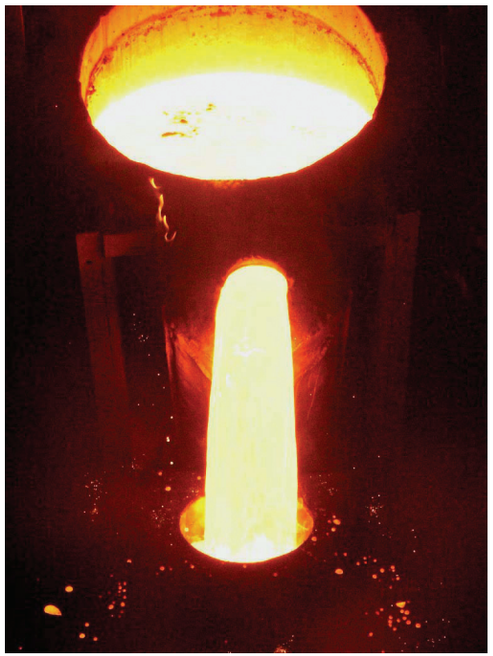
LMRC Facilities

Associated with University of Auckland Chemistry, Chemicals and Materials Engineering and Mechanical Engineering departments.

Laboratory equipment

X-Ray and Single crystal X-Ray Diffractometers, Scanning Electron Microscope (High-Resolution Field Emission and Environmental), Mass spectrometry (ToF-SIMS -Time of Flight Secondary Ion and Boreal Laser & Hiden quadrupole), X-Ray Photoelectron Spectrometer, Atomic Force Microscope and Furnaces of various sizes capable of 1200 degrees Celsius.



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Links

LMRC website

http://www.lightmetals.co.nz

LAM NZ

http://www.lightalloy.org.nz

MPPA Pty Ltd
Light Metals Research Centre & Manufacturing

LMRC & MPPA

- Aluminium smelting technology
- Operational expertise in aluminium smelting
- Surface science of light metals
- Light alloy products manufacturing
- Materials engineering, including testing and product design
- High temperature process engineering and materials

LMRC & MPPA Manufacturing

General Manufacturing

Audit and improvements

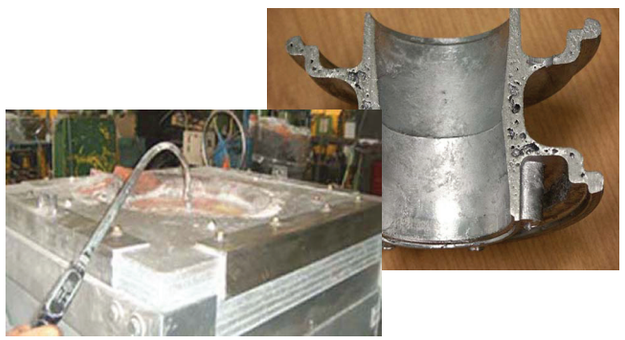
- Molten metal handling
- Machine electrical & mechanical condition
- Health and safety
- Equipment efficiencies (power, man hours, risk assessment)

Project Management

- Assist management through running of projects

Plant upgrades

- Analysis of plant and determining best ways to improve equipment.
- Melt line upgrades and furnace refurbishments



Staff training

- Training of staff in various areas:
- Health and safety (OH &S)
- Using machinery
- Fundamentals of aluminium smelting

Continuous Improvement

Gemba Kaizen

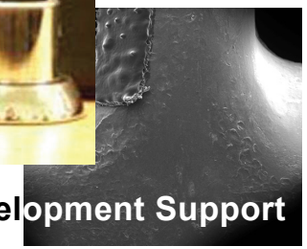
- 5S
- Process Kaizen
- Waste identification and elimination
- Quick changeover technologies
- JIT (Just-in Time) / Kanban
- Visual Control and Management
- Quality control (at source)
- Planned preventative maintenance
- Supplier development

Casting, Forging, Extrusion

- Defect resolution, onsite analysis and resolution of defects
- Consulting on material/alloy type
- Metal flow/ handling optimisation
- Die/mould design
- Surface finishing of products
- Mechanical/chemical testing of components.
- Modelling

Coatings and surface finishing

- Anodizing, electroplating, powder coating and hard Ti-based coatings (PVD, CVD & PACVD)
- Process optimisation and Quality Assurance
- RoHS Compliance
- Characterisation of coatings: micro-hardness, wear testing, topographical measurements, segregation, etc



Research & Development Support

Computational

- Modelling - finite element methods, computational fluid dynamics (ANSYS, COMSOL, CFX, JMAG)
- Process Control - advanced scripting and programming (Matlab, LabVIEW)
- Computational Analysis - statistical analysis software (SAS, SPSS, NWA-QA)

Mechanical testing of products

- Strength and toughness testing (tensile, yield, fatigue, etc.)
- Corrosion (ASTM salt spray testing - SST and ASST)
- QUV (ultra-violet testing of coatings)
- Wear resistance
- Hardness, micro-hardness, etc
- Chemical and metallurgical analysis