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SEPTEMBER 2004



Safe and powerful is Valence's U-Charge™ system, soon to hit the power wheelchair and medical scooter market. See story below

**AROUND THE INDUSTRY**

**Valence, Graham-Field Sign Agreement**

Valence Technology Inc. of Austin, Texas, has signed an agreement granting GF Health Products Inc. of Atlanta, Georgia, the exclusive right to resell Valence's U-Charge™ power system, a Saphion technology-based motive power system, in the power wheelchair and medical scooter markets.

The companies will jointly develop a U-Charge power system specific to the power wheelchair and medical scooter markets. Valence has granted Graham-Field the exclusive right to resell U-Charge systems in those markets in the United States and its territories for three years. This exclusivity is conditioned upon achieving specified quarterly volume targets totaling \$20 million in system purchases. Graham-Field will provide sales and marketing, technical assistance, and customer support functions.

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Battery Seminar And  
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Ft. Lauderdale, FL USA

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Valence's Saphion technology is built on a phosphate cathode core, which is inherently safe and user friendly. By combining the power of lithium-ion with the safety of phosphates, it surpasses traditional lead-acid technology and provides an alternative to deep cycle battery solutions.

## UQM Technologies Joins DOE Hybrid Program

UQM Technologies Inc. has been awarded a contract from Eaton Corporation under a U.S. Department of Energy contract with Eaton's Truck Components to develop hybrid propulsion components for trucks and other heavy duty vehicles. Eaton is partnered with International Truck & Engine Corp. to develop a highly integrated, next generation heavy hybrid propulsion system. UQM's contract is for the development and application of a UQM® motor and controller in an International truck with an Eaton hybrid electric propulsion system

Eaton and International's DOE program provides matching funds for research and development aimed at doubling the fuel efficiency of today's conventional trucks, while maintaining reliability and durability of components and meeting future federal emissions standards for 2007 and beyond. The project is part of the 21st Century Truck Partnership, managed by the DOE's Office of FreedomCar and Vehicle Technologies.

For more information, visit [www.uqm.com](http://www.uqm.com).

## Cobasys Remains in Michigan

Cobasys LLC will remain in Michigan and build an expanded operation in Detroit, reports Detroit Free Press. The company manufactures nickel metal hydride batteries in Springboro, Ohio, and had considered relocating all its operations there.

Now located in Troy, the company will relocate its research and development offices and invest \$1.5 million in an office building located in Orion Township, about 35 miles north of Detroit.

The three-year-old company will employ 100 people by January and anticipates increasing that number to 200 or 250 within the next few years. Cobasys is a joint venture of Rochester Hills-based Energy Conversion Devices Inc. And San Ramon, California-based ChevronTexaco Corp.

## Sanyo, GP Batteries Establish Lithium Battery JV

Sanyo has established a joint venture company in China with GP Batteries International Ltd., largest consumer battery manufacturer group in China, based in Singapore. The new company has been named "Ningbo GP SANYO Energy Co., Ltd."

Located in NINGBO HI-TECH Park in Ningbo city, Zhejiang province, the joint venture will manufacture and sell manganese dioxide primary lithium batteries. SANYO will hold 51% of the shares and GP 49%. Production is to start this month.

Production lines of manganese dioxide primary lithium batteries for camera use will be transferred from SANYO Energy Tottori Co., Ltd., a subsidiary of SANYO.

### **Datta Named EaglePicher Horizon Batteries CTO**

Ajoy Datta has joined EaglePicher Horizon Batteries LLC as chief technology officer, responsible for battery design and development, technology upgrades and improvements, and overall technical direction of the company.

Steven E. Westfall, president of EaglePicher Horizon Batteries LLC, says "As a developer of the original Horizon advanced lead acid battery, Ajoy has a thorough understanding of our product technology. He combines this knowledge with 37 years of experience at seven major manufacturers of lead acid batteries."

Recently, Datta served as vice president of engineering and director of battery technology at the Trojan Battery Co. Prior to joining Trojan, he was an executive at Electrosource for 15 years, holding the positions of vice president of product engineering and R&D, vice president of product development, and technical vice president. He also held engineering management positions with Exide, AlliedSignal Prestolite, GNB Batteries, Chloride Inc., Gould Canada and Chloride India.

Datta holds a bachelor of science degree in physics/chemistry/math from Gauhati University, India, and a bachelor of science degree with honors in electrical engineering from IIT, Kharagpur, India.

### **Tinker Joins RBC**

Dr. Lawrence Tinker has joined RBC Technologies in College Station, Texas, as vice president, licensing and technology development. RBC develops zinc-alkaline-based battery technology for disposable consumer battery applications, such as digital cameras, hand-held computers, electronic games, motorized toys, and other products and is pursuing a development and licensing business strategy.

Dr. Tinker has more than 24 years of professional experience in the battery industry in R&D, product technology development, intellectual property development, licensing, and corporate management. He earned a Ph.D. in chemistry from the University of Texas at Austin where he worked on electrochemical reactions in liquid sulfur dioxide. Prior to joining RBC, Dr. Tinker was vice president of engineering, then vice president of advanced technology, and finally president of AER Energy Resources of Atlanta, Georgia,

a publicly traded battery technology development and licensing company. There he played a key role in developing and licensing zinc-air technology to outside battery manufacturers.

Prior to AER, Dr. Tinker served as manager of technology at Gates Aerospace Batteries, where he worked with nickel-based battery systems for satellite applications. He also was manager of research at Ballard Research, Inc., where he worked on lithium sulfur dioxide batteries, and was a member of the technical staff at Hughes Aircraft Co., where he worked with NiH<sub>2</sub> batteries for satellites. He is the author of 23 publications and holds 13 patents.

### **Dave Rice Research Awards**

As a tribute to Dave Rice who died in 2003, International Power Sources Symposium, together with Rice's employer Enersys and the Lead Development Association International, are sponsoring two research awards, with a cash prize and a paper to be presented at the 24th International Power Sources Symposium April 18-21, 2005, Brighton Corn Exchange, United Kingdom.

The award is to encourage young scientists in the advancement and development of lead acid batteries for applicational usage.

This idea fits well with Rice's entrepreneurial spirit and of his outstanding contribution to the practical application of lead acid batteries. Those who were fortunate to know Dave Rice will see this as a particularly appropriate award given his dynamism – a free thinker who did so much to promote the industry.

For more information contact Bob Bailey at [ipss@marketdevelopco.demon.co.uk](mailto:ipss@marketdevelopco.demon.co.uk) or visit [www.ipss.org.uk](http://www.ipss.org.uk)

### **Mission & Space Gets AS/EN 9100 Accreditation**

Missiles & Space Batteries Ltd. (Scotland) implemented improvements to its quality management system, resulting in accreditation to AS/EN, an international aerospace standard based on the current ISO 9001:2000 standard but more demanding. The scope of certificate covers design, manufacture and test of thermal batteries and associated sub-components for aerospace, civil and defense applications.

### **Firefly Energy Announces Key Appointments**

Firefly Energy Inc., a spinoff of Caterpillar, Inc., has appointed Eric Dix vice president of engineering. Dix has 22 years experience in designing, developing and commercializing highly engineered chemical products and processes. This includes 10 years in advanced rechargeable battery technology applications, product design and new technology commercialization.

Firefly also appointed Michael Kepros to the company's advisory board. Kepros brings more than 30 years of experience in research and development of electrochemical energy storage systems, including both primary and secondary battery technologies.

Kepros joins existing advisory board members Dr. Robert Nelson, founder of the Advanced Lead Acid Battery Consortium (ALABC), and Chuck Mahan, former lieutenant general of the U.S. Army.

Firefly Energy Inc. produces and licenses advanced lead-acid battery technologies created by Caterpillar Inc.'s \$600 million annual research and development operations. The company has developed next generation lead-acid battery technology that delivers a disruptive combination of high performance, extremely low weight, and reduced cost using traditional, non-corrosive, lead-acid chemistry.

Visit [www.fireflyenergy.com](http://www.fireflyenergy.com).

### **Altair Awarded Grant**

Altair Nanotechnologies, Inc. was awarded a \$100,000 grant from the National Science Foundation (NSF) for work to be completed within six months of the July 1, 2004 effective date. The grant is in support of a project entitled "SBIR Phase I: Carbon-Coated Nano-Structured Electrodes for Next-Generation Lithium-Ion Ultra Capacitors."

"We are pleased to announce Altair's first stand-alone grant, spearheaded by our new board member, Dr. David King," said President Dr. Rudi E. Moerck.

Altair will work with Hosokawa Micron's Nano Particle Technology Center and Rutgers University's Energy Storage Research Group to provide for the successful design and development of high-capacity, next generation lithium-ion power sources.

Third-party studies have shown that Altair's nano-sized lithium titanate spinel battery material exhibited charge and discharge rates up to 100 times higher than materials used in current commercially available batteries. In 2003, Telcordia Technologies (now Rutgers Energy Storage Research Group) developed a non-aqueous asymmetric hybrid prototype battery incorporating Altair's nano-lithium titanate spinel. The Rutgers prototype battery, using Altair's nanomaterials, met the 'car of the future' power assist battery requirement as published in The Journal of Power Sources, 113 (2003) 62-71 and 115 (2003) 171-178. The Rutgers' battery is the only prototype reported, to date, to meet these Department of Energy (DOE) standards.

Nanomaterials are expected to provide an improvement in lithium-ion battery and supercapacitor performance for applications including automobile batteries, electric, and hybrid vehicles. They may also be incorporated into uninterrupted

power supplies, military applications and specialized uses, such as notebook computers, mobile phones, and a variety of portable devices where rapid charge/discharge times are important.

### **Precisia and TBT Develop Printed Batteries**

Precisia LLC of Ann Arbor, Michigan, has partnered with Thin Battery Technology (TBT) of Cleveland, Ohio, to develop a number of battery configurations that offer end-users the freedom to place the battery in different points of contact on a powered device. Their unit cells are designed to protect them from ambient atmospheric conditions. Unit cells and battery samples are available in reasonable quantities for customers to use in testing various applications.

Ultra-thin and flexible, TBT printed batteries are made in the reliable carbon/zinc system and have 1.5 volts per unit cell, similar to that of traditional batteries. Power cells can be combined to increase their voltage and/or capacity, while maintaining their thinness. The batteries are a disposable, environmentally-friendly alternative to traditional button batteries.

Applied with a pressure-sensitive label, printed batteries can be used discreetly to enhance products with flat, rectangular surfaces, such as game boards and greeting cards. Their flexibility makes them easier to apply to bendable substrates such as labels, folding cartons and thin cards. Printed batteries also withstand the stresses and flexing of continued product use, a distinct advantage over rigid button batteries.

For more information, contact Rychee Parmann, phone: (734) 205-6600, email: [rychee.parmann@precisia.net](mailto:rychee.parmann@precisia.net).

### **Hybrid Electric Vehicle Testing Results Released**

This summer the Department of Energy completed one million miles of fleet testing of 18 hybrid electric vehicles. The Advanced Vehicle Testing Activity is a program managed by the Idaho National Engineering and Environmental Laboratory (INEEL). The vehicles tested include the Honda Civic and Insight, and the Toyota Prius. The cars' fuel efficiencies range from 38 to 46 miles per gallon. This testing was done so the public could make better decisions when buying advanced technology cars.

To read the results of the testing, go to [avt.inel.gov](http://avt.inel.gov).

### **Axion Hires CEO and CFO**

Axion Power International Inc. of Vaughan, Ontario, Canada, has hired Charles Mazzacato as chief executive officer and Peter Roston as executive vice president and chief financial officer.

Mazzacato has 29 years of experience in commercial and industrial power systems engineering sales and marketing. From 1996 through 2003, he held various senior sales and marketing positions with Powerware, Inc., and was chairman of Powerware's global marketing council. Previously, he worked for Schneider Electric and Emerson Electric. Mazzacato is a 1975 graduate in power systems engineering of Ryerson Polytechnic Institute.

Mazzacato replaces Kirk Tierney, who served as president for nine months and will continue to serve as a consultant to the company.

Roston had managed Axion's accounting and financial systems on a contract basis for five months. He has over 30 years experience in accounting and financial management for small- and medium-sized enterprises. For 13 years, he was principal of Roston Associates, a Toronto-based management and operations consulting firm. He is a 1964 graduate of Concordia University with a B.A. in commerce and accounting and received his chartered accountant (C.A.) designation in 1967.

Roston replaces John Petersen, interim CFO for 18 months, who will continue to serve as legal counsel to the company.

### **Ener1 Names John E. Waters VP of Manufacturing**

Ener1 Inc. of Fort Lauderdale, Florida, has appointed John E. Waters vice president of manufacturing in charge of Ener1's high-energy lithium batteries.

Waters has experience in the design, development, and production of batteries. He joins Ener1 from Delphi Corporation, where he was instrumental in establishing Delphi's Lithium Battery Systems Group, as well as advanced energy storage systems for hybrid-electric vehicles and non-auto applications.

He earlier worked for General Motors in the development and production of the battery pack system for GM's first electric vehicle, the EV1, and later the General Motors Electric S-10 Truck.

"I am looking forward to helping Ener1 achieve new milestones by successfully and cost-efficiently producing its high-discharge batteries for industrial and military markets," said Waters.

For more information, visit [www.ener1.com](http://www.ener1.com).

### **BorgWarner Supplies Ford Hybrid**

BorgWarner engine and transmission products will provide various emissions and air management components, the engine timing system, and clutching systems for the Ford Escape hybrid vehicle, which is on sale now and will arrive at dealerships late this summer.

“Several of BorgWarner’s traditional products are on hybrid vehicles such as the Ford Escape, the Honda Insight and Civic, and Toyota Prius,” said Tim Manganello, BorgWarner chairman and chief executive officer. “Through our Drivetrain Group, we are working to identify innovative, nontraditional solutions as well.”

Ford expects the Escape Hybrid to be certified for sale as an Advanced Technology Partial Zero Emissions Vehicle (AT-PZEV), the strictest emissions certification. The Escape Hybrid can run solely on electric power at speeds below 25mph and gasoline mode at higher speeds.

For further information, contact BorgWarner Corporate Communications, phone: (312) 322-8500, [www.bwauto.com](http://www.bwauto.com).

## PRODUCT NEWS

### Reserve Power Cells Intelligent Dual System

The Reserve Power Cell LLC Intellicell™ dual battery system has a unique main and reserve cell design compatible with existing size and fill technologies.

Intellicell packs two batteries into the size of a current car battery. An isolated reserve cell can power the car in case the main battery fails. Electronics monitor the flow and automatically switch to the reserve cell if warranted.

The system can be added to a car’s current internal communications system enabling the battery to communicate to the driver. Existing RF, cellular and satellite technology make it possible for Intellicell to contact any one of a number of network operations centers that are currently used in today’s automotive communications.

Contact David Elder, Reserve Power Cell LLC, 474 Southwest 12th Ave., Deerfield Beach, FL, 33442, phone: (954) 571-7728.

### Modules for Mobility

New modules by Saft Rechargeable Battery Systems will address customer needs faster, especially in light mobility applications where power is the main concern. This module solution will provide customers with an offer nearly immediately, as opposed to the normal wait that was necessary for the design of a customer-specific battery.

Key to the module’s technology is the integration of a battery management system including charge, discharge, and fuel-gauge circuits. With electronics integrated into the module, the battery’s lifetime increases 40%. The electronics can handle both NiCd and NiMH cells (the VRE and VH series



respectively), whether "D" or "F," except for the charging circuit in some NiCd cases.

Design features include a number of attractive characteristics. In a 10-cell configuration, it resists an 80cm drop while remaining electrically functional. A module can be integrated into a light container on the final application without risk of breaking the electronic circuit. Charging will take five to eight hours, and the modules' discharge capabilities range from 25A in continuous mode to 80A in 0.1 second for peaks.

Visit [www.saftbatteries.com](http://www.saftbatteries.com).



Precision-Expanded Materials for Fuel Cells and Batteries

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U. S. BATTERY AND FUEL CELL PATENTS

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Official Gazette, Volume 1284 (July 2004)

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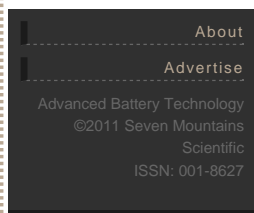
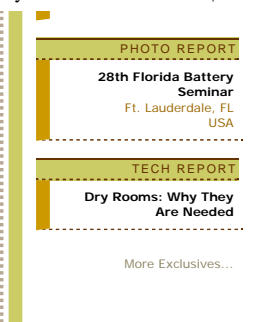
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