

HISTORY: The Alberta Research Council is a provincial Crown Corporation founded in 1921 to advise the Alberta Government on scientific affairs and to promote the economic growth of Alberta through scientific and engineering research. It has over 500 employees at offices and laboratories mainly in Edmonton, and at offices in Calgary, Red Deer, Nisku, Devon and Lethbridge.

CAPABILITY: The Research Council has established six major areas of research - industrial technologies, oil sands and hydrocarbon recovery, coal and hydrocarbon processing advanced technologies, natural resources, biotechnology, and advanced technologies. The industrial technologies program provides service to industry through an assistance program for small business. Oil Sands and hydrocarbon recovery includes geology studies, heavy oil cracking, and in-situ recovery. Coal and hydrocarbon processing includes geology studies, agglomeration, combustion, pyrolysis, coal property definition, and gasification. Natural resources research activities include geological survey, terrain sciences, civil engineering, and resource technologies. Biotechnology includes microbiology, fermentation technology and pilot level scale up. Advanced technologies include computer-based automation, expert systems and robotics for application and transfer to industry.

The Research Council also operates the Electronics Test Center which provides evaluation, testing and consultation services to electronics and telecommunications manufacturers to meet Canadian and international requirements. In 1987, the test center obtained formal accreditation from the Department of National Defence.

AVERAGE WORK FORCE: Scientists, Engineers, & Research Technologists.

GROSS SALES: The Research Council operates on a \$40 million budget, half of which comes in the form of an annual provincial grant, and the other half which comes from contracts with provincial government departments, federal government and private industry.

PLANT SIZE: 505,250 ft² (47,000 m²) (1984)
580,500 ft² (54,000 m²) (1987)

EQUIPMENT: The Research Council has a range of equipment for carrying out studies on oil sands and coal technology from fundamental science to bench scale pilot work, sophisticated chemical analytical instruments, and distributed computing equipment. The biotechnology pilot plant for scale-up of micro-organisms to pre-production quantities is considered one of the finest of its type in North America. With the completion of a 15,000 liter fermenter this year, the pilot plant will have a scale-up capacity of more than 20,000 liters.

EXPERIENCE: Details on their experience in areas of natural resources research and in research on oil sands, coal agglomeration, and liquefaction; biotechnology; advanced technologies; and industrial and engineering areas is available on request.

KEYWORDS: Air Pollution; Biotechnology; Coal Liquefaction; Coal/Oil Agglomeration; Computer Graphics; Digital Data Processing; Environment; Expert Systems; Forest Products Testing; Geographic Information Systems; Geology; Ground Water; Industrial Engineering; Materials Testing; Microbiology; Numerical Modelling; Oil Sands; Robotics; Soils; Statistical Analysis; Surface Water; Testing/Test Equipment; Transportation; Water; Weather Forecasting.

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ALCAN INTERNATIONAL Ltd (Kingston R&D Centre)

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CONTACT: Dr David M Moore, Program Director, New Aluminum Materials (613) 541-2167

HISTORY: Alcan International Ltd is the technology arm of its parent company, Montreal-based Alcan Aluminum Ltd. Incorporated in 1902,

Alcan Aluminum Ltd is an integrated aluminum company, engaged worldwide in all phases of the aluminum business including bauxite mining, alumina refining, aluminum smelting, semi-fabrication and finished product manufacture and sales. Alcan is the largest aluminum company in the world as well as being one of the largest multinational companies based in Canada. Alcan Aluminum Corp with its head office in Cambridge, MA, is the US subsidiary operating numerous plants in various states.

CAPABILITY: Alcan International Ltd operates three R&D centers (two in Canada, one in the UK). The Kingston Research and Development Centre (KRDC) is involved in research and development associated with most aspects of aluminum fabrication processes and products in support of the existing mainstream businesses; as well, considerable effort is being devoted to developing new products in the areas of metal matrix composites, ceramics, advanced polymeric materials and laminates, catalysts, batteries, electronic products and bioengineering products.

KRDC is especially well equipped with a full range of equipment for microstructural, mechanical property, surface analytical evaluations. It also has the capability to set up pilot-scale manufacturing of new products. It is recognized as one of the leading materials laboratories in Canada.

AVERAGE WORK FORCE: Phd's - 46
Other graduate scientists & engineers - 60
Other Staff - 189
Total Staff - 295

GROSS SALES: (Alcan Aluminum Ltd)
1986 - \$6.1B
1987 - \$6.9B

PLANT SIZE: (KRDC) - 220,000 Sq ft

EQUIPMENT: Electron Optics (STEM, SEM, EPMA); Surface analysis (XPS, SAM, FTIR); Optically metallography; Mechanical property (tensile, fracture toughness, fatigue, etc.); Corrosion testing; Coating and finishing (organic, anodizing, sputtering); Aluminum foundry; Aluminum rolling and extrusion; Machine shop; Chemical analysis (ICP and OES); Non-destructive testing (x-ray, ultrasonic, thermographic); Structural test bed; Ceramics manufacture; and Can and heat exchanger manufacturing test lines.

EXPERIENCE: Present clients for the most part are the various operating companies of Alcan worldwide. Work is also carried out on behalf of the various Alcan-owned new start-up businesses, such as Epitronics (CaAs), DAAC (Al-SiCMMC's) and Alupower (Al-air batteries).

KEYWORDS: Aluminum; Materials; Composite Components; Ceramics; Structures; Testing (Materials); Aluminum-Lithium.

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THE AMTEK GROUP

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HISTORY: AMTEK was formed in January 1981 to provide services to government and industry in Integrated Logistic Support (ILS), Automatic Test Equipment (ATE), and contract/program/proposal management.

CAPABILITY: The AMTEK Group consists of four small wholly Canadian-owned companies engaged in various fields of support to the government and industry defence sectors (principally aerospace):

- AMTEK Management Inc
- AMTEK Testware Ltd
- AMTEK Engineering Services Ltd
- LODAY Project Management International Ltd