



AUSTRALIAN MANUFACTURING AND MATERIALS PRECINCT AT CLAYTON, VICTORIA

SUPPORTING AND PROMOTING A GLOBALLY COMPETITIVE
AND SUSTAINABLE AUSTRALIAN MANUFACTURING INDUSTRY



MONASH
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AUSTRALIAN MANUFACTURING AND MATERIALS PRECINCT AT CLAYTON, VICTORIA

ENSURING GLOBAL COMPETITIVENESS OF AUSTRALIAN MANUFACTURING
AND MATERIALS BY LINKING WORLD-CLASS RESEARCH TO INDUSTRY.

THE VISION FOR THE AUSTRALIAN MANUFACTURING AND MATERIALS PRECINCT (AMMP) IS TO BE A HUB FOR A WIDER NETWORK OF INDUSTRY AND RESEARCH-BASED ORGANISATIONS TO CONNECT, COLLABORATE AND FOCUS ON TRANSLATING RESEARCH OUTCOMES TO INDUSTRY.

Based in Clayton, within the South East metropolitan region of Melbourne, AMMP is home to 40 per cent of Victoria's manufacturing companies, as well as CSIRO, Monash University, the Australian Synchrotron, and the Melbourne Centre for Nanofabrication.

AMMP will help drive the innovation necessary for Australia's manufacturing industry to remain competitive, locally and globally connected, and form an attractive target for talent and inbound investment.

WORLD-CLASS PARTNERSHIPS CSIRO AND MONASH UNIVERSITY

The Commonwealth Scientific and Industrial Research Organisation (CSIRO), is Australia's national science agency and one of the largest and most diverse research agencies in the world. CSIRO's manufacturing, engineering and materials research is predominantly based in Clayton and provides customised technology solutions for the manufacturing industry to help companies improve their efficiency and competitiveness.

Monash University is one of Australia's leading research-intensive universities. Monash's largest campus at Clayton is home to leading manufacturing and materials research, where the focus is on developing innovative and smart technologies.

Monash and CSIRO have a long and distinguished relationship which has been built over many years and are working together to further develop AMMP in Clayton. The shared vision is to jointly promote the capabilities of AMMP as a precinct of global standing and scale, with a focus on materials science, engineering and advanced

manufacturing research and its translation to industry.

There are several joint initiatives in place to drive the further development of AMMP, including:

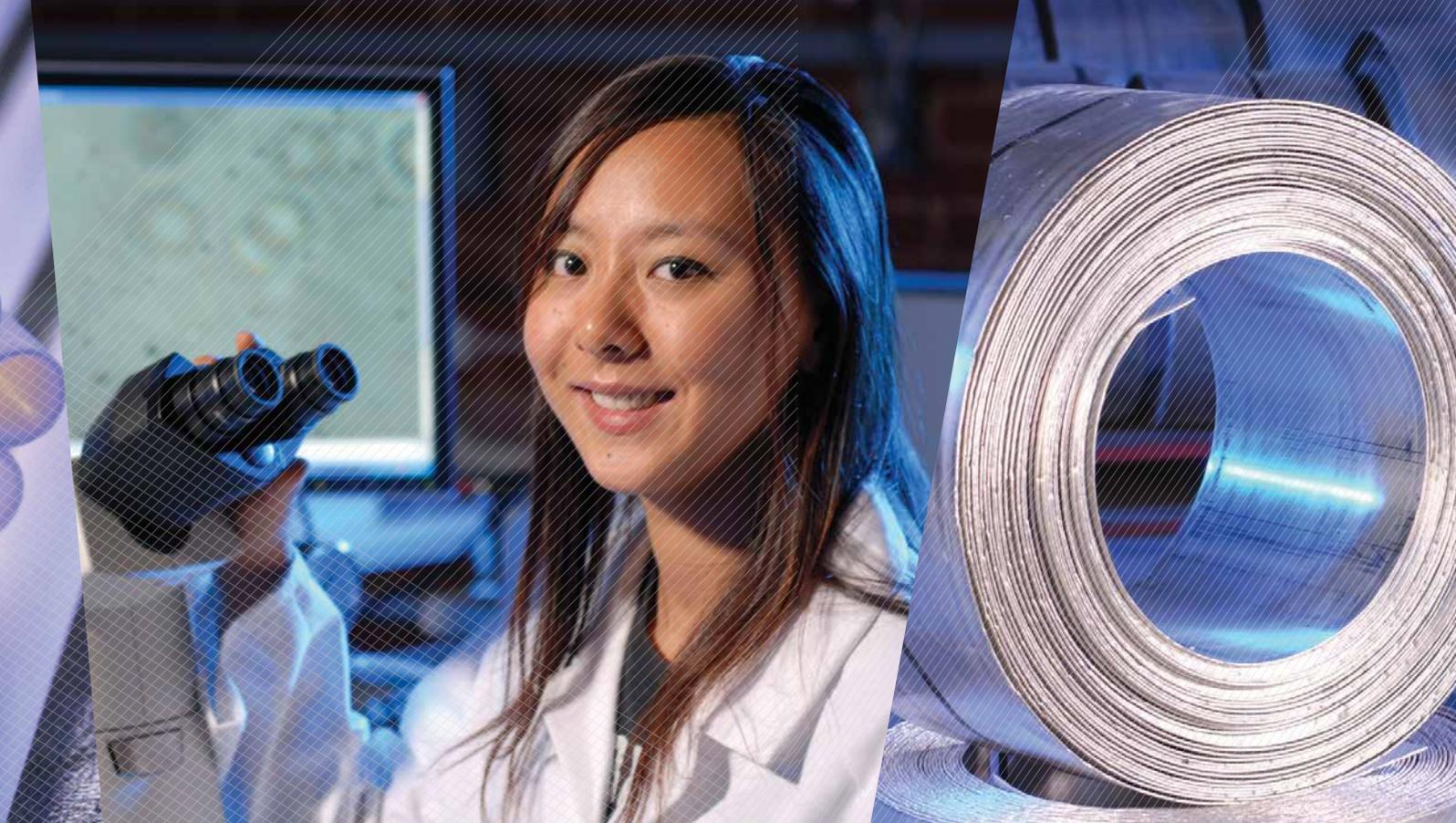
- The New Horizons building to co-locate some of Australia's leading manufacturing and engineering capabilities at Clayton in 2013;
- The Victorian Centre for Sustainable Chemical Manufacture being established in partnership with the Plastics and Chemicals Industry Association and the Victorian Environmental Protection Authority; and
- The proposed Factories of the Future Innovation Centre to provide open access for industry to advanced prototyping and production capability.

CSIRO and Monash are the foundation partners of AMMP, but it is envisaged that the number of partners will grow as AMMP evolves. For more information on CSIRO and Monash respectively, visit: www.csiro.au and www.monash.edu.au



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THE FOLLOWING FACILITIES ARE ALSO LOCATED WITHIN AMMP AND HAVE ADVANCED MANUFACTURING AND MATERIALS SCIENCE CAPABILITY.

AUSTRALIAN SYNCHROTRON

Officially opened in July 2007, the Australian Synchrotron is one of a few facilities around the world capable of revealing the innermost, sub-microscopic levels of materials that allow researchers to improve the properties and performance of materials. The Synchrotron is adjacent to Monash's Clayton campus and is funded by State and Federal governments, the New Zealand government, CSIRO, and a number of Australian universities and medical research institutes.

From 2013, the Australian Synchrotron will be operated by ANSTO, Australia's nuclear science and technology organisation. Although less than six years old, researchers at the Synchrotron have, among other advances, developed new methods to enhance the resilience of metals, improve the productivity of plants, and solve complex diseases.

www.synchrotron.org.au



MELBOURNE CENTRE FOR NANOFABRICATION

The Melbourne Centre for Nanofabrication's (MCN) mission is to facilitate the integration of nanotechnology techniques into research activities that support innovation and manufacturing in Australia.

MCN is a joint venture facility bringing together the technical expertise of six Victorian universities (Monash University, The University of Melbourne, RMIT, Latrobe, Deakin and Swinburne) and CSIRO to provide open access for industry to state-of-the-art fabrication capabilities in Victoria. The MCN is the national headquarters of the Australian National Fabrication Facility (ANFF), is operated by Monash University and is adjacent to the Monash University Clayton campus and the Australian Synchrotron.

www.nanomelbourne.com



FOR FURTHER INFORMATION

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THE FOLLOWING CASE STUDIES ARE EXAMPLES OF COLLABORATIVE RESEARCH WORK AND OUTCOMES THAT HAVE BEEN ACHIEVED THROUGH AMMP.

IMPROVING PRODUCTION PROCESSES FOR KEY INGREDIENT IN 'THE GREEN WHISTLE'

Australian healthcare company Medical Developments International (MDI) and CSIRO have been working together for close to 15 years. A group of Clayton-based CSIRO scientists developed the initial manufacturing process for production of the drug methoxyflurane – the pain-relieving ingredient used in Pentrox™ (commonly known as the “Green Whistle”). Pentrox is used in Australia as an analgesic by emergency medical practitioners, the defence forces, ambulance and surf lifesaving services. Recently its applications have expanded into dentistry, general practice, cosmetics and other medical specialities.

MDI and CSIRO have recently signed a technology deal for the next generation production of the “Green Whistle” which will help MDI significantly reduce the cost of producing Pentrox and facilitate large-scale production to support the company's plan to expand sales of Pentrox into the UK and Europe. Pentrox is manufactured at MDI in South East Melbourne and is currently sold in 11 countries around the world.

THE VICTORIAN DIRECT MANUFACTURING CENTRE DEVELOPS ANILOX ROLLER

The Victorian Direct Manufacturing Centre (VDMC) located at CSIRO's Clayton site, is a joint initiative between the Victorian Government, CSIRO and industry to fund and execute collaborative projects that develop technology-based solutions for the future of Victorian manufacturing.

Laserlife Littlejohn is a local manufacturer supplying the printing and converting industry for more than 40 years. They service businesses in over 30 countries across the globe with their laser engraved anilox. In 2010, Laserlife Littlejohn partnered with the VDMC to directly manufacture an entirely new type of anilox roller which impacts the future of flexographic printing. The new product has a number of advantages such as requiring less energy to produce, being more environmentally friendly and economical to use, has improved corrosion resistance and is less brittle than conventional units.

The new anilox roller provides Laserlife Littlejohn the opportunity to grow their business exponentially from currently supplying only end users to adding early-end manufacturers to their customer base.

CSIRO AND BOEING DEVELOP NEW TOPCOAT FOR THE AEROSPACE INDUSTRY

CSIRO and Boeing have had a 23-year strategic research relationship. CSIRO has played a key role in the development of Boeing's operations in Australia. Boeing recently named CSIRO its Global Research and Development 'Supplier of the Year.' CSIRO was one of only 16 recipients to be recognised with a “Supplier of the Year” award, out of 26 000 Boeing suppliers worldwide.

CSIRO and Boeing have together developed Paintbond SM-1 a simple and effective “spray on and leave on” paint technology that has been applied to over 1 000 commercial aircraft and produced multi-million dollar savings. The new technology replaces the current reactivation process involving manual abrasion of the topcoat with a vibrating sander. This traditional method is not only time-consuming and produces potentially harmful particulates, but also causes one of the highest injury rates within Boeing. Implementation of the technology has shown significant ergonomic, quality and production benefits to Boeing's paint hangar operations.

'AQUAHYDREX' TRANSLATING RESEARCH INTO COMMERCIALY VIABLE OPPORTUNITIES

AquaHydrex technologies are the culmination of years of research that has taken place within the University of Wollongong (UOW) and Monash University nodes of ARC Centre of Excellence for Electromaterials Science (ACES) as well other Australian Research Council (ARC) supported projects at Monash University.

AquaHydrex is an efficient water-splitting technology that enables onsite manufacturing of hydrogen for use in industrial processes. A second set of technologies are inspired by photosynthesis to assist the production of oxygen gas from water under sunlight.

These innovative, green technologies will provide inexpensive low-carbon footprint opportunities to the energy industry sector.

IMPROVED PLASTICS ADDITIVE DEVELOPED BY MONASH AND MICRONISERS

Micronisers Pty Ltd, a local (Dandenong) nanomaterials SME, has been working with both CSIRO and Monash over a 15-year period on a range of separate projects to develop and commercialise several nanoparticle additives for applications ranging from sunscreens and personal care products to specialist plastics additives. Both organisations have been pivotal in the commercial success of the company in regard to export markets for these products.

Most recently, Monash University has enabled Micronisers to improve its advanced nucleating agent for polypropylene which was previously resulting in some performance issues. Improvements have now been made in the manufacture and packaging of the material to give extended shelf-life and high dispersibility. The product is now being marketed globally through a strategic alliance with a multinational partner.