# Saft

INTERNATIONAL
Saft's customer magazine

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# ENJOY: rechargeable batteries make bike riding still more fun p 9

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# From the president's desk

**The year 2000 was a successful** and eventful one for Saft. We have expanded our operations, notably with the acquisition — hot off the press as I write these lines — of Hawker Eternacell. You'll now find our headquarters at a new location: closer to Paris, but still in handy reach of airports, and in purpose-redesigned offices that ensure a higher level of efficiency. Our Power Systems division was transferred to the components operations of Alcatel, allowing Saft to concentrate fully and exclusively on doing what we do best: making batteries.

Grégoire Olivier

**Our new Web site,** saftbatteries.com, has gone live. Packed with new services and features, it's a first step towards e-business in our industry. You'll find more information on this site on the back cover of this magazine.

The new year also promises to be exciting, with lots of new challenges. Our non-stop quality program will be fully deployed worldwide. I hope that you, as a customer, are alreading deriving significant benefits from our continuous improvement initiative.

**We're working on many new projects** for markets such as the auto, rail, space and emergency lighting industries. Technological innovation has always been a key Saft strength, and it remains essential to our continued ability to serve you competitively in the global marketplace.

**We're proud to be your partner.** And we are all working hard to ensure that for service, price, innovation and quality, Saft's products will remain your preferred power solution.

Grégoire Olivier
Managing Director

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# In this issue



# All change: cars shift gear, adding new power

**New on-board power solutions will soon begin changing the driving experience. 42-volt automotive systems will be reaching the market shortly, and hybrid electric vehicles are already here**

In the automotive industry, the question of "why change" to 42-volt on-board power solutions is easily answered: a car's owner/driver as well as its passengers will benefit. So will its manufacturers. And so will the community where it is driven. The automobile industry as we know it is being reinvented because of three factors: the need to improve fuel efficiency; growing concern with environmental quality; the importance of ensuring greater safety and comfort as well as providing a more enjoyable experience behind the wheel. The advent of 42-volt on-board systems and hybrid electric vehicles (HEVs) is the first step in this automotive transformation. Forty-two volts will have an impact on many of these factors. The 42-volt on-board power storage enables automakers to use alternator-starters, capture energy, regenerate braking and accelerate more efficiently, burning less fuel. In short, 42-volt systems can provide an electrical boost for the internal combustion engine's own power.

According to Saft's experts and recent studies, a 10-kW 42-volt system will facilitate fuel economy improvements by 10% or more. For example, a driver can expect to save a liter and a half of fuel for every 100 km (65 miles) driven. Car manufacturers are expected to install the systems on more than a fourth of all light vehicles made in North America, Europe and Japan by the end of this decade, reaching 13 million units by 2010. Researchers believe that not only will these new-technology systems satisfy market demand for improved safety, comfort and convenience; they will also meet regulatory requirements for reduced emissions and fuel consumption, accelerating development of 42-volt systems.

Dodge Durango hybrid electric SUV, DaimlerChrysler Corp

## Electric revolution: what Saft has to offer

HEVs combine the internal combustion engine of a conventional vehicle with an electric motor plus a battery. This combination delivers the extended range that consumers expect from a typical car, along with the added benefits of reduced fuel consumption and cleaner emissions. In case of heavy pollution in urban centers where one day only zero-emission vehicles may be permitted, some HEVs will be designed to operate as pure-electric vehicles, and may be the only practical alternative for most drivers.

Early market forecasts predict nearly 700,000 HEVs in operation by 2010 with the following breakdown: 300,000 in Europe, and 200,000 in both the U.S. and Japan.

Saft is committed to meeting all automotive on-board power needs, from high power for hybrid systems to high energy for electric traction. Its products include the latest-technology solutions for both requirements, with real-life trial experience that is delivering solid data on their effectiveness. The Ni-MH SF cell series has been specifically designed to fulfill high-power requirements of hybrid vehicles and 42 -volt networks. This cell is an adaptation of the existing high-power Ni-MH cell, originally built for cordless tools applications.

With sponsorship from the Partnership for a New Generation of Vehicles (under the U.S.'s Department of Energy), Saft has developed two High-Power Li-Ion cells dedicated to Power-Assist and 42-volt network applications. These cells share the same electrochemistry as the standard Li-Ion industrial products but differ by their use of their much thinner electrodes, allowing a large active area and therefore high power capability.
The changing world of automotive batteries will be the prime topic of discussion at the first annual Advanced Automotive Battery Conference, running February 5-8 in Las Vegas, Nevada. It's the first conference devoted to the worldwide shift in automotive battery power systems, with keynote speakers from leading Japanese, European and North American organizations. Professionals from the battery and automotive industries will share research data on coming changes to current automotive technology; the new high-power, long cycle-life requirements for automotive batteries; and the use of high-power batteries for advanced-technology vehicles. Saft's automotive teams will be active participants, both presenting several papers and exhibiting the latest in Saft's advanced automotive products. ■

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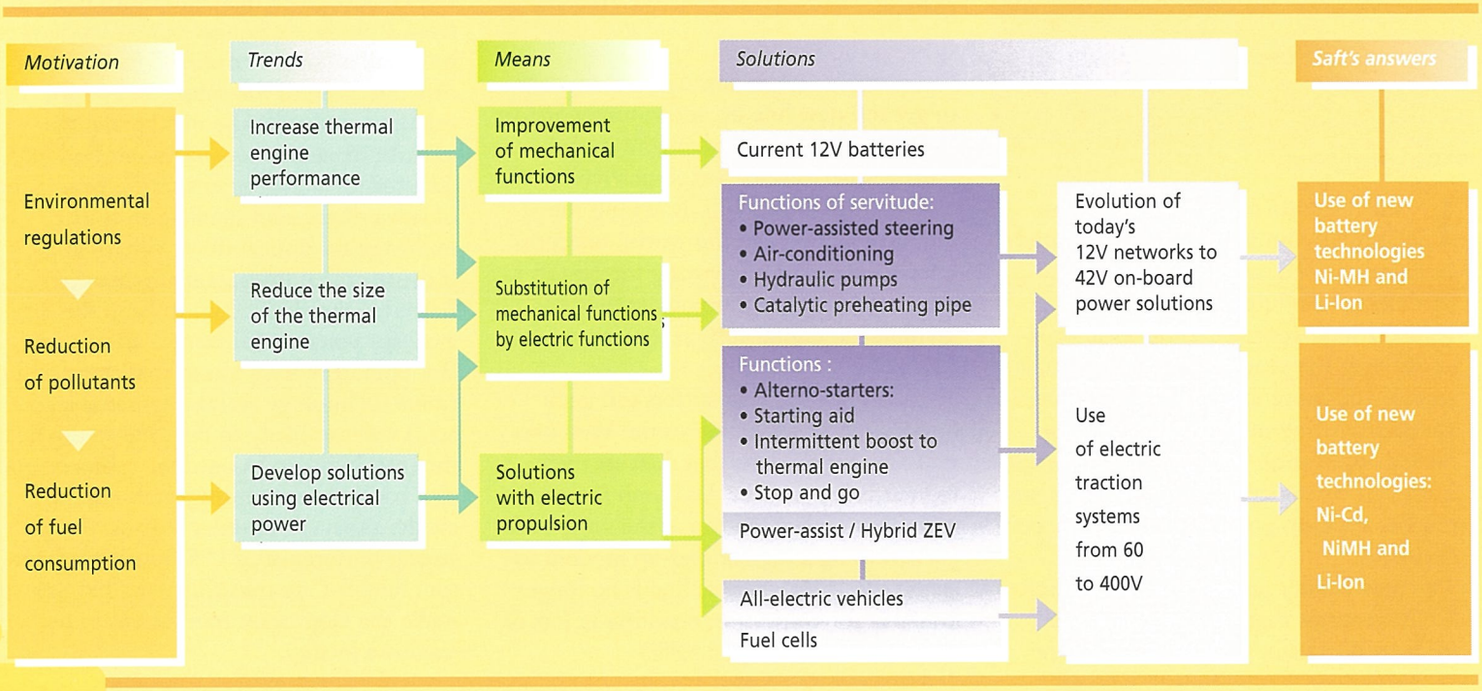
# Behind the Durango hybrid

**Durango, a Chrysler four-wheel drive with considerable market success, will be DaimlerChrysler's pioneering hybrid electric vehicle (HEV). Larry Oswald, vice president of Chrysler's EV and HEV operations, answers Saft International's questions**

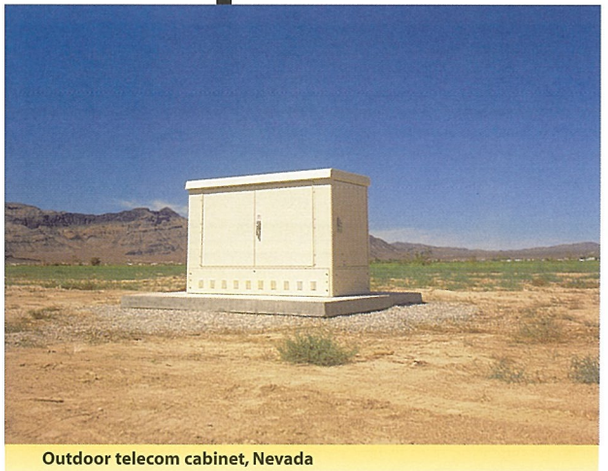
***What's the North American market for HEVs?***
We don't really know, other than the environmentally-concerned buyer and those who are evaluating the technology. Before there were microwave ovens, was there a market for them? Market studies would have said not, because the market didn't know what advantages they'd get from a microwave oven. We're going to provide more features for the hybrid EV customer — and thereby create a market.
***Why did your firm choose Durango as its first hybrid?***
We needed a simple place to begin. We can improve fuel economy 20% on the Durango, the equivalent of a couple of hundred gallons of gas a year. It's much more than what can be economized on other vehicles. Also, the Durango has plenty of "packaging" on board. We can deliver more fuel economy, better acceleration and four-wheel drive (with the electric motor driving the front wheels).
***What are the economics of the HEV? Who pays for what?***
Purchasers are attracted partly through improvements in mileage, plus definitely through government tax credits and incentives.
***How will the decision by the California Air Resources Board affect your business?***
There will be no impact on HEVs. EVs will increase their penetration in markets like "gated communities", where speeds are under 25 mph and a range of 25 miles is acceptable. DaimlerChrysler has just acquired Global Electric Motorcar, an OEM of vehicles designed for this market. There's a market for these short-range neighborhood EVs.
***What's the role of the battery supplier?***
It's very key. The reality is that the battery is the most important link in terms of the vehicle's success. It has to be hassle-free. Basically the battery has to be invisible to the user. We want a battery that requires no maintenance for a 10-year period, for example. ■



From left: Inez Pendleton, Chairman Lowndes County Commission; Peter Denoncourt, Saft America, Vice President Manufacturing; James H. Rainwater, Mayor of Valdosta

# Dedicated telecoms battery plant opens in U.S.

**A facility dedicated to manufacturing Ni-Cd batteries for telecom access networks has opened at a Saft site in Valdosta, Georgia. One major application: keeping Internet connections "always on"**



Outdoor telecom cabinet, Nevada

Local Valdosta officials were all too happy to join in for the inauguration ceremony in the middle of November. Saft's long-standing operations in Valdosta have contributed to local prosperity over the years, and the new facility creates 100 more jobs. Those new hires are participating in a great pioneering Ni-Cd application that's winning interest from Saft customers on all five continents: reliable back-up power for telecom access networks.

The new facility produces the same Saft NCX batteries that customers receive from its Bordeaux plant. In fact, there was considerable transatlantic teamwork to get the new line up and running fast to meet strong customer demand in the North American market in particular. As Internet use in the U.S. is among the highest anywhere in the world, telecom operators are finding strong interest in a new connection technology known as asymmetric digital subscriber line, or ADSL.

With ADSL, Internet surfers can get a higher-speed connection to the Web over the same copper pair that delivers their regular voice service. And both Internet and voice service can run at the same time. (When using a regular dial-up modem to access the Web, a phone line is no longer available for voice calls, resulting in lots of busy signals and missed calls.)

## Always on… if back-up power is reliable

ADSL also offers an "always-on" connection which is billed the same way as cable TV: a single monthly fee allows unlimited connection time. Surveys show that users really appreciate always-on connectivity, since it recreates the feeling that people get when working on an office local area network (or LAN): no need to wait for a modem to go through its dial-up procedure. Just click and surf whenever you want.

But ADSL only works over "the last mile" of twisted copper pair. To serve subscribers more than two miles or so from a phone exchange, operators need to install a "smart terminal" in a cabinet or a hut close to the subscriber — for example in the middle of a residential suburb, or nearby an apartment building. The terminal aggregates traffic from a lot of subscribers, and sends it on to the exchange on optical fiber. What happens if the terminal loses its mains power? Batteries should kick in, to keep the service (for voice and Internet) always on. But operators have found that their traditional technology (valve-regulated lead acid) was too likely to fail, due to the heat that can build up in outdoor cabinets, and also badly default during such regular events as severe thunder storms. It was strong preference of U.S. telecom operators for Ni-Cd's reliability that led Saft to make the significant investment in its Valdosta facility.

New telecom battery line, Valdosta

## Interest on five continents

Quality of service is a priority for telecom operators, since they realize that guaranteeing continuous performance for their customers — whether for voice service or ADSL connections — is a substantial advantage in the competitive environment of the newly liberalized marketplace. Saft is the first battery manufacturer to supply Ni-Cd batteries specifically tailored to telecoms applications, which may extend from ADSL to voice and mobile phone service, not to mention cable TV operators who are rolling out new services on their networks.

Although the new facility in Georgia actually doubles Saft's capacity to supply the NCX batteries, it's planning to go still further. Saft CEO Grégoire Olivier said at the opening ceremony that the Valdosta capacity would be augmented in 2001. And Saft makes a related Ni-Cd product for this application at its plant in Sweden, further expanding its ability to address this fast-growing market.

In fact, service-providers on five continents have been working with Saft's telecoms experts to explore the benefits and economics of switching to Ni-Cd technology for their remote access terminals. Participants from phone companies in Uganda, Zambia and South Africa were the first on the African continent to attend Saft seminars that detail the benefits of using Ni-Cds in these applications. Trials are already under way in two countries there. Operators report one- to three-year lifetimes for valve-regulated lead-acid batteries in their outdoor sites, compared to double-digit performance by Ni-Cds. ▲

▶In Latin America, a Venezuelan mobile operator has ordered the NCX. (Mobile networks rely on huge numbers of remote infrastructure such as base stations to ensure uninterrupted customer service.)

In Asia, meanwhile, recent natural disasters like earthquakes have demonstrated to some — unlucky! — operators the fragility of their lead-acid backup power. This experience has spurred operators in Taiwan, for example, to look more closely at Ni-Cd's benefits. And in Europe customers ranging from the expected world of operators to the unexpected one of airport authorities are looking to see how much value they can get from these new Saft batteries.

Hey there, Valdosta: did you say you were ready to expand? The market is there, and growing! ■

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## Value-added Valdosta for NCX

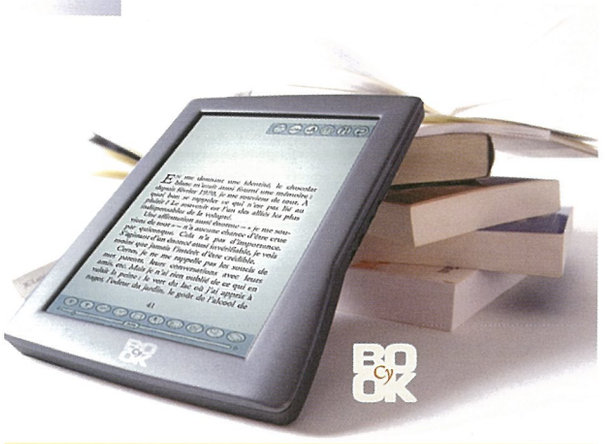
As telecom operators rely on the NCX for their customers' "always-on" connections, Saft's top priority is to ensure that its new production line in Valdosta guarantees total quality. Individual attention by the line's 100-strong production team ensures person-by-person care in meeting customer requirements.

Quality inspections are both systematic and random, to catch off-spec variants wherever they may occur. Product inspections take place at all stages, from the moment that parts are received from Saft's supply chain through intermediate steps and the finished product.

Productivity — key to customers who need quantities fast — is ensured through Saft's on-going World Class 2000 program. This program combines a range of proven quality solutions, including Kanban and Kaizen methods, single-minute exchange of die and "5S". Production line staff members receive training from in-house and outside experts. Tasks are precisely described for each production phase. ■

# E-book, signed Cytale, and lithium-ion, signed Saft

**A new-concept electronic device hitting the market this year delivers document solutions to a wide range of users. Called "cy-book", it comes with a Saft lithium-ion battery**



Pronounce it "sigh-tale" with an accent on the first syllable. (The "cy-" is an abbreviation of "cyber".) And everyone knows that there's nothing better than a "tale" or story to catch the imagination. But Cytale, as the enterprise which produces these e-books is called, has a lot more than stories on its mind, in terms of applications. Their product, the brainchild of Cytale founder and CEO Marc Vasseur, has a range of professional applications in such areas as medicine, law, distribution and maintenance.

This next-generation solution for avid readers plus those in need of constantly updated documents also offers a unique technology for protecting the intellectual property rights (IPR) of those who author texts available on its screen. And everyone knows that one of the biggest challenges that needs to be overcome in the e-business world is how to protect ownership rights. Cy-book arrives at the right moment with an elegant, versatile solution. Thanks to Cytale's creativity.

But who wants to read an electronic book if it's heavy? (Even if it does replace a dozen or more volumes that you'd have to carry along — but still.... Or if it runs out of power fast? Saft's lithium-ion battery provides the power answers to these questions. And Saft's technical engineers supported the Cytale product roll-out with lots of flexibility through its development period, which ran between December 1998 (the first lab prototype) and official product launch in January 2001.

## So many advantages... for so many users

As a start-up based in the Paris area (and everyone knows how much the French adore books in their print form), Cytale needed to come up with a number of convincing advantages for its e-book. IPR protection is one, but reading versatility is another. Content can easily be downloaded from its bookstore, open round-the-clock seven days a week (cytale.com).

This Internet site also answers lots of user questions and explains the product's technical capabilities. Among the latter are the strengths of its lithium-ion battery, known at Saft by its technical name: the MP 144350. A designation which translates (when three of the Li-Ion cells

# Supporting Belgium's leading "emergency lighter"

**Emergency lighting is a mission-critical function for corporates, small to mid-size enterprises... and even shopowners**

*Meeting local, national and European regulations is essential just to stay in business. ETAP is Belgium's leader in this industry, that makes security an everyday reality for all its customers.*

*Beginning this year, it's relying 100% on Saft's Ni-Cd batteries.*

*What makes emergency lighting so technically difficult is the environment in which the battery must live...for year after year after year. Located next to a burning lamp, the battery generally experiences temperatures of 40° to 50°C — enough to make life difficult for anyone, much less an electro-chemical couple. But Saft's VTD Ni-Cd cells have been specially designed to ensure emergency power, in case of mains failure, even after years of living in 50°C temperatures. To win the total confidence of ETAP for its 2001 requirements, Saft adapted its electrodes and in particular*

# ENJOY: putting the pleasure back into bike riding

**Aprilia has launched an electric bike called ENJOY with power from Saft's 20-cell 13-Ah Ni-MH battery**

form a battery) into 3.6 volts, and 6.9 ampere-hours of power. For e-book users, that's many hours of reading time, without any worries about recharging. In other words, here again the application's lifetime — reading a book, consulting an updated medical site's data, or even fixing an elevator that a technician isn't familiar with — determines the product's success potential in the market. Saft's MP will take the e-book farther.

As Europe's pioneer in e-book technology, Cytale needs a customer-perfect solution, including power sources. Saft is happy to be among its most vocal supporters, reassuring e-book readers: you'll enjoy this product longer, thanks to our Li-Ion batteries. (And read the next chapter, too! No problem…). ■

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*the connection points on its batteries. In fact, one of the most important factors in supplying rechargeable batteries is to make sure that connectors match customer requirements, whether for emergency lighting…or mobile phones. Saft takes this responsibility extremely serious, given the role its products play in situations which can be life-threatening — such as when emergency lighting is required.* ■

*The Italian manufacturer of racing cycles and motorscooters (since the 1960s) points out that the electric assistance drastically reduces effort and fatigue, putting the pleasure back into using a bicycle. The battery adds power to every pedal stroke, so that the rider can rapidly cover even demanding distances and yet reach the destination fresh and fit.*

*At a Rome press conference, when ENJOY was launched, a journalist's question about the battery elicited the response that Saft is the official supplier because of its innovative higher-performance Ni-MH product. Fully charged, Aprilia's "electrically-boosted" bicycle holds 312 Wh (almost double the competition's, according to the manufacturer). This enables Aprilia riders to achieve a range up to 40 km. The Saft battery accepts 500 or more recharges at 80% flat— and there's no memory problem! The battery can be removed for recharging, or recharged with a direct connection to the bicycle.*

*Aprilia vaunts the riding experience of ENJOY. Its sporty spirit makes it a "vehicle with bags of personality and character," the company says, making it "perfect for getting about town, giving…a sensation of freedom, traveling with no limits, no restrictions — and no helmet."* ■

# Filling the "missing lithium link"

## A product gap between "AA" and "C" sizes in the primary lithium range is now filled

The new product, known as the LS 17500, was being missed by a great many possible users in applications such as metering for electricity, water, gas, etc. This application itself implies not just counting but also reading the counter, transmitting data, allocating resources and even billing. The places where power is needed also vary widely, from the meters that consumers see in their homes, to valves (which need to be opened and closed), and the whole data chain involving volume correctors, data loggers and concentrators, and cost allocators. First-cousin relations to metering include tollgate systems, tracking systems, alarms and security devices, identification systems —-and even automotive and professional electronics.

By listening to players in all these markets, Saft's Poitiers engineers came up with a new lithium thionyl chloride ($LiSOCl_2$) "A"-size bobbin cell. Fast development of the cell stemmed from great coordination among customers and Saft's marketing, sales and technical teams.


### Better voltage response after long storage

The LS 17500 fits between the "C"-size 7.3-Ah cell and the "AA"-size 2.75-Ah cell. It has a nominal voltage of 3.6V and nominal capacity of 3.3 Ah: 20% more energy than its nearest competitor. It also features better voltage response during pulsing after long storage at elevated temperatures — all in addition to being cost-competitive.

Selected customers have begun sampling the new product and report that the first results match their expectations.

The cell was a major attraction at the December electric industry show known as ELEC, held in Paris. Players in a good many industries are now imagining how this attractive new product can help them perform more efficiently. ■

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# Hawker Eternacell joins Saft

Saft has just acquired Hawker Eternacell (part of the Invensys Power Systems division) from Invensys plc. The sale was announced in January.

Hawker Eternacell's three lithium battery products — lithium sulphur dioxide, lithium thionyl chloride and lithium manganese dioxide — represent annual sales of approximately $35m to customers for both defense and industrial applications. Its assets in the U.S. (where the Pentagon is its largest customer) and the U.K. will become part of Saft's Specialty Battery group, whose operations span lithium, space and defense markets. ■

# Stateside lithium cylindrical line opens

**Customers were the VIPs at the opening of Saft's new lithium-ion line in Valdese, North Carolina. Defense applications are among the likeliest for the cylindricals**

The first product off the line, the VL 34570, was a 4.5-Ah "D" cell. It will be followed shortly by the VL 34450, a 3.6-Ah 4/5 "D" cell. Specialty Battery Group General Manager John Searle observes, "Some batteries required by military customers must have cylindrical cells — our MP [prismatic] will not fit. And to supply defense customers in North America, we need a stateside manufacturing capability. The new Valdese line enables us to meet both criteria." The production line was among three that Saft opened "stateside" (in the U.S.) during the the year 2000. [Ed.'s note: see stories, pp. 6-7 and 12.] The $2m program is designed to ensure that North American defense customers have the domestic production capacity that they require for lithium-ion cylindrical cells.

The "D" and 4/5 "D" cells use the same chemistry and technology as the medium prismatics (or MPs) which North American defense customers already purchase for a demonstrator program in tactical battlefield communication. With its new capacity, Valdese will be able to produce a quarter of a million of the new rechargeable cells annually. Production can be scaled as demand rises. Valdese is the only plant in the U.S. building high-capacity Li-ion cells.

## Ability to withstand abusive environments

Saft's cell technology features simplicity of design plus greater reliability and more advanced safety features than available alternatives. This enables the cells to withstand conditions with more potential abuse. The cell performance exceeds current U.S. military specs and can be recharged more than 500 times. Other-source cells are smaller, lower-capacity ones produced in the Far East —-and in fact were designed more with civilian applications in mind.

The current "D"-cell technology typically delivers 4.6 Ah at 4.1 volts and operates in tough discharge temperatures ranging between -30° C and +60° C. It also features minimal fading and uses the heavy-duty construction techniques of its primary-lithium $SO_2$ counterpart. Cooperation between Saft engineers in Poitiers, France, and Valdese helped ensure fast start-up of the new line. ■

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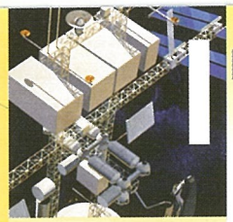




# High tech riding the Hong Kong rails

**With advanced-technology batteries, rail operators in Hong Kong are helping reduce costs — and are making their businesses still more profitable**

**The Chinese New Year** on Jan. 24 marked the beginning of the Year of the Snake. To mark the event, the MTR Corporation launched a limited edition commemorative ticket (above) allowing the holder to enjoy unlimited rides on the MTR system (map, right), except for the Airport Express. The snake symbolises intelligence, fame and good fortune, according to the rail operator, and those born in the Year of the Snake are clever, charming and mysterious, possessing the power to attract people.

Profitability is the great success story of Hong Kong's rail operators. There are two: the MTRC, which stands for the Mass Transit Rail Corp.; and the KCRC, or the Kowloon-Canton Railway Corp. Kowloon is the mainland part of Hong Kong, whereas Canton is the vibrant southern trading city of the People's Republic of China. Both rail operators serve passengers in one of the most densely populated areas on the face of the earth —-and make money on it. While other rail operators face profitability problems, it's interesting to know how these two in Hong Kong make money. To a certain extent, it's their earnings from real estate — complemented by their investment in high-technology rolling-stock that reduces their operating expenses. Batteries are part of the latter equation.

How can batteries impact profitability? In two words, with reduced maintenance, because maintenance is an operating cost.

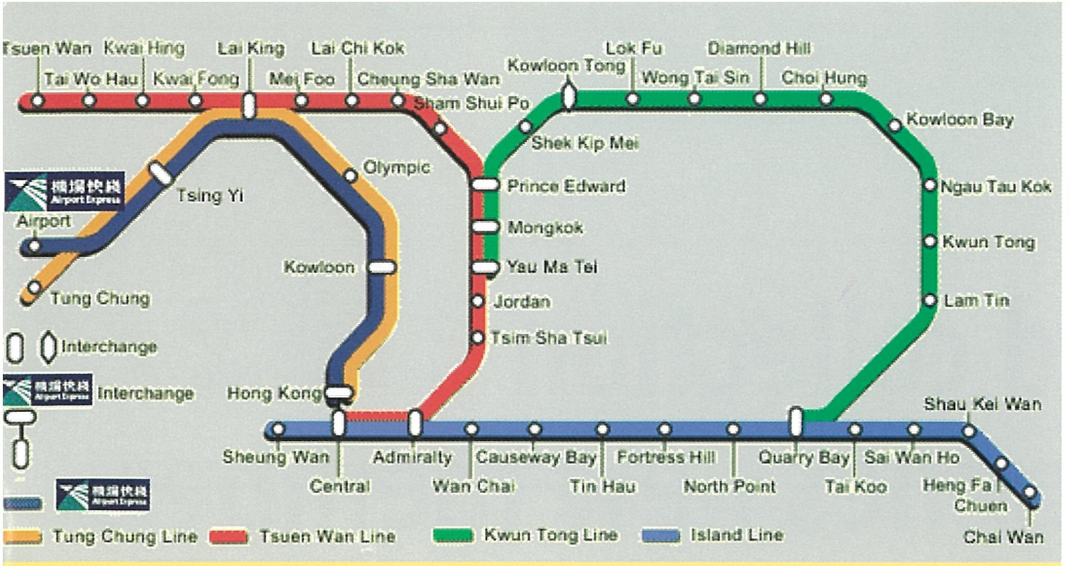
# MilSatComs for space: checking out Li-ion

**Fly lithium-ion batteries on a military communications spacecraft? It hasn't been done yet. But Saft has delivered products for evaluation**

In December, a private North American non-profit research organization and a major North American satellite manufacturer took delivery of a batch of lithium-ion batteries made on Saft's new production line in Cockeysville, Maryland. The purpose: to test the advanced-technology batteries for possible use on a spacecraft being designed for next-generation military communications. If successful, the tests could launch the Saft cells on the U.S. Air Force's next-generation communications spacecraft series. At least three of the space vehicles are programmed for service in 2003 and beyond. With its U.S.-based production capability, Saft is ideally positioned to serve this new high-tech market.

"We hope the purpose of this evaluation phase is two-fold: first, getting the 'thumbs-up' from the U.S. military for lithium-ion; and second, adding lithium-ion to the database of our American customers, most of whom build commercial communications satellites as well," comments Saft's Annie Sennet, in charge of space marketing for U.S. customers. "We see a $50m market in the U.S. for this technology in the coming years, so we need to be active with all our U.S. customers right now."

Saft's new American Li-ion production tool represents a $2.5m investment at the Cockeysville site. Co-developed with Saft's Li-Ion engineers in Bordeaux, the U.S. line makes both high-energy cells for space applications and high-power cells for vehicles and other applications. With an all-new calander, slitter, formation system and edge-cleaning machine, Saft can now make very thin and very high-power electrodes for its American and other customers. Patent applications




With higher-tech batteries from Saft, MTRC has been able to space out maintenance on its rolling-stock's batteries by a factor of three. A spokesman for the MTRC says, "A special stainless steel-cased SRX battery from Saft has been used in MTR urban lines since 1994. The batteries have met our expectation on reduced maintenance as the water-topping requirement was reduced from every six months to every 18 months." In other words, that aspect of their operating expenses is cut by two-thirds. The batteries in question feature electrodes known as "sintered" for the positive electrodes and plastic-bonded negative electrodes, abbreviated as PBE (box, right). A major advantage customers obtain from vented nickel-cadium rechargeable cells is the absence of electrochemical reaction between the alkaline electrolyte and other internal components. So there's no corrosion risk or "sudden death", both common with lead acid batteries. Among the other nickel-cadmium advantages which Saft has developed are extended battery life, improved recharge performance —-along with reduced maintenance.

have been filed for the process. The new equipment makes it possible for Cockeysville to produce two megawatt-hours of Li-ion energy yearly. Customers benefit enormously from the new equipment, which replaces manual tasks with a fully automated production line. A recent life-cycle cost analysis for one U.S. defense program shows savings of a factor of 10 when Saft technology is used: a cost improvement that will impress any customer. ■

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## Asian heat favors sintered/PBE

MTRC is just one of a number of rail operators in hot-climate Asia who have opted for the benefits of Saft's patented technology. For a rail link between Kowloon and Canton, the Itochu-Kinki Sharyo-Kawaski consortium (or IKK) in Japan has selected Saft and its sintered-PBE Ni-Cd batteries together with its Japanese representative Sumitomo for a program to extend rail service offered by the KCRC.

IKK is building eight 12-car trainsets for an extension east, and 22 seven-car trainsets for the extension west. Deliveries of Saft's SRX batteries start this spring, and the lines should be up and running in 2003. Like all other SRXs delivered to KCRC for refurbished electrical multiple units, the batteries come with stainless-steel housing and in flame-retardent plywood crates: safety first.

For its own expansion plans, MTRC has asked the Korea Rolling Stock Corp. to supply 13 eight-car trainsets for its new Kwun Tong, Twuen Wan and Island lines. The sintered/PBE battery for this application will be Saft's SRM batteries. The first train will be delivered next October (battery deliveries started last September), and the last one in July 2002. ■

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# How sintered-PBE reduces maintenance

**A few technical explanations of Saft's patented sintered positive and plastic-bonded negative electrodes are in order.**

Like any other vented battery, SRX/SRM batteries consume water during float charge. At a given charge voltage, however, sintered/PBE cells consume three to five times less water than conventional batteries. Another feature of this technology is its excellent charge acceptance, allowing the battery to be charged on the train at fairly low voltage levels. This further reduces water consumption. As the cells feature large electrolyte reserves, the resulting intervals for topping-up are signifcantly increased, and this in turn means the rail operator easily integrates this procedure into the train's larger maintenance cycle. The advantages of Saft's SRX/SRM family are particularly important where ambient temperatures can rise high, for example in Asian urban transport applications. The batteries cope with temperatures of up to +70° with excellent charge retention and reliability.

Lastly, with the sintered PBE technology, batteries can be smaller and lighter than is possible with other technologies, saving space and weight on-board — and that lower weight contributes to less wear on the track, translating into still more operating gains. ■

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François Putois

# EU Ni-Cd collection fund welcomes new members

**The founding members of a fund called CollectNicad are opening up membership to all players who will benefit from the long-term option of using nickel-cadmium batteries**

Describing it as a "voluntary commitment for the collection and recycling of spent nickel-cadmium batteries", the founding members — with Saft in their front ranks — announced the group's creation in December 1999. The non-profit organization is being set up as a European economic interest group. Among the founders along with Saft are leading players in the power tool and consumer electronics industries as well as other suppliers of rechargeable batteries for industrial, automotive and consumer applications (box, right).

Chairing the group is Saft CEO Grégoire Olivier, and the company's delegates are Corporate Environment Director Robert Eloy and recently retired Executive Vice President François Putois, well-known for his long years of experience with Saft in the nickel-cadium battery industry.

The move comes as a consequence of insufficient collection rates for consumer batteries in some EU countries.


**Saft's new environment brochure:** available from the Communication Department or at www.saftbatteries.com

## Web accessibility for new members

Comments Eloy: "This voluntary commitment proposal has an impact which falls in line with the priorities of new draft legislation." In early 2000 CollectNicad committed itself to a 75% collecting and recycling target of Ni-Cd batteries by 2003 — and 95% for industrial batteries. The initiative ensures that efficient collection systems will be in existence in all EU member states at the time when the requirement for collection of all batteries is transposed into national legislation.

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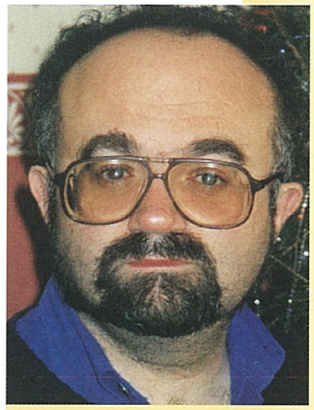
According to Putois, "Industry is convinced that this initiative presents substantial advantages for the environment." The group already has a Web site up and running (www.collectnicad.org) where interested parties in the rail, electric vehicle, aviation and appliance industries are invited to join in.

The site also provides useful information on changes of cadmium concentration in the environment and on sources that release cadmium. The element's natural presence in the environment in fact is significantly higher than its presence due to human activities. Of these latter, Ni-Cd battery sources represent only a tiny percentage of the total, with phosphate fertilizers, fossil fuel combustion and iron and steel production accounting for much higher percentages. The small Ni-Cd presence mainly results from failure to recycle spent batteries — a problem which CollectNicad is specifically designed to solve.

## EC recognition of the initiative

The initiative comes after a careful examination of environmental issues related to use of cadmium in Ni-Cd batteries lasting several months. It is the group's opinion "that the Ni-Cd battery does not create



Gerry Woolf

# Battery future shines bright for Saft

**Gerry Woolf, editor of Batteries International Magazine, reflects on an extremely optimistic future for Saft and the whole battery industry**

It's nearly six years ago since I took on the editorship of Batteries International Magazine and during that period, the prospects for the battery industry have just got better and better.

And looking ahead, the market barometer appears to be glued to fair weather. For a natural pessimist, this is a very unnatural state of affairs, but it's extremely difficult to see how a battery maker ploughing sufficiently large enough resources into research and new products can put a foot wrong.

From my view point that's exactly the position Saft finds itself in.

Let's take the telecommunications revolution. Five years ago, I was one of the few journalists I knew who used the e-mail and the Internet for communications purposes and gathering information. Today, the telecom majors are struggling to keep up with the demand for services. Since the whole system depends on DC power, back up batteries are in huge demand. Lead acid technology will take the lion's share of this for some time to come, but in any environment, where high temperature and accessibility are a problem, alternative technologies, such as NiCd and lithium have a great opportunity.

When Saft began to make moves in this direction a couple of years ago, I was certain success would be assured. Success will bring its own problems but they are nice problems to have.

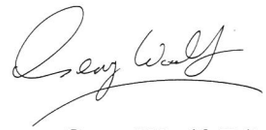
We've not even seen the start of sophisticated wireless service but when they are as popular as the current mobile phone, the demand for more cellular base stations, switches other decentralised communications hardware will skyrocket.

On our roads, the hybrid car is coming faster than anyone expected . The reason? The switch to 42-Volt electrics to power combined starter alternators, which can be used in a power assist mode, to actually move the vehicle, as well as power all the other electronic "goodies". As a bonus, the car is even more fuel-efficient. All vehicle platforms will be 42 Volt by 2007.

The car battery will now be a centre stage component rather than a peripheral item and all battery chemistries will be fighting for a piece of the action. Saft has rightly positioned itself as a pioneer of batteries for EVs and hybrids and is bound to be on the short list of suppliers as this market gathers momentum. And we all know how big this business could be in a decade from now.

There isn't space to mention all the other changes which are taking place in military portable electrical power requirements nor those related to electricity generation and distribution, but battery back up will be needed there too. Fuel cells? Don't worry. As much as their promoters choose to ignore the fact, they need battery back up too!

Apart from the rain that hasn't stopped for two months, I'd say there's nothing to dampen our prospects! ■



Gerry Woolf, Editor

## CollectNicad's founders

Along with Saft, the following firms are founding members of CollectNicad: Sanyo, Exide Technologies, Hoppecke Batterien, Panasonic, Cooper Menvier and Black & Decker. For information on joining, consult the website: **www.collectnicad.org**

▶ either a general or a specific risk to the environment if its introduction in the market is controlled according to the basic principles of precaution, product and market stewardship."

The European Commission has formally recognized CollectNicad, whose guarantees extend to providing direct regular input to a working group set up specifically to monitor progress. Discussions are on-going especially with Industry and Environment Directorates, and both the Enterprise and Environment Commissioners have publicly supported Saft's initiative, declaring that they are in favor of co-regulation between state and industry bodies. CollectNicad is certain that its initiative will contribute to an increasing integration of the battery business into the environment at large. ■

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# Size a battery? Buy it? Do it all…at saftbatteries.com

**Your profitability rises with every investment in e-business. Saft has recognized this with its new on-line battery center, where you can size — and soon buy — batteries.**


## www.saftbatteries.com

Is your company looking to cut costs and increase bottom-line profitability? On-line transactions are among the most efficient ways to do both. To deliver on-line transaction benefits to customers, Saft has invested in a new Web site, www.saftbatteries.com. Right now e-business at Saft is just at its beginnings. But it has already geared up to welcome you with features and services that will make your own operations more profitable.

Take battery sizing. Every battery serves a different purpose, and it's made of cells of different electro-chemical technologies: Ni-Cd, Ni-MH, Li-Ion and still more. Some customers want to replace what they've been using with exactly the same product, for reasons of convenience, space, etc. Other customers are buying new, or are willing to replace current products with new-technology batteries — if they can get the size, fit, and technical details.

The new Saft Web site helps customers with all these needs get their answers… fast.

### Boosting your profitability

Extranet transactions are ideal for reducing costs, speeding delivery and raising productivity by lowering your purchasing costs. For Saft's customers like you, we want to deliver you the right product the first time. One of the aims of the new Web site is to increase our ability to get you the right battery faster.

That makes "saftbatteries.com" a win-win card in our hand — and yours. And that's precious time freed up to be used for more added-value activities. ■

**See you soon on www.saftbatteries.com!**

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### Saft HQ has moved — and here's where to find us

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