

Soft batteries for Oil & Gas

Powering all of your applications, everywhere you need to be



SAFT

Saft: the right choice for the demanding



In a world where demands for energy are rising, Oil & Gas companies are operating in increasingly remote and difficult-to-access locations, often in much harsher environmental conditions than before. These sites depend on the batteries that power the instruments, equipment and systems that make their tasks possible.

Saft's nickel- and lithium-based batteries offer the reliability, energy/power density and safety that are so critical to this sector. With minimal or even no maintenance requirements and a long lifespan, our batteries operate even in harsh conditions, at extreme temperatures, for sustained periods of operation and in potentially inflammable or explosive environments.

Saft - your trusted partner for Oil & Gas applications

▶ A tested, trusted partner for over a century offering a wide range of technologies

Many of the world's leading Oil & Gas companies worldwide rely on Saft for primary or back-up power. Nickel-based, primary lithium, rechargeable lithium: whatever your requirements or constraints, we have a battery solution with the right electro-chemistry.

▶ Quality is our way of life and we focus on continual improvement

Saft's mission is to provide customers with the best battery solutions available, designed and manufactured to the very highest standards. We implement best practices in all fields, and consider performance and discipline as our standard operating procedure. Research and development are a constant endeavour for us, with 9% of Saft's sales revenues invested in R&D and about 500 engineers working on new materials, improved production processes, enhanced designs, cutting-edge systems and software, better maintainability and more.

▶ With a truly international footprint, an offer that goes beyond batteries

With manufacturing facilities and sales offices in 18 countries around the world, we can satisfy the needs and expectations of customers wherever they are, in both mature and emerging markets. Service is integrated into our offer from end to end. We provide expert support across every stage of your battery's life, from made-to-measure design to volume supply; from installation and training to end-of-life recycling.

▶ Striving to provide the best possible value for money

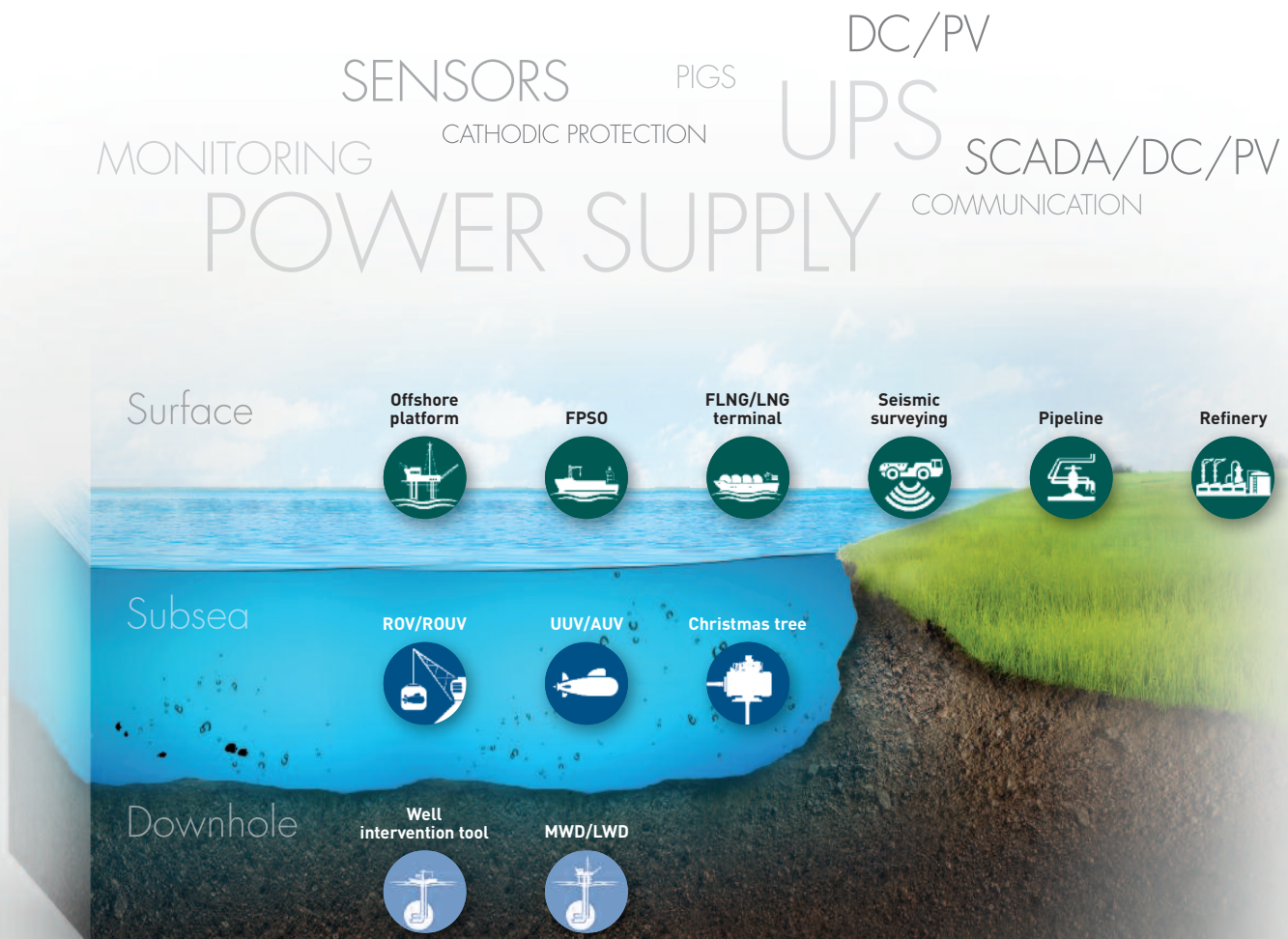
The underlying philosophy behind all of our activities is to provide our customers with the best products and services for their investment.

needs of the Oil & Gas sector



Whatever your application: you can count on Saft batteries

From the deepest subsea oil and gas developments to the largest and most complex off-shore and on-shore infrastructures, when it comes to robust and reliable batteries, no one can match Saft.



A complete offer of products, solutions



Saft offers both nickel- and lithium-based batteries to ensure we meet your needs

Saft primary lithium batteries: high power and high capacity



Saft primary lithium systems provide highly efficient, compact and transportable autonomous power, even in extreme temperatures and humid environments.

- Rugged cell design specifically made for MWD/LWD
- Highest capacity and power
- No noticeable self-discharge between partial jobs
- No need for time-consuming depassivation protocols
- Some cells certified for ATEX applications

Saft lithium-ion (Li-ion) batteries: safe and proven



Saft has more than 15 years of experience with Li-ion batteries in a wide range of applications including mobility, hybrid and fully electrical vehicles, satellites and large installations for industrial or renewable energy markets.

- High volumetric energy density
- High power both in charge and discharge
- Excellent cycling capabilities
- Extremely compact: perfect for tight spaces
- Totally maintenance-free
- Unbeatable temperature range, with specific products for the Oil & Gas industry able to operate from -20°C (-4°F) to $+125^{\circ}\text{C}$ ($+257^{\circ}\text{F}$)
- Completely hermetically sealed: no gas can escape into the local environment

Saft nickel-cadmium (Ni-Cd) batteries: durable and long lasting



Saft Ni-Cd systems are robust, time-tested and mature. They enable to secure continuous operating flow of vital Oil & Gas plants.

- Excellent performance, particularly adapted to demanding applications, including harsh and unpredictable weather conditions
- Robust steel structure, resistant to corrosion, physical and electrical abuse
- A reliable and long service life (over 20 years at $+25^{\circ}\text{C}$ [$+77^{\circ}\text{F}$], with no risk of sudden death
- Minimal maintenance requirements that mean they have the lowest Total Cost of Ownership (TCO)

and services designed for Oil & Gas



From single cells to complex systems

	Technology	Prospection & exploration	Drilling	Production	Sub-sea	Distribution
Uptimax	Ni-Cd			■		■
SBLE, SBM, SBH (Block battery range)	Ni-Cd		■	■		■
SPH	Ni-Cd	■	■	■		■
Sunica.plus	Ni-Cd			■		■
Tel.X	Ni-Cd	■				
LSH high temperature range	Li-P		■	■		■
LSH standard range	Li-P	■			■	■
Intensium® Flex	Li-ion		■	■	■	
Marine modules	Li-ion	■	■	■	■	■
VL / MP high temperature range	Li-ion		■	■		■
VL / MP standard range	Li-ion	■			■	■
Chargers	Li-ion	■	■	■		■

Beyond batteries: our commitment to end-to-end support

Saft provides a wide array of support and services, both before you buy and after, so you can be sure of having a robust, reliable and well-maintained solution over an extended period of time.

Design

Saft offers design consulting and advice to help you select the most optimised battery system. If one of our standard solutions isn't right for you, our R&D teams can tailor a made-to-measure battery design that perfectly meets your unique needs.

Qualification

With our extensive test data and product knowledge, our teams can offer lifetime modelling and customised testing.

Field deployment

Saft can help with installation and commissioning of your batteries, as well as assist you in determining the necessary lead-time for your project, answer your questions about proximity and reproducibility, and train your teams.

Operations management

Saft's service doesn't stop when we deliver the batteries. We can also provide full after-sales support for maintenance, software interfacing and monitoring, asset management, on-going staff training and more.

Retrofit

Saft teams can help plan for and then manage your product's obsolescence as well as advise on collection and recycling according to local regulations. We provide lifetime support to your batteries.

Saft batteries are on duty in subsea



From exploration
of new sites to
distribution pipelines
and every step
in between,
all around the world

Electric control valves deep under the North Sea

► Powered by Saft rechargeable Lithium batteries

A leading global provider of technical solutions for the energy industry uses Saft lithium-ion battery modules to power control valves located 350 metres below sea level. By running the valves electrically, the company expects both operational and environmental advantages.

Uninterruptible Power Systems (UPS) in the North Caspian Sea

► Powered by Saft SBLE Block Ni-Cd batteries

A provider of power protection solutions for many industrial sectors uses Saft rechargeable Ni-Cd battery systems to provide up to eight hours of autonomous back-up power for critical control and communication systems used in the harsh environment of the North Caspian Sea, where temperatures can range between - 36°C (- 32.8°F) and + 40°C (+ 104°F).

Solar power systems on the Andaman Sea near Myanmar

► Powered by Saft Sunica.plus Ni-Cd batteries

The companies operating an offshore gas field and its pipeline use ultra-low maintenance, long-life nickel-cadmium Sunica.plus systems to power the solar energy systems of an unmanned production platform 60 kilometers off the coast of Myanmar.

downhole and surface exploitations



Photovoltaics and Uninterruptible Power Systems (UPS) in the African desert

► Powered by Saft Sunica.plus Ni-Cd Batteries

A consortium of oil exploration and production companies uses almost 1400 total units of Saft Sunica.plus batteries to power photovoltaic systems and Uninterruptible Power Systems (UPS) across 11 different sites in the southern part of Sudan, a region where the average daily temperature is + 35°C (+ 95°F).

Inspection tools and cathodic protection in pipelines around the world

► Powered by Saft primary Lithium and Ni-Cd batteries

A leading provider of pipeline inspection service uses Saft LSH20 to power a variety of different intelligent pipeline inspection "pigs" (under the sea) and Saft nickel-cadmium batteries to secure cathodic protection (above the sea) which must work reliably and safely under extreme conditions.

Seismic surveys of Oil & Gas fields around the world

► Powered by Saft rechargeable Lithium batteries

Companies around the globe are using Saft Lithium-ion batteries to power the sophisticated equipment that is used to determine the precise location of Oil & Gas deposits. Rugged, robust and lightweight Li-ion batteries from Saft help ensure the success of seismic surveys, onshore and offshore, and even in very hot or very cold environments.

Compliant with global standards

Saft batteries meet the strict requirements of a wide range of globally recognised quality, safety and environmental standards.

Quality:

Compliant with ISO 9001, ISO 14001, OHSAS 18001

Sector-specific standards:

Compliant with the ISO 13628-2:2006 standard for petroleum and natural gas industries, and in particular the design and operation of subsea production systems and unbonded flexible pipe systems for subsea and marine applications. Compliant with the IEC 60079-11 standard concerning the construction and testing of intrinsically safe apparatus intended for use in an explosive atmosphere.

RoHS (Restriction of Hazardous Substances):

Although batteries and accumulators are not within the scope of the EU RoHS directive, Saft has taken voluntary measures to make sure that the substances forbidden by RoHS are not present in our batteries, with the exception of their electro-chemical core.

REACH:

Compliant with the European Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals.

Environment:

Saft batteries are fully recyclable.



Saft is committed to the highest standards of environmental stewardship

As part of this environmental commitment, Saft prioritises the use of recycled raw materials over virgin raw materials in all manufacturing processes. We also strive, year on year, to reduce air and water emissions from our plants, as well as minimizing water usage, reducing consumption of fossil energy consumption and associated CO₂ emissions, and ensuring that all our customers have access to recycling solutions for their spent batteries.

To facilitate the end-of-life collection and recycling of industrial batteries, including our nickel & lithium-based technologies, Saft has developed well-established partnerships with collection companies in most EU countries, in North America and in many other countries worldwide. This collection network receives spent batteries from our customers and dispatches them to fully approved recycling facilities, in compliance

with the laws governing trans-boundary waste shipments. This collection network is currently undergoing minor adaptations to meet the requirements of the EU batteries directive. A list of our battery collection points is available on our web site. In other countries, Saft will assist anyone using our batteries in finding environmentally sound recycling solutions. Please contact your sales representative for further information.



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