a session containing both managers and plant personnel to select which issues were most important and should therefore be featured in the six problem-solving workshops. At the end of the first day, the subjects of the workshops having been decided, Dan and Vicente modified their training materials to suit.



Dan Miller leading one of the shop floor workshops (both pictures)

The next day the 40 participants were split into two groups; one which would focus on the process with Dan, and one which would focus on the products with Vicente. The group then took part in ten lectures and six workshops in parallel sessions, with translation. Each workshop centred around a problem which Dan and Vicente helped the team to solve, as well as teaching them valuable problem-solving techniques. The team then presented their findings, including an action plan, to the rest of the delegates.



On the final day, Dan and Vicente presented their recommendations from the plant tour and the workshops, as well as commenting on the skill levels of the participants, to the Management team.

"I was very impressed by the amount of material covered by Vicente and Dan in such a short period of time. Not only did they train 40 people, they also managed to solve, or start us on the path to solving, six of our biggest issues."

says Prasan Yai-on, Purchasing Manager and the person responsible for this project at Aluminium Chue Chin Hua Co., Ltd

For more information about our process support services please contact Dr. Tom Farley at [tom.farley@innovaltec.com](mailto:tom.farley@innovaltec.com)

## Refurbished Mill Completes Off-line Capabilities

As a result of a collaboration between ourselves, Timesync Controls Ltd, and Imperial College, London, the cold mill at Imperial College has been fully refurbished.

This 2-high mill, complete with coiler/decoiler and full instrumentation, is capable of rolling thin gauge material to less than 100 microns. It is a unique resource in the UK and can be used to support development of the Innoval Rolling Model. The mill is also a vital part of the alloy development work we do for our clients as it's the final step in our off-line sheet processing route which is managed by Richard Keyte:



This particular route, from casting to mechanical property measurement, takes between four and six weeks based upon around six alloy variants.



Richard Keyte and colleague casting into book moulds

To find out more about our off-line processing please contact Richard Keyte at [richard.keyte@innovaltec.com](mailto:richard.keyte@innovaltec.com)



# Product and Process Expertise at Xiashun Aluminium Foil Co., Ltd



厦门厦顺铝箔有限公司  
Xiamen Xiashun Aluminium Foil Co., Ltd.

Based in Xiamen, China, Xiashun Aluminium Foil Co., Ltd (Xiashun) is the largest manufacturer of light-gauge aluminium foil in China and is a global industry leader. Customers use their light-gauge aluminium foil in a wide variety of consumer products from beverages to cigarettes.

Following a successful R&D project, a global manufacturer of aseptic carton packaging introduced us to Xiashun, one of their biggest suppliers of aluminium foil. Xiashun wanted to take advantage of the huge amount of foil rolling and product expertise within Innoval to find innovative ways to differentiate an already excellent product and stand ahead of the competition.

Because of the breadth of aluminium expertise within Innoval, which includes process engineering, process modelling, surfaces and coatings technology and metallurgy (to name a few), we're able to employ multi-disciplinary teams to help our clients. This way, advice can be given on both the process and the products, often from the customer's perspective.



Colin leads a training session in the laboratory

Earlier this year Vicente Martin, a metallurgist and foil rolling expert, and Colin Butler, our polymer expert, visited the Xiashun foil plant to audit the rolling process and support laboratory. The two aims of the visit were to suggest ways to further enhance Xiashun's rolling capability and to demonstrate methods to improve knowledge of the foil surface structure and its behaviour in finished products.

Suggestions made during and after the visit allowed Xiashun to make immediate modifications that will be of long term benefit to both them and their customers. One such modification was an upgrade to laboratory equipment that is providing Xiashun with new insights into their process and products.

Grace Jiang, Senior Manager, Continuous Improvement Dept, Xiashun Aluminium Foil Co., Ltd commented:

"Between them, Colin and Vicente have a huge amount of experience both in foil production and end-use requirements. Because they've worked with our customer they really understand our product and we were able to use this knowledge to further improve our process and train our people."



The slitting and separating process



Rolls of aluminium foil at Xiashun

## New! Innoval's Melt Make-Up Model

Our new Melt Make-Up Model gives compositional accuracy at the lowest cost.

The model takes the full compositions of both hardener and pig metal, together with the size of the melt and the desired composition, to tell you, via multiple iterations, the additions required. It takes into account all trace elements in the hardener bars, thereby reducing the quantities required, and it can also cope with a part-scrap charge.

Andy Darby originally developed the Melt Make-Up Model to support our off-line experimental capabilities. We've used it ourselves many times, and compositional cross checks have shown the model to be very accurate. Furthermore, because it accounts for trace elements, it has saved us money too.

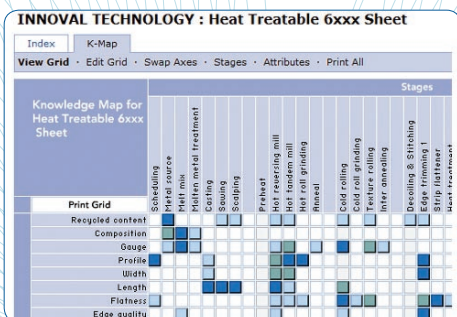
It's such a useful tool that we've decided to offer it to our clients. If you'd like further information, please contact Andy Darby at [andy.darby@innovaltec.com](mailto:andy.darby@innovaltec.com)



# Automotive Sheet Knowledge Transfer & Training Package

Innoval Technology has decades of experience in the field of automotive sheet and extrusions, with the direct participation by our staff in the development and industrialisation of much of the automotive sheet technology in use today.

Recognising that the production of automotive sheet may be a new venture for many aluminium companies, we have created a package that gives clients access to our decades of experience, so that they can produce world-class automotive sheet as quickly as possible. It is made up of two parts:



Part of a K-Map for 6xxx automotive sheet

## Automotive Sheet Knowledge Map (K-Map)

A K-Map holds a wealth of information that is easily accessible. It is a software product consisting of a matrix which explores the relationship between process stages and product attributes. We create a K-Map specific to the client's process route and we populate it with our knowledge of automotive sheet production, including quality checks and specifications. Because each K-Map is unique to the client, it will also contain detailed information about their equipment and processing parameters.

## 3 day Automotive Sheet Training Course

This 3-day training course goes hand-in-hand with the K-Map. It serves as an introduction to automotive sheet manufacture for companies who are new to this product. A typical agenda is shown in the table below.



Jaguar XE monocoque BIW

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MA'ADEN ALUMINIUM

ALCOA | MA'ADEN

Ma'aden Aluminium recently employed our Automotive Sheet Knowledge Transfer & Training Package to assist with the commissioning and start-up of their new automotive sheet rolling mill in Saudi Arabia.

Time	DAY 1	DAY 2	DAY 3
09.00-09.30	Introduction to Innoval Technology	The OEM Supply Chain	Automotive Alloys & Property Control  Lab Testing/Slitting/Pack & Ship
09.30-11.30	Introduction to Aluminium	Aluminium Intensive Vehicle Manufacture	
11.30-12.30	Aluminium in Automotive	Introduction to K-Maps	
12.00-13.00	LUNCH	LUNCH	LUNCH
13.00-14.30	Metallurgy Overview	Customer Attributes & Stages	K-Map Training (for Administrators Only)
14.30-15.30	Surfaces & Corrosion Overview	Control of Surface Attributes	

If you'd like to know more about this training package, please contact Helen Forrest at [helen.forrest@innovaltec.com](mailto:helen.forrest@innovaltec.com)

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

### Introducing two more new recruits



Ceri Williams

Ceri Williams studied at the University of Oxford where she obtained a degree in Materials Science and a D.Phil. in Metallurgy. She also held a Post-Doc position in the Department of Materials working on nano-materials. Ceri joins us from Intel in Ireland and is now part of our Materials Development team.

Mark Rewaj joins us from Asia Aluminium in China where, as Production Manager, he helped to get all operations up and running from remelting through to finishing. Previous to this, for 20 years Mark worked at Alcan Rogerstone where he was responsible for hot and cold rolling. He was also plant Technical Manager for two years.



Mark Rewaj