

# ENGINEERED PACKAGING AND DISTRIBUTION

## CAPABILITIES STATEMENT

The mission of the Engineered Packaging and Distribution Research Group (EP&DRG) at VU is to provide a local, national and international focus for high-quality applied scientific research aimed at developing environmentally sound and optimized solutions to support the distribution of products and produce.

## RESEARCH FOCUS

- Food security
- Food contact and modified atmosphere packaging
- Optimised and engineered protective packaging
- Packaging waste reduction
- The development of sophisticated postharvest technologies
- Development of inexpensive, effective and environmentally-friendly packaging
- Biodegradable and antimicrobial packaging
- Environmental and distribution hazards (shock, vibrations and environmental)
- Distribution and transport packaging

## EXPERTISE

Our expertise covers a broad-range of fields such as:

- Environmental shock and vibration
- Distribution dynamics
- Material characterisation
- Protective packaging
- Product fragility analysis
- Polymer chemistry
- Analytical chemistry
- Active food packaging (modified atmosphere, antimicrobials)
- Biodegradable polymers
- Post-harvest technologies

## TRACK RECORD AND INTERNATIONAL REPUTATION

Victoria University has a proud track record in packaging and distribution research. Since 1995, approximately 20 doctoral and master's research students have graduated as well as a large number of scholarly papers published and a multitude of commissioned research and consultancies (well into the hundreds) have been undertaken for a variety of industry partners. Victoria University has built a strong reputation internationally with respect to Packaging and Distribution research as is evidenced by our participation in a number of leading organizations.

- Membership on the Board of International Association of Packaging Research Institutes (IAPRI)
- Chair of the IAPRI Working Group of Distribution Packaging
- Editorial board of the Journal of Packaging Research Institutes
- Membership of the Technical Board of the International Safe Transit Association (ISTA), an industry body that specialises in transport packaging.
- Fellowship of the Royal Australian Chemical Institute

## STATE-OF-THE ART EXPERIMENTAL AND TESTING FACILITIES

The research group's activities are supported by a number of specialist laboratories across the University. These include:

- The Environmental and Distribution Dynamics Laboratory

This facility houses a range of experimental facilities and capabilities for distribution simulation and testing such as drops and shocks, vibration, compression, and climatic conditions for unit loads to palletized systems.

- The Dynamics Research Laboratory  
Equipped with state-of-the art equipment and capabilities for dynamics research including: vibrations shakers; universal testing machines; signal analysers; data recorders; high-speed camera; thermal imaging camera; and wide range of sensors and transducers.
- The Materials Engineering Laboratory  
Houses modern equipment such as universal testing machines with specialised high-strain non-contact extensometer for polymers, hardness testing machines, a dynamic mechanical analyser and a variety of ovens and incubators.
- The Polymer Research Laboratory  
Our polymer research laboratory is furnished with state-of-the-art equipment, and has capabilities for thermal analysis of materials (differential scanning calorimetry and thermogravimetric analysis); polymer molecular weight (high temperature gel permeation chromatography); compression moulding press; and temperature programmable ovens.
- The Analytical Instrument Laboratories  
These laboratories contain a range of analytical equipment and capabilities for materials characterisation and testing. Instruments include: infrared and fluorescence spectrophotometers; gas and liquid chromatographs (HPLC, GC-MS), elemental analysis (ICP, AAS); and scanning electron microscope.
- The Food Research Laboratory  
The Food Research Laboratory is equipped with food-related testing instrumentation including rheometer; zetasizer; texture analyser and a universal testing machine. This facility has the capabilities needed to undertake food research.

## INDUSTRY ENGAGEMENT

The Engineered Packaging and Distribution Research Group at VU aims to engage with industry organizations by undertaking:

- Collaborative research projects (partially supported by government grants). These may involve the recruitment of higher degree research students.
- Commissioned research projects through which industry clients gain access to technical expertise and state-of-the-art experimental research facilities
- Consultancy services
- Testing services across our entire capabilities range.
- Design and delivery of short courses and training across our specialist areas.

## CONTACTS

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