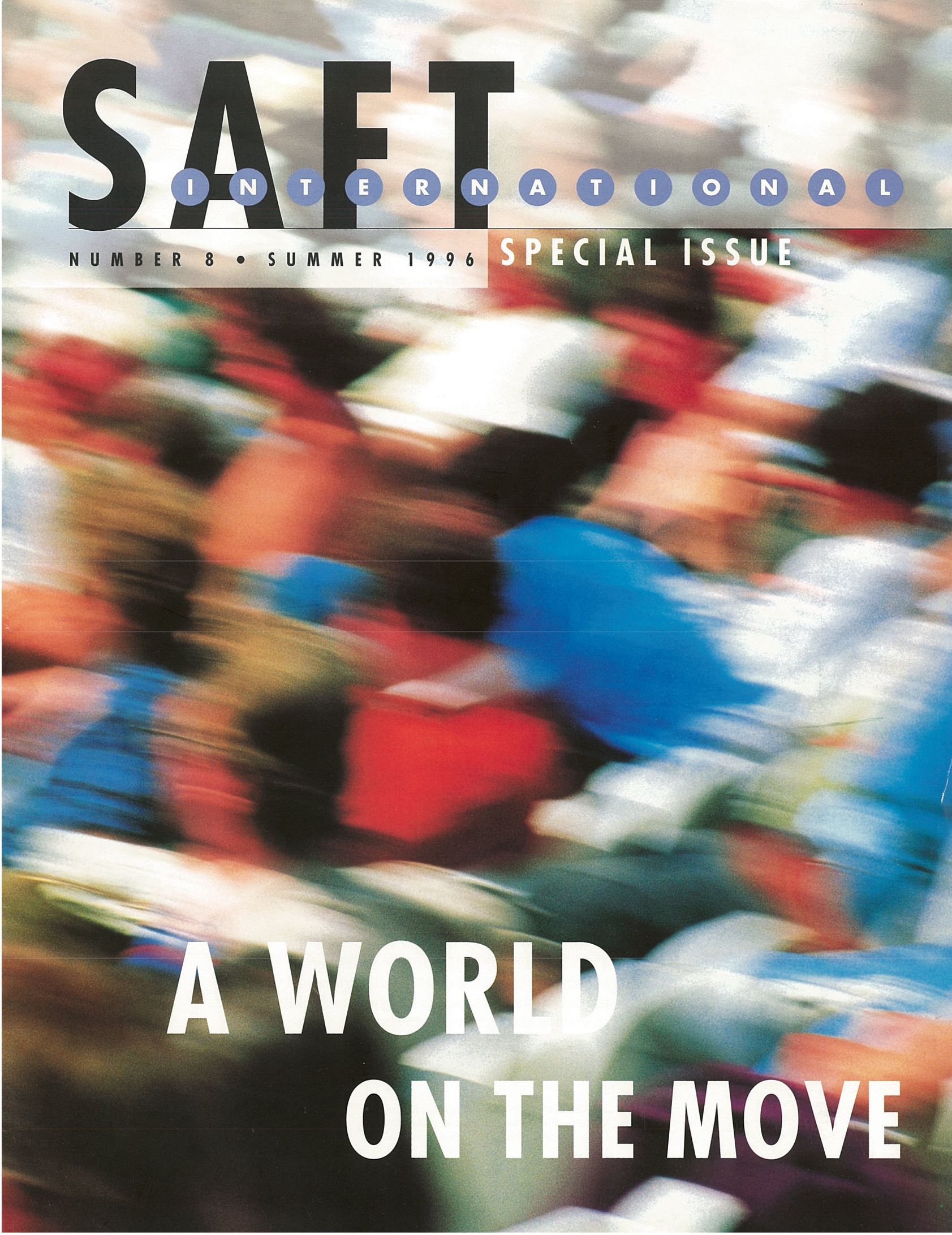


SAFT INTERNATIONAL

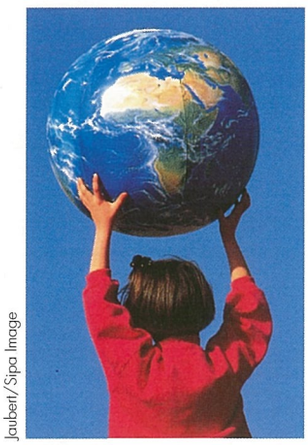
NUMBER 8 • SUMMER 1996 SPECIAL ISSUE

A WORLD ON THE MOVE

WHY A SPECIAL ISSUE ?

The world around us is changing – and we at Saft are changing with it.
But how ? What exactly are we doing to respond to new environmental, market and customer needs? How are we working with our customers to implement these new solutions ? Last but not least, **what are we doing to prepare for tomorrow ?**
The purpose of this **special issue** is to provide **concrete answers** to such questions. In these pages, you will find several examples of how we've adapted products to fit new applications, and tailored solutions to service our customers. You will also see how we've improved our **industrial plant**, both by expanding it and by introducing new production lines. Finally, we discuss the technologies we are researching and developing to enable our customers to go further and faster, **more efficiently**.
In short, this issue demonstrates how we at Saft are helping you, our customers, **meet new business challenges**. Indeed, by adapting to a world continually on the move, we are investing not just in our future, but in yours.

The technolgical revolution in communications has made earth a small planet indeed.



Jaubert/Sipa Image

4 THE CHANGING FACE OF A WORLD ON THE MOVE

As the century comes to a close, the world continues to develop in leaps and bounds. The constantly changing requirements of consumers is leading to new and continuously improved products. Saft is focusing on quality of service and technology to stay ahead of demand.

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THE CHANGING FACE OF A WORLD ON THE MOVE

THE EVOLVING WORLD IS TRANSFORMING THE BUSINESS WORLD AND VICE VERSA. ONLY THOSE WHO ARE AWARE AND WILLING TO ADAPT WILL SUCCEED.

The modern world is on the move. The global village is a fact of life, with profound implications for the economics of business and the way individuals view the world around them. The new global consciousness is intimately linked to a technological revolution in communications, reducing distances and putting people in touch with one another wherever they happen to be.

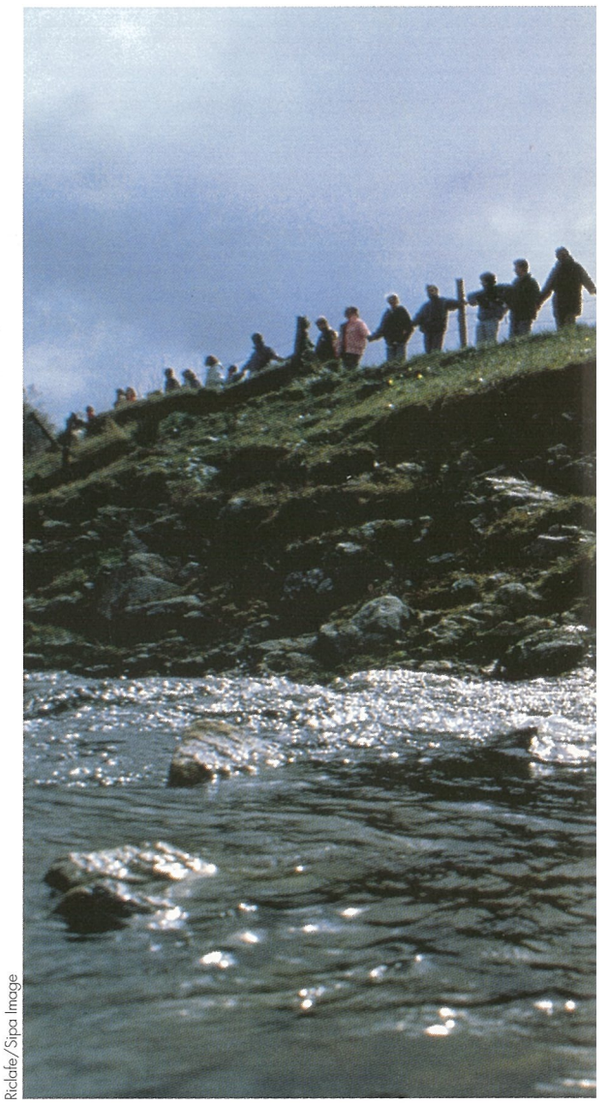
In today's electronics industry new products are being developed with bewildering speed. Not so long ago it took nine months to develop a new computer; today it takes six. Several new cellular phone models are launched every month; the figure will soon have increased to dozens. The marriage of the cellular phone to sophisticated computer technology has created portable office systems. **Products are following the constantly changing requirements of individuals.** No one knows exactly what's going to be developed in the future, but whatever it is, it's going to require smaller and more powerful batteries.

For this massive growth of portable applications has created a parallel need for autonomous power sources, whether the source is batteries, associated rectifiers, inverters or other power electronics systems. But the sophistication of today's market has brought a greater demand for reliability and security: for example, today's users want to know when their batteries are almost flat. Increasingly, battery systems contain control electronics – the first step towards intelligent dialogue between battery and user.

The infrastructure of communication is changing, too. People want information right now, and from all over the world. Satellites provide it. Constellation satellites are the new trend in communications – a single design is mass-produced and put up all over the world. The satellite market can be expected to boom in the next few years on the back of constellation programmes, as these start coming on stream in the near future.

RESPECTING OUR PLANET

But for all its technological sophistication, the modern world is marked by a new environmental consciousness. Issues like pollution and recycling are now firmly rooted in the public consciousness. **The electric vehicle was born out of the need to be more reactive to the environment :** new battery technology is at the heart of the first generation of mass-produced city cars and scooters. Batteries are also being used in tandem with internal combustion engines to drive heavier payloads. And high speed trains, using batteries for their backup power systems, are yet another aspect of the transport of the future.

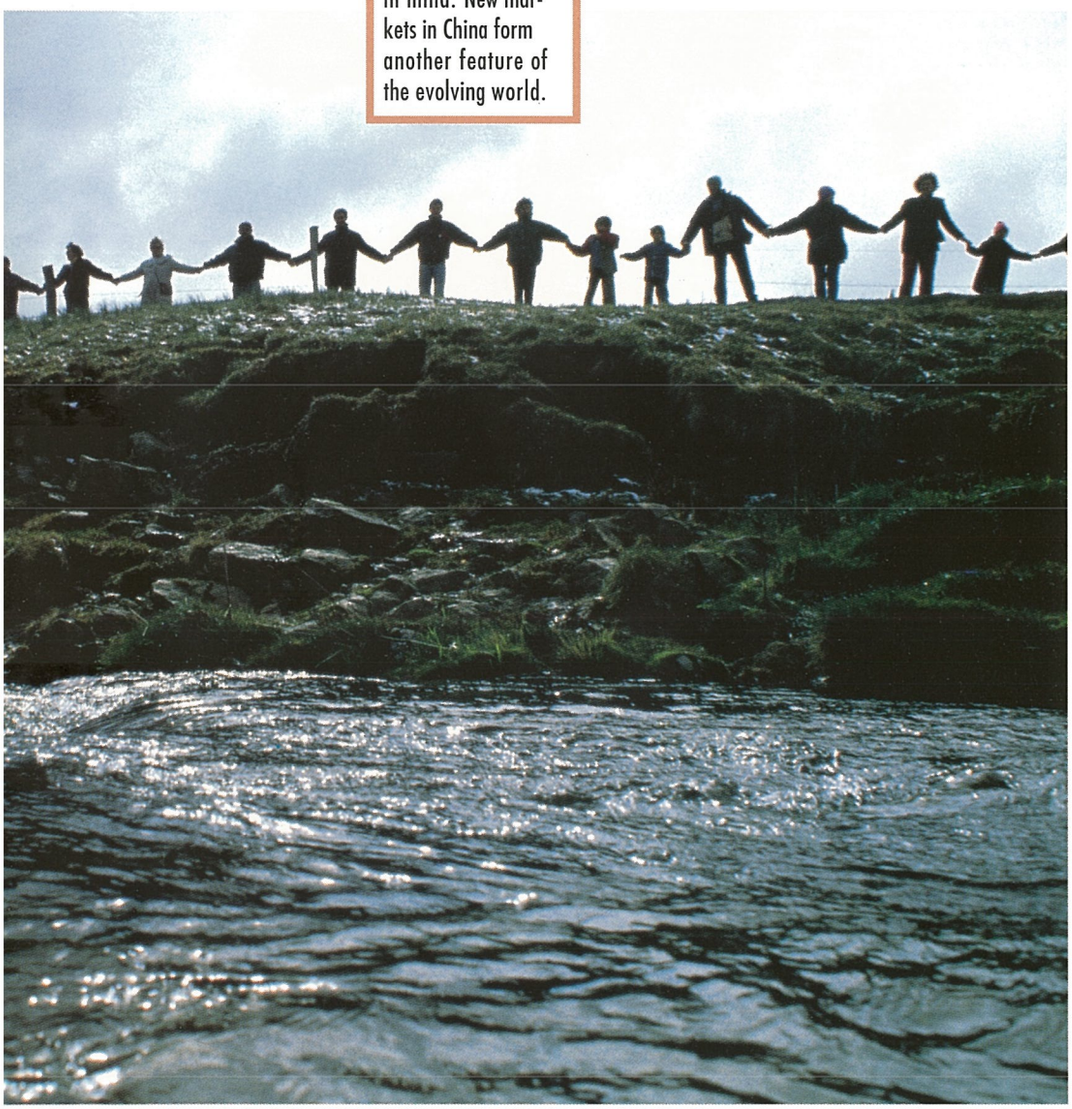


Ridale/Sipa Image

All these changes are taking place against the backdrop of a transformed world market. Deregulation and the opening-up of national markets to global competition have killed off many small manufacturers. Today there are fewer competitors and retail prices have fallen.

Worldwide "save our planet" demonstrations reflect a growing concern for the environment. Such issues have spurred Saft to approach battery design with recyclability constantly in mind. New markets in China form another feature of the evolving world.

Soulman/Sipa Image



Cost has become the key consideration. Telecom networks have to cost less today to attract more new subscribers, and are moving towards less costly systems, like cellular networks and microwave transmission. Deregulation has brought private operators into what was a public domain, bringing with them new approaches and different structures. The old public operators imposed their own technical requirements; today's private ones are more concerned with getting a return on their investment. To obtain optimum performance and cost, they buy standard products and transfer the technical responsibility to their suppliers.

Globalization itself is a double-edged sword, bringing new opportunities, but also new risks. Existing customers can turn to competitors, but may also lose competitivity themselves, costing suppliers their business. The changing market-place has forced companies like Saft to develop a standardised international product range with very competitive prices. National sales teams use these building blocks to create personalised systems for customers.

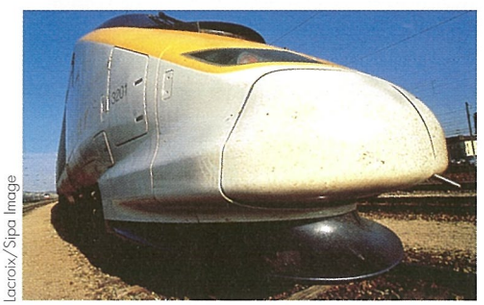
The new global framework has brought new market opportunities. These may be new areas in existing marketplaces or whole new markets which did not exist before. The first group includes portable communications and information technology, a big growth area with a profusion of new products. The second involves China and the ex-communist bloc, new markets which are opening up fast and which Western companies are all hurrying to fill.

ABREAST OF MARKETS

Although until now the new terms of world trade have stressed profitability and a healthy treasury, in the future companies will be forced to continue making big investments in R&D. The survivors are all going to be financially healthy, with an international structure and a big turnover. **The only factors distinguishing them will be quality of service and technology.** Development and access costs are huge in the field of high technology. In aviation a company typically has to invest 10 % of its turnover in R&D, not to enter new markets but simply to maintain its position in existing ones. And keeping abreast of the market is essential to know what technologies are going to be needed in the future. For Saft, nickel cadmium and nickel metal hydride will continue in dedicated applications, while certain other products will move to rechargeable lithium, which gives major advantages in size and weight. Fitting microprocessors into systems to monitor current quality is also set to dominate future developments. Success in today's marketplace depends on having the right technology, and being able to manufacture quickly and at the lowest possible cost. Saft's product divisions are all working on doing just that.

SAFT: DEDICATED TO CUSTOMIZED

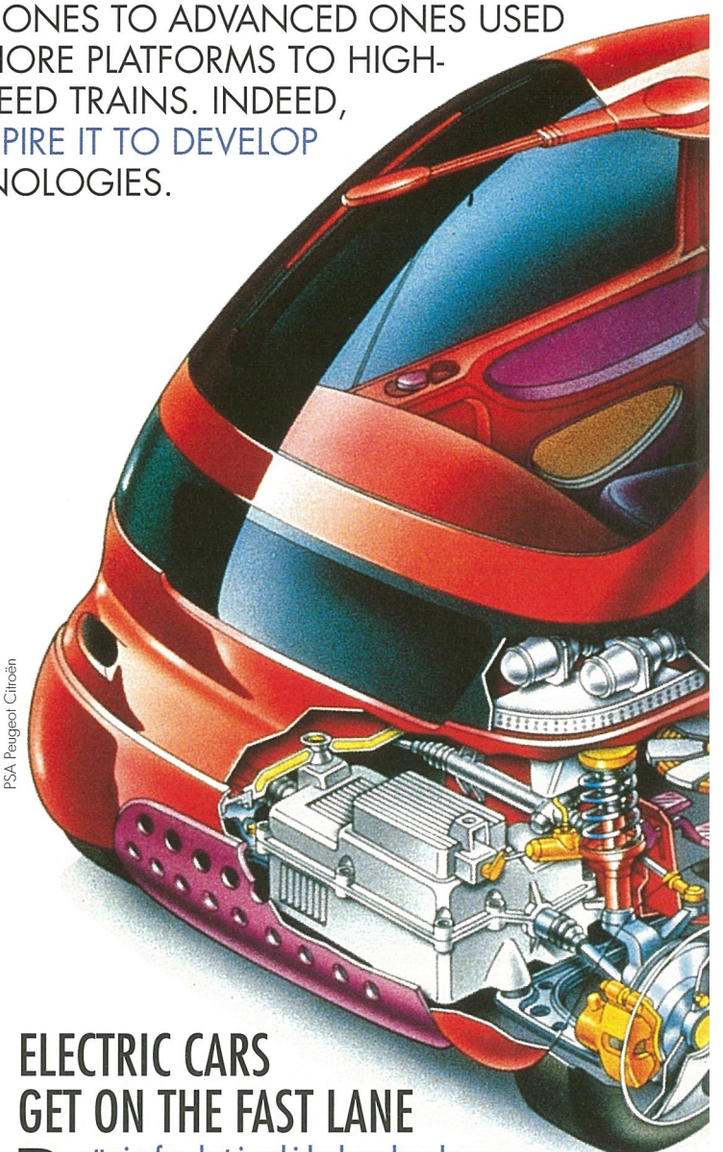
CUSTOMER REQUIREMENTS ARE ALWAYS AT THE HEART OF SAFT'S POWER SOLUTIONS. FROM TINY PRISMATIC BATTERIES FOR CELLULAR PHONES TO ADVANCED ONES USED IN SATELLITES, FROM POWER SYSTEMS ON OFFSHORE PLATFORMS TO HIGH-TECHNOLOGY BATTERIES THAT BACK UP HIGH SPEED TRAINS. INDEED, IT IS SAFT'S CUSTOMERS WHO CONTINUALLY INSPIRE IT TO DEVELOP NEW PRODUCTS, NEW PROCESSES, NEW TECHNOLOGIES.



Lacroix/Sipa Image

Crossing the Channel

The Channel Tunnel linking Britain with continental Europe runs for 50 kilometers, including 38 under the sea. The trains hurtling through this tunnel require back-up systems that offer maximum reliability, availability, maintainability and safety. During any type of outage, the batteries must power – for at least 90 minutes – the onboard computer, heating, ventilation and air conditioning, fire detection, emergency door operations, public address, display panel and other vital functions. That's why Saft's SRX batteries were specified for all of high speed rolling stock including Eurostar. Reliability is an intrinsic feature of SRX nickel-cadmium battery line, along with high energy density, reduced maintenance, long life and low life cycle cost. SRX batteries are 45% smaller and lighter than other types of battery providing equivalent performance. Proven in more than 15 years of reliable service aboard France's high-speed TGV trains, Saft nickel-cadmium batteries avoid the risk of failure that may strike conventional lead-acid batteries. ●



PSA Peugeot Citroën

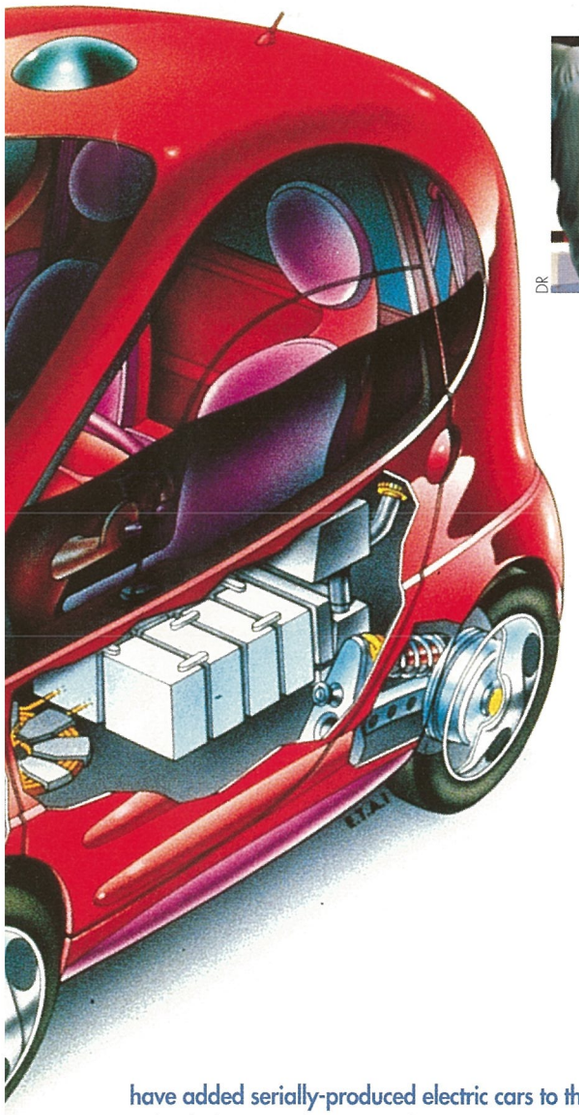
ELECTRIC CARS GET ON THE FAST LANE

Batteries for electric vehicles have long been one of Saft's key strategic focuses. Indeed, in 1995, the company spent FR 100 million on R & D in this sector alone. Developments in the market for electric vehicles are clearly the result of long-term partnerships with customers. Saft has been working closely with PSA, Peugeot-Citroën and Renault, and in the U.S. with the U.S. Automobile Battery Consortium. Such long-term commitment is leading to concrete results. After years of tests, pilot projects and small-volume production of lightweight city vehicles, the electric car has entered a new phase: for the first time, the two major French auto constructors, PSA and Renault,

"Policies designed to improve the quality of life in cities – limits on noise and air pollution for example – should accelerate electric vehicle development and render them easily accessible to consumers."

Philippe Ulrich *EV marketing director, Saft*

ENERGY SOLUTIONS



have added serially-produced electric cars to their showrooms. Indeed, the new plant at Bordeaux, France, is Saft's answer to carmarkers' new needs. EV projects are becoming increasingly ambitious, as well. PSA Peugeot Citroen has unveiled its Tulip concept, where it would create a network of specially-created electric cars in city centers – infrastructure included – and rent them to subscribers. At the moment, a dozen or so prototype Tulip vehicles exist. Projects such as these should propel the electric car market to reach 3% of personal automobiles in ten years, and Saft seeks to have 50% of it. Though electric vehicles are still costly now, policies designed to improve the quality of life in cities – limits on noise and air pollution, for example – should accelerate their development and render them easily accessible to consumers. ●

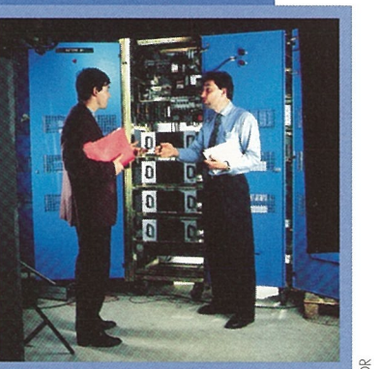
DR

A team approach

Saft's plants in Saint Yrieix, France and Tijuana, Mexico, specialize in custom-designing battery solutions to meet specific customer requirements. "First, we ensure that we understand the customer's needs," says Marc de Rycke, quality director in Saint Yrieix. "Then we consult them on which options are available to them." For example, batteries for GSM telephones are integral parts of the product ; their design depends on the form of the telephone itself. Saint Yriex will work from standard cells produced by other Saft plants, and develop a personalized solution for the client. This custom-tailoring includes factors such as size, but also 'finishing' factors such as colors and logos.
Both Saint Yrieix and Tijuana have established structures to accelerate processes. Officialized as "Teaming" in Tijuana, both plants feature autonomous production units which group specialists from different areas of the company – design, production, logistics – and work hand-in-hand with the customer. ●

Anticipating customer needs

Saft back-up power systems play a vital role in safeguarding strategic equipment such as telephone exchanges, oil drillers and computer-controlled processes. Maintaining that equipment in optimum condition is the job of the Customer Services division at Saft Power Systems, France. Its goal ? To extend the equipment's lifetime and prevent costly power failures.
"We don't wait for something to happen," says Bernard Foubet, Saft's Power Electronics quality director. "We anticipate our customers' requirements." Indeed, preventive maintenance leads to fewer emergency interventions – thus greatly reducing risks of operating losses.
As a result, productivity improves, as do operational and financial results.
Saft offers a full range of customer services, including maintenance, hot-line assistance, on-site intervention, technical assistance, training, supply of spare parts and repairs. ●



DR

Getting gas right in the U.K.

DR

Six years ago, British Gas and meter manufacturer Gill developed an electronic device to measure domestic gas supplies. After an approval process that took several months, they chose Saft and its D-sized primary lithium LS 33600 battery to drive its electronics. "They needed a long-life battery – a minimum of 10 years – very high reliability and high capacity," explains Jim Thompson, commercial director for Saft in the U.K. The electronic meter, which is expected gradually to replace the mechanical version, provides British Gas with more accurate gas readings as well as telemetry functions. Manufacturing started in 1995, and this year, total output will reach 500,000. "That's only 2 and 1/2% of the meter market – there are over 20 million dwellings in the U.K., not to mention export markets," says Thompson. And though there are other battery suppliers on the market, Saft clearly enjoys a major share. ●

Helping to make Motorola run

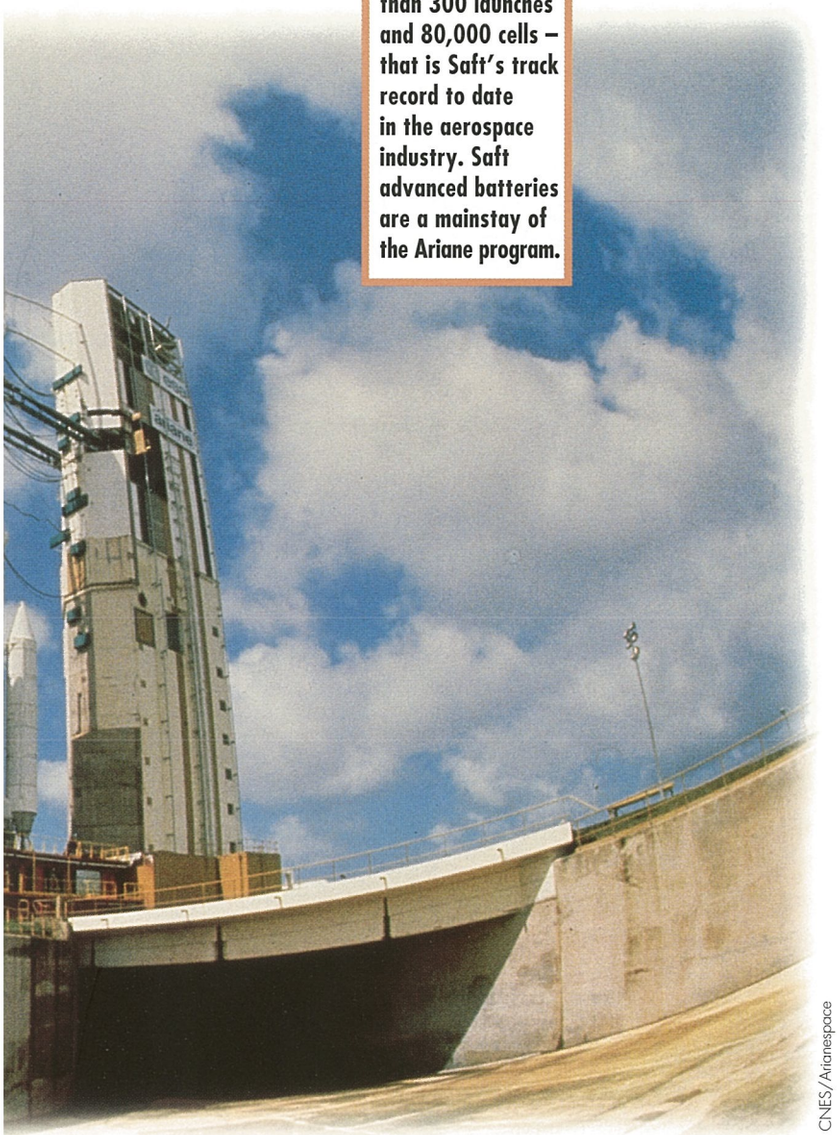
To keep its position in the booming portable telephone market, Motorola must continually develop products that are not only smaller but increasingly lightweight and autonomous. As one of the battery suppliers to the company, Saft tries to keep one step ahead. "If we have a significant share of Motorola's prismatic battery market, it's because we've brought them a number of product innovations and better service," says San Diego-based global account manager John Conely. "We're the ones who brought them the "form" factor." Indeed, the Japanese Saft-GS joint venture created the first slim, rectangular prismatic cell – the GP3 – for Motorola in 1988. It went on to design several batteries for its customer, including the 1-hour GP6 and the 12.5-gram GP N4 US. Moreover, Motorola was able to bring out its 120-gram Microtac Elite in 1994 because Saft could supply them with a lithium-ion prismatic cell developed by its Japanese partner in the Kyoto based joint venture. Saft also offers Motorola sales and marketing support, both in local markets and worldwide. Indeed, GS Saft opened a plant in Shanghai in the second half of 1995 in order to support its customers' efforts in the high-potential Chinese market. ●

Les 100 Ciels

SAFT PROVIDES TAILORED SOLUTIONS FOR SPACE LAUNCHERS

In the early 1990s, the U.S. Air Force was looking for a battery that would allow it to launch a longer-lasting – and thus heavier – satellite. Could they save on battery weight while maintaining performance and reliability in extreme conditions ? Saft and three other companies presented possible solutions. Saft's lithium-thyonil chloride 9 VLS 250 AM battery, the fruit of six years of research, was the only one to survive the highly rigorous qualification process. Developed in Poitiers, France, specifically for the Air Force's Titan IV launcher, Saft's battery took 40% off the weight of the previously-used silver zinc battery, all while maintaining an energy density of 260 to 350 watts/hr per kilo. The battery, successfully used in the May 1995 launch, powers the launcher's second "Centaur" stage (it is now referred

Over 30 years experience, more than 300 launches and 80,000 cells – that is Saft's track record to date in the aerospace industry. Saft advanced batteries are a mainstay of the Ariane program.



CNES/Arianespace

to as the 'Centaur' battery). "This stage is the one to put the satellite into orbit," explains Philippe Vannier, deputy general manager of Saft's space and defense division. "Our battery is responsible for guiding the launcher, and feeds all the computers and the telemetry systems on board." A second launch is already programmed, and orders for two more launches have been received. Response has been positive in Europe as well where a similar battery is slated to power the European automated transport vehicle for the Alpha international orbital station programme. Saft has a long history of supplying a variety of batteries for space applications. It is a mainstay of the Ariane program, and has also powered satellite launchers for a number of other operators. ●

Reducing primary accidents by 23%

Fotunati/NBT

When the Dutch national transport authority installed information panels over its highway lanes twelve years ago, they set out to find an adapted and reliable back-up power system. "The system had to be housed in a cabinet which would stand outdoors," explains Peter Bon, General Operations manager at Saft Nife B.V. in the Netherlands. "It had to withstand environmental factors such as high temperatures and humidity, and be easy to maintain and supervise." Saft came through with a single phase rectifier (SPR) Ni-Cd battery and a simple charger. Its added value ? "We were the only company which could provide a 36-volt configuration, and meet other specifications as well," says Bon. Saft regularly supplied its customer with SPR units throughout the years. To keep Saft on its toes, the authority went out to tender four years ago – only to find that Saft still came first in terms of price, delivery and product reliability. Today, Saft is providing its customer with a more evolved version of the same product – one which includes a larger number of capabilities. It will ship 500 units this year, and 2000 by September/October of 1998. ●

Musée d'Orsay: a safe place

Thousands visit the Musée d'Orsay every year to see some of the world's most beautiful impressionist paintings. Like all other tourist attractions, safety and security are of utmost importance. Saft's contribution to these vital functions is its automatically-controlled emergency lighting system. Some 500 units, each containing a 3 VTD cells battery (4 amp/hr), are installed throughout the site, providing one hour's worth of back-up in case of any power failure. "The advantage is that the system tests itself," explains Brigitte Verrier, national consultant within Saft's safety systems division. That way, maintenance personnel need only glance at the units to ensure all is well. Any problem would instantly be signalled visually by a small red light. Saft also provides regular maintenance service on its units. "In this type of building, precaution is necessary," says Verrier. ●

Musée d'Orsay

AT SAFT PLANTS CHANGE IS A WAY

SAFT IS COMMITTED TO A POLICY OF INVESTMENT AND CONSTANT IMPROVEMENT IN ITS PLANTS. NEW PRODUCTION LINES HAVE BEEN LAUNCHED, OPERATING PERSONNEL HAVE ACCESS TO WIDE-RANGING TRAINING PROGRAMMES, AND INITIATIVES IN RECYCLING HAVE BEEN MADE. THE RESULT ? BUILT-IN QUALITY PROCESSES, GREATER CAPACITY AND MORE SUPPORT AROUND THE WORLD.

Meeting EV demand in France

P. Simard/Saft

Saft inaugurated the world's first electric vehicle battery plant last October in Bordeaux. It was the first time an electric vehicle battery manufacturer – with vital support from the automobile industry – invested in a truly large-scale production capacity. The plant required an investment of FF 100 million, and enabled Saft to increase its production capacity from roughly 400 batteries to more than 5,000 per year. Within the next three years, annual capacity can easily be boosted to 15,000 batteries, depending on market requirements. Of course, Saft has built in quality that meets the expectations of the automobile industry. The Bordeaux plant features integrated, real-time processing checks at every step of production. Quality control is computerized and covers 40 separate procedures plant-wide. To be able to meet the production volumes contracted for, various parts have been completely redimensioned. ●

LITHIUM-ION TECHNOLOGY GOES ON LINE IN THE U.S.

Saft's plant in Valdese, North Carolina, put in a formal request for a new lithium-ion production line in order to take advantage of increasing demand in three big markets: cellular phones, portable computers and video-cameras. "We purchased the initial phase of equipment in early 1995," says Tom Alcide, operations engineering manager at the Valdese plant, "and we're going into full production over the rest of the year." The plant works closely with the R & D Center in Cockeysville, Maryland, Alcatel Alsthom Recherche in Marcoussis and the Poitiers plant. "We are a single consolidated program," says Khushrow Press, vice-president and general manager of the Cockeysville facility as well as of the lithium-ion programme in the U.S. The Valdese plant produces cylindrical cells and also manufactures primary lithium SO2 cells, for which it was a major supplier to the U.S. Army during the Gulf War. On the other side of the Atlantic, the Saft Poitiers plant is slated to produce lithium-ion medium prismatic cells early next year (see p.12). Lithium-ion is well suited to applications demanding high energy and reduced volume and weight. ●

DR

"Used batteries must not end up in the environment so we take back our products. Recycling is an integral part of the plant."

Lars Erik Johannson *Quality & Environment Director, Oskarshamn*

OF LIFE

DR

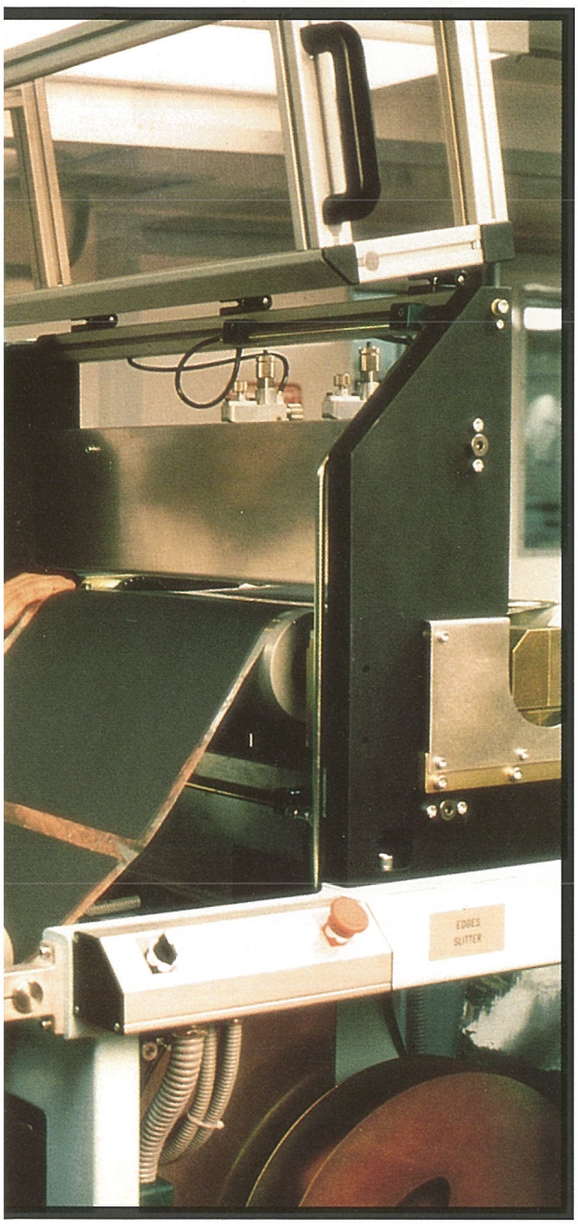
Motivation by training

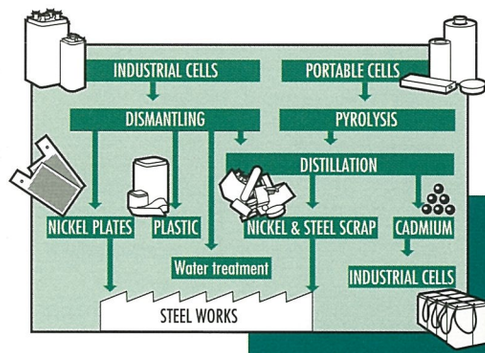
Broadening horizons and improving operators' adaptability: these are the goals of Saft's internal training unit. "We train operators to motivate them," says Michèle Descroix, training manager for Saft. "We do more than show them what to do and how: we show them why." Operators learn what Saft is all about, who its customers are and how Saft batteries are put to use. Short, user-friendly introductory modules are given on electrochemistry, electricity, even statistics – quality control obliging – as are sessions on technologies such as electrical welding. Given the positive results, Saft's training efforts are now carried out as part of industrial quality efforts. "I would say that about 4/5 of our operators have been on at least 2 modules," says Descroix. ●

DR

Asia ahoy

The Chinese market for mobile telephones is in full boom, and Saft's customers are seeking to earn their share. "In order to accompany our customers into this market, we've opened a plant in Shanghai," says Patrick Houzé, international development director for Portable Batteries. The Shanghai GS-Saft plant, a subsidiary of GS Saft (the japanese joint venture between JBS and Saft), inaugurated its first production line in May of this year. The unit will produce prismatic cells for the portable phone market, and assemble battery packs as well. So far, about 40 people are employed in the plant. Shanghai GS Saft is working closely with the Chinese Training Institute to ensure a highly qualified workforce. ●



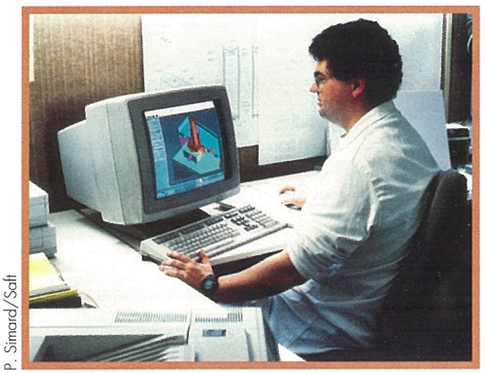


Leading the green battle

Saft's Oskarshamn plant in Sweden is one of the world's largest industrial nickel-cadmium battery manufacturing centers. It is also at the forefront of a vital environmental initiative : battery recycling, which it started in 1978 and began operating on an industrial scale in 1986. "Used batteries must not end up in the environment," says Lars Erik Johansson, the plant's director of quality and environmental assurance. "So we take back our products." In addition, Oskarshamn takes back all types of nickel-cadmium batteries from various parts of the world. "The cadmium we take out of the batteries is used for making new industrial batteries," explains Johansson. "The nickel and steel are sent back to steelworks. All metals go back to use." The plant's recycling activity is an integral part of the plant. Complete recycling facilities have been installed on site, including disassembly stations, pyrolysis furnaces and powerful filtering systems. Throughout production, any cadmium and nickel particles that may escape are vacuumed up and reinjected into the process. Oskarshamn also monitors the surrounding environment to keep any atmospheric releases and emissions to water well under authorized limits. The plant uses 300 tons of cadmium per year, and has just obtained an extended permit to recycle up to 2,000 tons of batteries per year. ●

R&D AT SAFT: THE RACE FOR PERF

SPURRED BY MARKET DEVELOPMENTS IN PORTABLE AND ELECTRIC CAR APPLICATIONS, SAFT IS DEVOTING MUCH OF ITS R&D EFFORTS TO TECHNOLOGIES WHICH ENABLE SMALLER AND MORE POWERFUL BATTERIES. OPTIMIZING OUR TECHNOLOGIES – LITHIUM-ION IN PARTICULAR – WITHIN THE QUICKEST TIME FRAME POSSIBLE IS ONE OF SAFT'S KEY CONCERNS.



P. Simard/Saft

Poitiers: the race is on for rechargeable lithium-ion

Electric vehicles and portable telephones both need a great deal of autonomy in order to attract consumers. To provide this capacity, Saft is developing rechargeable lithium-ion batteries. "With the same mass, lithium-ion allows for an autonomy of over 200 km," explains Guy Sarre, lithium-ion programme director for electric vehicles. Moreover, the battery has a lifetime of about 120 to 150,000 km. "At the moment, we have a working laboratory prototype," says Sarre. "We're testing it for its electrical performances, and will have a prototype ready for road testing in mid-1997. The plan is to be able to start industrial production by the year 2000." What about other possible applications? "We've just launched the pilot production of our MP 17 60 65 product for military radiocoms," says Jean-Pierre Planchat, technical director for the rechargeable lithium-ion programme in Poitiers. "We are also preparing our prototype of the MP 14 43 50 product, which is geared to portable phones." Industrial production for this product, which was developed specifically in response to customer demand, is slated for beginning of 1997. ●

"Research and development is a race for performance particularly for portable applications and the electric vehicle."

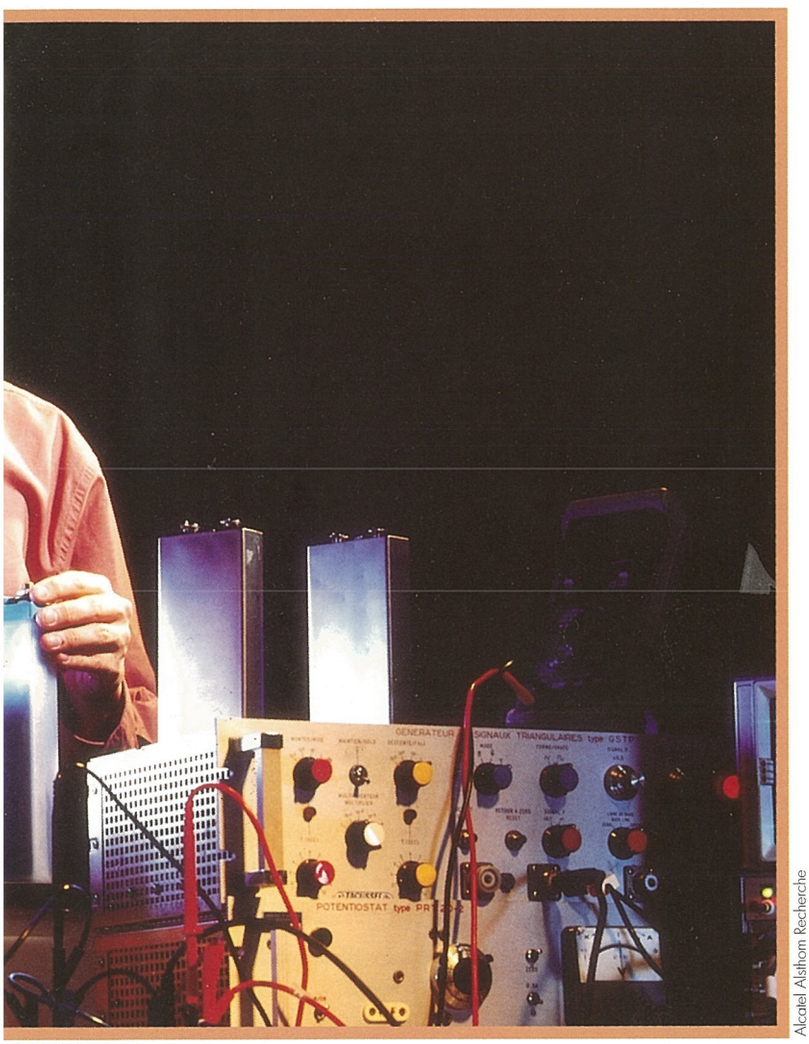
Anne de Guibert *Research Director, Saft*

Saft's main research center is located at Alcatel Alsthom Recherche in Marcoussis, France. Here, the lithium-ion couple is one of the main focuses of the forty-strong team.

STAYING A STEP AHEAD OF TOMORROW

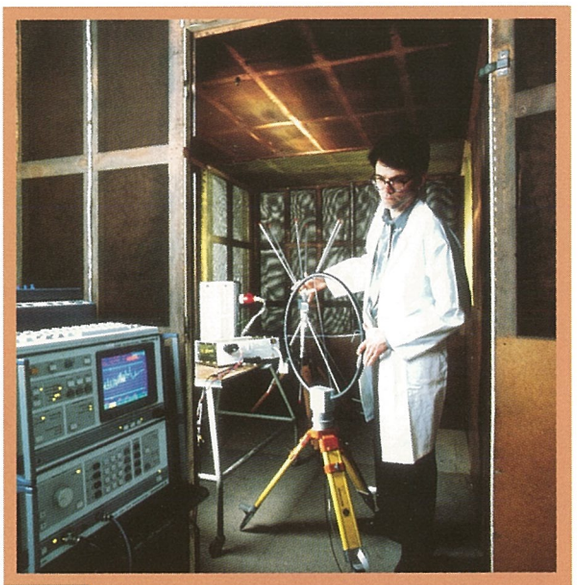
Saft spends a significant portion of its sales revenues – 5.7% in 1995 – improving, developing and finetuning its products. At Alcatel Alsthom Recherche in Marcoussis, about 40 researchers are busy transforming this commitment to R & D into concrete and decisive improvements to key battery technologies.
"It really is a race for performance, particularly for portable applications and the electric vehicle," says Anne de Guibert, Saft's research director. The lithium-ion couple is the main focus of the Marcoussis team. With almost triple the energy to weight ratio of nickel cadmium, it is an extremely appealing solution for portables and EVs. Researchers at Marcoussis are working on improving the lithium-ion technologies

ORMANCE



Alcatel Alsthom Recherche

that the Valdese plant currently exploits and produces. Of course, Saft's research team constantly seeks to ameliorate other technologies as well. For nickel-cadmium batteries, the team is working on improving the chargeability of the "foam" positive electrode. Nickel-metal hydride (Ni-MH) is another key focus: it can be produced using technology very close to traditional Ni-Cd manufacturing techniques – hence not requiring major industrial infrastructure investment – while offering a capacity of between 20 and 30% higher. Saft has already launched this product on the portable applications market, and has been working closely with the U.S. Advanced Battery Corporation for EV applications. Teams at Marcoussis keep a technology watch on new battery technology. ●



P. Simard/Saft

Developing the next generation of power systems

Chambray-les-Tours in France has also its own development lab. Its R & D engineers work closely with technical and commercial staff to develop solutions that meet customer needs, quickly and cost-effectively. Today, the Tours plant is focusing its efforts on three areas.
By developing smaller, more modular and more powerful inverters, Saft's customers will gain space and decreased costs. Saft is also working on giving its inverters and rectifiers a remote control capacity. "This will enable our customers to monitor their units from afar," says Michel Perelle, Saft development expert. Finally, the Tours plant is working in conjunction with Poitiers to supply lithium-ion batteries with associated smart electronics. ●

WHERE SAFT IS HEADING

AMBITIONS, DEVELOPMENT STRATEGY, MANAGEMENT ... CHAIRMAN AND CHIEF EXECUTIVE DENYS GOUNOT, AND FIVE OF HIS SENIOR MANAGERS, TALK ABOUT THEIR VIEW OF SAFT'S PROSPECTS.

Adapting to a changing telecoms market

The telecoms market is in flux, and Saft is rapidly adapting its offer. "Today, we offer a range of standard, modular systems that we can adapt locally to meet potential specific customer requirements," says **Bernard Clavel, director of Saft's telecom power systems division**. Saft is also making less powerful – 250 and 700 W – rectifiers for the new market's requirements. Moreover, all systems have intelligent supervisions, thus allowing global network management of operators' installed parks.

Maintaining rail batteries in the Netherlands

Saft in the Netherlands operates a maintenance workshop especially for the Dutch national rail authority. "We organize the logistics, get the Ni-cd batteries in, cleaned and recharged," says **Dick Vleeskruijer, managing director of the subsidiary**. The workshop handles about 30,000 cells per year; it also keeps the stock of emergency batteries. Of course,it complies with all environmental regulations – in spite of very dirty batteries.

P. Simard/Saft

"We are investing primarily in one technology – rechargeable lithium-ion – and one market – batteries for electric vehicles."

You have said that Saft must be at the same time a world player and a local operator. What does worldwide business mean for you?

Being a world player first and foremost means holding certain positions on our markets. What is unusual about Saft is that in each of our business sectors, we are either the world leader or one of the major players... and in all cases, a major partner. We also constantly offer a level of quality benchmarked on the top standards. Being a world player also means a worldwide presence, of course. With a geographically well-balanced business base – one half in Europe, 20% in America and 15% in Asia – our world coverage is excellent. Finally, it means the support of a major group. As the battery sector of the Alcatel Alsthom Group, Saft benefits from a powerful international network and has the capacity to invest heavily in production facilities and in research and development.

What advantages do your customers derive from your international dimension?

Quite simply the guarantee of being able to depend on a partner who can follow them in space, in time and in every aspect of their needs. We can support our customers' business reorganizations, especially delocalizations on three continents. Our level of R&D investment assures our customers of regular improvements to existing products and gives them access to the most interesting innovations in conditions of high reliability. As for their changing needs, the fact that the Saft label figures on our entire range reassures the growing number of customers planning to move into a new product group, or a new segment.

Does this international strength impede the company's operations?

Saft's international culture is neither recent nor involuntary. It began in the late 1950s in Europe. In the early 70s, we moved into North America, and in the 80s we expanded into Asia, starting with Singapore. Today, we are active in more than 25 countries. Our network essentially consists of teams of local nationals who are naturally very active in the field and have a strong tradition of independence. Our multi-cultural approach values local autonomy. For instance, if a Korean customer sets up a plant in England, he will deal with Saft Korea and Saft U.K., without going through a Paris-based corporate hierarchy. We recently carried out an internal reorga-

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nization, which has taken us even further in this direction. We have split our business into three product groups, which will enable us to create better synergies between different technologies, and to coordinate our development teams and sales subsidiaries better.

How does Saft plan its future development, and what criteria are your choices based on?
We are investing primarily in one technology – rechargeable lithium-ion – and one market – batteries for electric vehicles. Lithium-ion batteries will not replace alkaline technologies for many applications to which nickel-based batteries are perfectly well suited, but they do correspond to our bid to win new markets, especially in the field of portable batteries, where they offer an excellent trade-off in terms of range, weight and volume.
We firmly believe in the future of the electric vehicle market, in a world context of mounting levels of urban traffic and the urgent need for environmental protection. Saft has the advantage of its lead in industrial batteries. We have backed up the major car manufacturers in their electric vehicle research programs from the very start, in the 70s. Thanks to these partnerships, we now offer a product that guarantees regular performance irrespective of the state of battery charge, the age of the battery, and the climatic conditions. We have set up the first ever automated production unit for alkaline batteries for electric vehicles, the only plant in the world that will be capable of responding when the market gets off the ground and satisfying the needs of the car makers. The electric vehicle market is slow to start up, because of psychological and economic barriers. But we are working on the problems, and we have already passed the experimental stage. On a technical level, we are, of course, constantly working to improve alkaline batteries, and we are at work on the next generation, using lithium-ion technology. We are concentrating our investments in these two areas, which we judge to be the only credible ones in the short to medium term. But of course we keep a technological and scientific watch on other avenues of long-term research.

With what cultural and technical assets does Saft respond to the needs of its market, and how do you intend to move the company still closer to its customers?
Saft has two key assets: very strong technical and international cultures. Our efforts must now go into speeding up our work. The science of electrochemistry, by its very nature, used to advance at a slow pace, but the amazing acceleration in market needs has put paid to that! Consumers and manufacturers have developed an insatiable appetite for portable energy in the past five years, obliging the battery industry to change gear… although without short-cutting standards of quality and reliability. Saft is leading the way. We are shortening lead times, improving our logistics, and especially optimizing the work of our employees. With the aim of helping lightweight, highly professional structures, well-established locally, benefit still further from the company and the Group… on a market which is becoming increasingly "mobile".

Getting in on a difficult market

Saft's subsidiary Ferak in the Czech Republic, inaugurated in October 1995, is on its way. "We are establishing a network of local agents throughout Central and Eastern Europe," says **Jean-Pierre Cittanova, Saft Ferak's CEO.** Saft Ferak has 90% of the country's market for pocket-type cells for railways, and plans to increase its activities in stationary batteries.

Selling EV batteries over the long-term

To spur sales of electric vehicles, Saft and PSA Peugeot Citroën have teamed up, and are offering EV buyers in France a car battery subscription. Subscriptions, which include full maintenance and service, cost 600 FF ($120) per month, all taxes included, and are for a minimum period of one year. "Moreover, the battery remains in our control, so we can ensure it gets recycled," says **Bertrand Olivesi, Saft's director of industrial batteries in France.**

Saft grows in Korea

The market for portable applications is growing in South Korea, and Saft's total sales in the area are riding market trends. "There is an increase in demand for rechargeable lithium batteries," says **S.K. Kim, director of Saft's subsidiary in Korea,** "and we are well positioned to take advantage of this." The subsidiary imports lithium prismatic batteries from Saft partner JSB in Japan, and adapts them for local use.

Advanced battery solutions for your fast-moving ideas

Photos: 3 Bis, Image Bank, C. Jarlan, Pictor, Vloo.

Saft lets you choose the exact battery technology needed to bring your portable device to market, now! Nickel-cadmium or nickel-metal hydride, primary lithium or the latest rechargeable lithium-ion. Cylindrical, prismatic or button cells. Whether you need top cycle life for mobile phones or computers, high power for cordless drills, or long-life cells for utility meters or electronic toll systems, our engineers work with you right from the design stage to achieve optimum performance. We design the battery pack that meets your needs, as well as supplying the charger and integrated electronics. Saft, an Alcatel Alsthom company, has production facilities in Europe, Asia and North America, and a worldwide sales and technical support network. No matter how fast the world moves, Saft battery technologies keep you a step ahead.

SAFT

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