



The Measurement Standards Laboratory of New Zealand (MSL) is New Zealand's national metrology institute and is entrusted to ensure New Zealand's units of measurement are consistent with the SI, the international metric system of units.

MSL is a vital facility that enables New Zealand to communicate technically and scientifically with the rest of the industrialised world.

MSL provides measurement expertise, consultancy and training courses. We offer the highest level of calibration and measurement services in electrical, length, mass, density, pressure, light, temperature, humidity, time and frequency, and are developing expertise in nanometrology.

Capability in the rapidly growing field of chemical metrology is being coordinated via the Virtual Institute of Metrology in Chemistry (VIMC), incorporating MSL and national centres of excellence in chemistry.

Research activity within MSL is oriented to advanced measurement and instrumentation in partnership with industry.

As a laboratory within IRL, we have access to a broad science capability that can help New Zealand industries compete on the world stage.

Besides our broad measurement capability, specialist areas such as applied maths, smart materials, sensors, communications, imaging, detection and nanotechnology are all available to support industry.

Global trends are towards market access requiring compliance with increasingly stringent technical criteria.

The ability of our industry to compete internationally depends on well characterised raw material, reliable production processes and environmentally friendly, high quality products. Through the industry assessment project IRL and MSL are providing a vehicle to assess and address present and future requirements.



Measurement for Industry

Enhancing competitiveness
through improved measurement

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For general information about Industrial Research, please visit our website at www.irl.cri.nz

For general information about the Measurement Standards Laboratory of New Zealand please visit <http://msl.irl.cri.nz>

We can help you enhance your productivity through improved measurement.

MSL and IRL continue to seek new ways to improve and add value to New Zealand industry.

Measurement underpins scientific and technological innovation, enhances competitiveness in business, and strengthens regulation of health, safety and the environment.

Giving products an edge

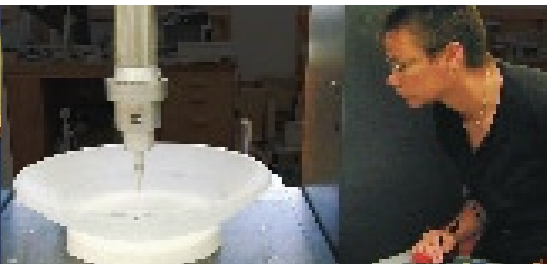
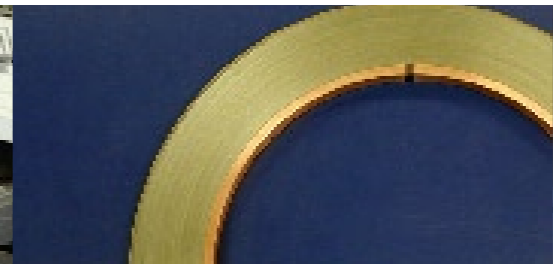
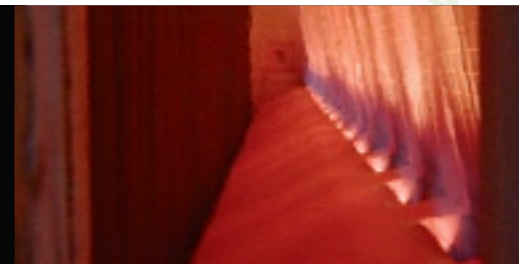
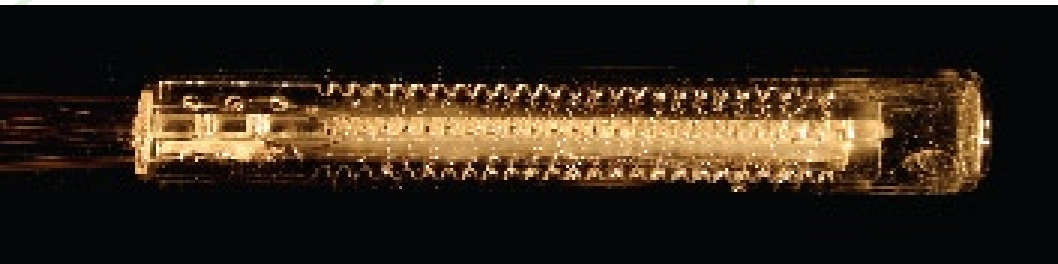
The optimum transport and storage temperature for blood products is 4 °C but the ability of insulated blood bag and vaccine transport boxes to maintain safe temperatures varies widely depending on the ambient conditions. A leading datalogger manufacturer chose us to model the thermal performance of blood and vaccine transport boxes they were developing. The software we developed now allows the manufacturer and his clients to predict and extend the carrier storage time. The transport boxes, when used with the manufacturer's dataloggers and our software, set high standards for the safe transport and storage of blood and vaccines.

Influencing compliance standards

Our scientists developed an instrument to measure the small but significant AC resistive losses in high temperature superconducting coils. International compliance standards for this technology are still being formulated and our experience helps ensure that they are appropriate and do not raise unfair barriers to trade.

Ensuring product quality

KiwiStar Optics recently fabricated an infrared corrector lens set for one of the world's largest telescopes, the Subaru Telescope in Hawaii. In order to ensure that the lenses met the exacting specifications and standards required for such applications, KiwiStar relied extensively on our three-dimensional measurement expertise.



Improved measurement can give your company huge gains by:

- enhancing product development
- enabling access to markets
- ensuring product quality
- increasing efficiency and reducing waste
- adding a point of difference

In our Industry Assessment initiative, which is supported by New Zealand Trade and Enterprise (NZTE), we aim to learn about measurement issues faced by New Zealand industry.

Through meetings at the industry cluster level and through on-site visits and audits we are identifying areas where, in partnership with industry groups, we can develop the new techniques and instrumentation necessary to overcome technical trade barriers, improve efficiency, enhance product development and support the profitability and sustainability of New Zealand Industry.

We can visit and assist you to identify your measurement and compliance issues, and will highlight where our measurement, calibration and research capability, in conjunction with our extensive national and international network, could help solve your measurement problems.

Managing inefficiencies and risk

In the petrochemical industry, optimal furnace operation requires a fine balance between productivity and the lifetime of furnace tubes. If the temperature is too low, productivity and plant efficiency are reduced and raw material wasted. Too high a temperature leads to early tube failure and high costs associated with unscheduled shutdowns and repairs.

We have developed a thermal imaging system that, when combined with our computer modelling of furnaces, is capable of accurately measuring temperatures within the harsh furnace environment. This allows companies to operate their furnaces at the optimum temperature and better manage plant performance leading to increased profits which can amount to millions of dollars per year.

Enhancing product development

A manufacturer came to us for help when conventional software was unable to correctly predict the non-linear behaviour of their next generation transformer. We characterised the material properties of the transformer and created a new software design tool. We then used the tool to design a higher energy transformer. Our modelling now enables the manufacturer to rapidly bring to market more efficient versions of his product line with minimal prototyping time or cost.

Overcoming barriers to trade

Failure to comply with new regulations and more accurate testing methods in our biggest markets could have devastating effects on our exports. Access to markets may require that product and/or processes undergo stringent and costly testing and monitoring.

Measurements from MSL on particular types of LED (light emitting diode) enabled a New Zealand manufacturer of communications equipment to export their products to Europe. The measurements of the optical power and irradiance of the LEDs confirmed that they all met the European Standard for the safety of information technology equipment. Compliance with this safety standard is mandatory when exporting to the European Union.

MSL provides measurement traceability for IANZ-accredited testing laboratories. By using these laboratories to test product before export, manufacturers can make substantial savings.

Providing solutions

A stress test had shown that a new window-opening mechanism had a drastically reduced lifetime and the manufacturer had been unable to determine the cause. We were able to show that a slight misalignment between the angled shaft and the gear plane was causing asymmetric wear, leading to part failure.