

Brian M. Barnett

Dr. Barnett is Unit Manager - Electrochemistry in the Product Technology Section at Arthur D. Little, Inc. His areas of specialization are battery technologies and markets, fuel cell technologies and markets, electrochemical energy storage and applications of electrochemical technologies. He has undertaken a wide variety of projects involving analyses of both technical and market aspects of the battery business on a worldwide basis. In addition, a variety of laboratory-based assignments involving development, improvement or testing of battery technology have been carried out in the Electrochemistry laboratories. He received his B.Sc. degree in Chemistry from McGill University and his Ph.D. degree in Electrochemistry from the University of Ottawa.

For a commercial client, Dr. Barnett has recently conducted a technical evaluation of a novel battery technology based on conductive polymers. As part of the program, he made an assessment of the relative technical positions of various conductive polymer technologies. The project also involved a consideration of novel applications for the technology, an evaluation of categories of applications for the technology within the battery industry and a summary and evaluation of the technical status of large scale secondary battery technologies being developed for electric vehicle or load leveling applications. More recently Dr. Barnett has completed a thorough worldwide review of polymer electrolyte battery technology, with emphasis on electric vehicle applications. New directions for polymer electrolyte battery development were identified, as a means of addressing specific shortcomings of the present technology for EV applications.

Dr. Barnett has carried out numerous technology assessments covering new and emerging battery technologies. Assignments have covered performance comparison and optimization studies, performance troubleshooting and cell engineering issues.

Dr. Barnett has recently completed an assessment of market applications for new and emerging battery technologies in direct comparison with those presently available. An analytical method was developed based on identification of key performance and other market-related criteria for battery-powered products as a means of segmenting the market and selectively comparing battery technologies and developments in product segments. Technology displacement, by means of development of relevant non-battery technology in the end-use markets, has also been considered. In recent work, he has evaluated technical and market trends worldwide involving lithium battery technologies.

For the Electric Power Research Institute, Dr. Barnett has recently assisted in a survey of rechargeable lithium battery technologies under development in North America and Japan. In addition to providing a critical summary of the state-of-the-art, the work focussed upon assessing the potential of these technologies to meet critical design and engineering criteria for battery technologies in load levelling and electric vehicle applications.

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