



Rolled products offer new growth opportunities

The last four years have been an exciting time for Innoval Technology. We've seen our customer base double in size every year, and our turnover with new customers increase six fold compared with our first year. We've done business in 18 countries, and we count some of the world's best known companies as our clients.

The company itself has evolved into four distinct areas of Materials Development, Process Improvement, Product & Process Training and Best Practice Tools, which we combine to offer unrivalled knowledge and experience to the aluminium industry.

We've recently re-launched our web site to reflect our current offering. It's a lot easier to navigate, and we've included a section where you can download recently published technical papers and press articles. Please have a look at www.innovaltec.com and tell us what you think.

There have been other changes too. In December 2006, Nigel Davies stepped down as Managing Director, taking on a non-executive role within the company, and I became his successor. Gary Mahon joins me as Company Director.

As we move towards the middle of our fifth year, Innoval Technology enters an exciting

new era. We are privileged to continue our relationship with Novelis, who we have been supporting on rolling projects since we started in 2003. However, our contract with them has been re-negotiated and most of the restrictions, which prevented us from operating within rolled products markets, have been lifted.

As many people will already know, world-class rolling expertise is our core business, so we're hoping to help rolling companies throughout the world improve their existing products and processes, reduce their costs and, through innovation, enter new markets. We're really looking forward to seeing what opportunities our new status holds for us.

If there's anything in this edition of innform you'd like more information on, please feel free to call any of the people mentioned in the articles. If you're planning to visit INCAL 2007 in Hyderabad or ALEX 2007 in Eindhoven, both in November, we hope you'll come along to our exhibition stands and meet us in person.

Dr Tom Farley
Managing Director
Innoval Technology Ltd



The image shows two screenshots of the Innoval Technology website. The top screenshot displays the 'Service Areas' section, which includes Process Improvement, Materials Development, Product & Process Training, and Best Practice Tools. It also features a navigation menu and a 'Welcome to our new web site!' message. The bottom screenshot shows the 'Materials Development' section, which highlights the company's expertise in providing technical support and services to the manufacturing industry. It includes a list of services and a 'Materials Development' heading.

Pages from our new website

Inside this issue...

Support to Novelis	page 2	Aluminium Rolling Course - From Strength to Strength	page 3
Eco-Bat Technologies use P-Map	page 3	More News & Conference Papers	page 4

Celebrating 4 years of technical support to Novelis



Novelis is a world leader in aluminium rolling, producing an estimated 19 percent of the world's flat-rolled aluminium products. The company produces aluminium sheet and foil products for customers in high-value markets including automotive, transportation, packaging, construction and printing. A subsidiary of Hindalco Industries Limited, Asia's largest integrated producer of aluminium and a leading copper producer, Novelis operates in 11 countries and employs approximately 12,900 people.

As an independent company Innoval Technology has been privileged to provide technical consultancy to Novelis since we formed in 2003. We've highlighted two of our recent projects below.

Novelis enforces technical advantage with Tension Leveller training at Oswego, USA

The Oswego plant, in New York State, USA, is Novelis' largest wholly owned fabrication facility in North America. The site is equipped for aluminium scrap remelting, ingot casting, and hot and cold rolling.

Prior to installing a new tension leveller line, the Engineering team at the Oswego plant wanted the lead operating crew to be fully trained in the theory of the process. This was to supplement practical training which had already taken place in Kingston, Canada, and would enable the crew to be fully involved in the commissioning of the line.

Dan Miller, who is part of Innoval Technology's Process Improvement group, was responsible for the training, having developed a similar course for the Novelis facility at Pindamonhangaba in Brazil. Dan's course for Oswego covered general topics such as the principles of tension levelling and the different types of tension leveller within the Novelis group. He also covered specific areas such as the electronic and drive controls for the Oswego line, and introduced the team to a simulation of the line developed by Innoval Technology on behalf of Novelis Inc. Practical aspects accompanied the theory, including how to judge if a sheet is flat and how to

configure the line in order to get good flat sheet.

Following the first training session, Adriano Ferreira, currently Director of Business Improvement & Innovation at Novelis Oswego, remarked:

"This is one of the best training sessions we have done, both from the usefulness of the material and the manner with which Dan presented and engaged the participants. Overall I have no doubt that we will reap the benefits of this new basic tension leveller understanding as soon as we begin commissioning, and definitely during start up"

The tension leveller operators were similarly impressed:

"Very informative. I wish I had been given this training years ago"

Since the initial training, Dan has been back to Oswego to train other operating crews, and he has continued to work with the original crew since the line was commissioned to further improve the process. He has also given similar training in two other Novelis locations, taking the total to four.



For more information, please contact Dan Miller on +44 (0) 1295 702821



Robots lifting aluminium sheet at Novelis

Embracing advanced modelling techniques for furnace optimisation at Rogerstone, UK

The Novelis plant at Rogerstone in South Wales produces hot mill coil, paintstock, foilstock and flat sheet. Material from here is supplied to their other European operations and direct to third party external customers for further processing.

Novelis Rogerstone enlisted the help of Dr. Chris Davenport to drive more production through their pre-heat furnaces, and at the same time reduce energy losses per kg of metal processed. Chris is Innoval Technology's expert in thermal modelling, and he has considerable industrial experience.

The team at Rogerstone wished to optimise their furnace practices to ensure they were making the best use of their pre-heat furnaces. In response to this, Chris created thermal and energy models of the furnaces which would enable the cycles to be reduced in length without risking the quality of the product. The models accurately predict the temperature at any point throughout the ingot, enabling a more rapid heat-up to be used which doesn't melt any part of the ingot. The models also make sure the ingot is not soaked for any longer than required – it's almost like having temperature probes everywhere in the ingot throughout the heating cycle. The models are carefully calibrated against plant data and are therefore accurate enough to

avoid the need for unduly conservative heating cycles. They drive the process to its limit, making it extremely efficient. Furthermore, due to minimised heat loss from reduced cycle times, the energy used per kg of ingot is reduced.

Chris estimates that models such as the one employed at Novelis, Rogerstone, can give a reduction in cycle time of up to 25%, together with a 10% reduction in energy usage.

Commenting on this project, John Evans, Hot Line Manager at Rogerstone, says:

"Innoval Technology's expertise in the area of thermal modelling is well-known, so we knew they were the right people to help us get more throughput from our furnaces. The model they have generated should help us to optimise our rolling process, and we are looking to use it to increase production through our hot line without any compromise in product quality."

For more information about thermal modelling, please contact Chris Davenport on +44 (0) 1295 702809



Aluminium Rolling Technology Course goes from strength to strength



Group of delegates and tutors from a recent rolling course

Producing aluminium flat products to the standards required by today's markets needs a thorough knowledge of the rolling process and the principles of gauge and flatness control. In 2005 we created a special course for the aluminium industry to satisfy this need.

Our Aluminium Rolling Technology Course is designed to help companies reduce downtime and improve product quality through faster diagnosis and solution of rolling problems by their own engineers. It also provides suppliers to the rolling industry with an insight into the application of their equipment.

May 2007 saw the fourth Aluminium Rolling Technology Course being held at Innoval's premises in Banbury, UK. Since we started the courses, we've trained people from 18 companies based in 10 countries. Demand has increased with each course, with one industry supplier sending two delegates on every course to date.

The 4 ½ day course makes for an action-packed week, with over fifteen lectures ranging from the basic mechanical and thermal aspects of rolling, to more advanced control and vibration topics. Supplementing the lectures are seven workshop sessions to put into practice the theory taught in the lectures. We have a small-group policy to make sure there is plenty of interaction between the course tutors and

the delegates, so we set a maximum number of ten people on each course. However, it isn't hard work all week! Half-way through the course the delegates spend a morning at the Jaguar manufacturing plant at Castle Bromwich, Birmingham, to see the assembly of the aluminium-intensive XJ or XK car. Delegates also enjoy two organised social evenings.

Here are some comments from delegates who attended the course in May this year:

"A well structured and educational course, ideal for engineers from any background. I know I will be using the knowledge gained here for years to come."

Mike Silvey, Development Engineer
Siemens VAI Metals Technologies Limited

"Well run. I'd recommend it to anyone in the aluminium business."

Martin Trott, Development Engineer
Siemens VAI Metals Technologies Limited

"I was really pleased with this course, and I would recommend it to others with a similar background to myself."

Kenneth Yuen, Technical Manager, Meyer Aluminium

"Perfect course. Thanks very much! Clearly structured and illustrated. I'd recommended this course to the customers of rolling companies."

Alexander Wald, Product Division Engine Cooling
Behr GmbH & Co. KG

We run two courses every year. The next Aluminium Rolling Technology Course is being held on 12th – 16th November 2007. To register for this course, please contact Dr Chris Davenport on +44 (0) 1295 702809 or mobile +44 (0) 7739 981363.



Innoval Technology's Nick Martin shows the group how to play skittles.

Eco-Bat Technologies use P-Map in Best Practice Initiative

Following the success of the K-Map project at H.J. Enthoven & Sons (described in the 2006 edition of innform), their parent company, Eco-Bat Technologies, has decided to embrace another of our best practice tools.

Eco-Bat Technologies recycles lead from vehicle batteries at ten sites across Europe. They have embarked on a pilot study using Innoval Technology's P-Map process to record and compare the manufacturing practices and Key Performance Indicators in the refineries of all ten plants. If successful, the P-Map will be rolled-out to include other processes. The P-Map project, which is currently on-going within Eco-Bat, is part of a group-wide Best Practice initiative.

Please contact Gary Mahon on +44 (0) 1295 702818 for more information about Innoval Technology's Best Practice Tools.



Gary Mahon & Helen Forrest facilitate P-Map workshops at Eco-Bat plants in Italy and Germany.



Geoff Scamans addresses the All-Party Parliamentary Group for the Aluminium Industry at the House of Lords, London



Dr Geoff Scamans

On 15th May 2007 Innoval's Chief Scientific Officer, Dr Geoff Scamans, spoke on behalf of the Aluminium Federation to the All-Party Parliamentary Group for the Aluminium Industry.

Geoff's address was entitled 'Green Aluminium: The Importance of Innovation' and covered topics such as the recent advances in aluminium technology from UK universities, and the use of aluminium sheet as an alternative to steel sheet in the mass production of cars. Geoff explained the environmental benefits of aluminium intensive vehicles, and explained how recycled beverage cans could be used to make aluminium cost competitive with steel.

"The high cost of aluminium sheet stems from the high energy cost to make the primary metal. Using recycled metal is an obvious way to make lower cost aluminium sheet, and recent

advances in technology mean that beverage cans are now a suitable source. However, the UK loses 45kT of beverage cans to landfill each year. If this was recovered and used to make aluminium intensive vehicle structures for the next ten years, it could represent a carbon saving of nearly two million tonnes of CO₂ per annum from the saved fuel consumption."

If you would like more information on 'Aluminium from Cans to Cars', please contact Geoff Scamans on +44 (0) 1295 702826, or download his presentation from our web site www.innovaltec.com



Houses of Parliament, London

More News ... More News ... More News ...

Vibration in Rolling Mills, 9th November 2006, London, UK

Dr Tom Farley, Innoval Technology's Managing Director and mill vibration expert, chaired the IOM³ committee that organised this event which took place at the institute's headquarters in London. Tom also chaired the event, presented a paper: 'Understanding Mill Vibration Phenomena', and co-authored another: 'Identification and Solution of

Fifth-Octave Mode Mill Chatter Problems'. This successful event was attended by 49 people.

If you would like copies of these papers please contact Tom Farley on +44 (0) 1295 702814

NOCOLOK® Flux Brazing Seminar, 16th - 17th April 2007, Mumbai, India



This training event was organised by Solvay Fluor to cover the fundamentals of controlled atmosphere brazing of aluminium heat exchangers, the basics of aluminium alloys and corrosion resistance. The multi-speaker event was designed to update the participants on metallurgy, equipment and maintenance, as well as technical advancements and techniques. Innoval Technology was delighted to take part, with Alan Gray leading a session on Materials and Metallurgy for Aluminium Brazing.

If you'd like information about our heat exchanger services, please contact Alan Gray on +44 (0) 1295 702813

INCAL 2007, 21st-23rd November 2007, Hyderabad, India



This event is the Aluminium Association of India's 5th International Conference on Aluminium, and Innoval Technology's Managing Director, Dr. Tom Farley, is honoured to be presenting the keynote address. We'll also have an exhibition stand (A37) at this event, so please come along and meet Tom and other Innoval representatives, at what promises to be a very interesting conference.

You can find out more about INCAL 2007 at www.aluminium-india.org

Forthcoming Publications & Events: September 2007 onwards

Title	Author/Presenter	Publication/Event	Location	Date
Industry demands on thickness & flatness tolerances for aluminium thin strip products: process issues	Dan Miller	International Scientific Conference	Kamensk Uralsky, Russia	4-5 October 2007
Waterside Corrosion Testing Of Aluminium Heat Exchangers - will there ever be a globally accepted test?	Alan Gray	AFC-Holcroft	Novi, MI, USA	23-25 October 2007
Integrated Gauge & Flatness Control	Dan Miller	Rolling Academy	Glasgow, UK	5-9 November 2007
Metal quality and technology in Europe means added value	Gary Mahon	ALEX 07	Eindhoven, Netherlands	13-14 November 2007
Global R & D Challenges in the Aluminium Industry	Tom Farley	INCAL 2007	Hyderabad, India	21-23 November 2007
The Application of Resistance Spot Welding to High Volume Aluminium Automobile Manufacture	Douglas Boomer	Materials for Lean Weight Vehicles	Warwick, UK	11-13 December 2007
Rheforming of Aluminium and Magnesium Alloys for Automotive Applications	Geoff Scamans	Materials for Lean Weight Vehicles	Warwick, UK	11-13 December 2007