

**Saft.** The world leader  
in powering emergency lights



**Saft Batteries:  
the durable choice**



# Saft batteries for Emergency Lighting Units: The reliable, ecological, long-life solutions you need

*Saft is the world's leading  
supplier of batteries to  
manufacturers of  
emergency lighting units  
(ELUs), self-contained  
emergency luminaires and  
low-profile/LED units.*

## **Reliable, high-quality batteries**

Saft designs, manufactures, assembles high-quality solutions that meet or surpass the specific requirements of regulatory standards in this domain; including International (IEC 61951), US (UL 924) and Japanese (JISC 8705) standards. In the event of an emergency, Saft batteries will operate reliably for up to 5 hours.

## **Install and relax**

Safety lighting is serious business: You can have perfect confidence in Saft's wide range of products for ELUs. Saft batteries have been proven to work for 4 years or longer – even without maintenance, even at temperatures as low as -20°C and as high as +55°C. Our expertise and our experience in this area are unequalled.

## **Serious about the environment**

An industry pioneer in eco-designed products, all of Saft's batteries are built with sustainable development in mind. From the production of batteries to their disposal and recycling, Saft's teams are intently focused on protecting our planet's resources and reducing pollution. And of course, Saft factories adhere strictly to environmental regulations concerning air, water, ground and solid waste standards.

## **Close to you**

Saft has a state-of-the-art, fully automated factory in Nersac, France and battery assembly facilities in the United States, China and many other countries. Saft's worldwide network means faster delivery times and a highly competitive cost/quality ratio.

**Whatever the specifics  
of your emergency lighting  
project, Saft batteries  
provide a reliable, economical  
and ecological power source  
that is the longest-lasting  
solution available on the  
market today.**



# Saft ecolife

## Serious about safety, serious about the environment

Saft's new line of **ecolife** batteries has a greatly reduced environmental impact and a greatly extended service life.

When you choose **ecolife**, you join Saft in promoting sustainable development and contributing to a cleaner planet. The **ecolife** battery range has a limited impact on the environment, established in line with ISO

14040 and ISO 14044 international standards. Their design and production have been optimized to minimize water and energy consumption, reduce the production of greenhouse gasses and toxic waste, diminish negative repercussions on global warming and on the ozone layer, and curb the unnecessary depletion of natural resources.

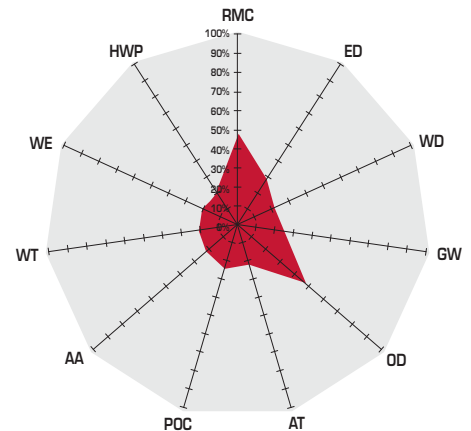
Furthermore, when you choose **ecolife**, you also get a battery that lasts up to 8 years at +40°C – twice as long as standard batteries available today. That means Saft **ecolife** batteries enable you to save money on maintenance, while you're helping save the planet.

### Environmental impact indicators for the ecolife line

Impact Indicators		Total (M+D+U)	Manufacturing (M)	Distribution (D)	Utilisation (U)
Raw Material Depletion (RMD)	Y-1	3,65E-14	100%	0%	0%
Energy Depletion (ED)	MJ	5,77	96%	4%	0%
Water Depletion (WD)	dm3	8,843	100%	0%	0%
Global Warming (GW)	g~CO2	221,83	92%	8%	0%
Ozone Depletion (OD)	g~CFC-11	2,37E-05	49%	51%	0%
Air Toxicity (AT)	m3	174500	96%	4%	0%
Photochemical Ozone Creation (POC)	g~C2H4	0,097006	76%	23%	0%
Air Acidification (AA)	g~H+	0,15335	97%	3%	0%
Water Toxicity (WT)	dm3	27,816	92%	8%	1%
Water Eutrophication (WE)	g~PO4	0,39202	100%	0%	0%
Hazardous Waste Production (HWP)	kg	0,000548	97%	1%	2%

Data for a 45g ecolife Cs - functional unit : 1h of autonomy at 0.96 A after 8 years  
Data obtained from CODDE. To get the full PEP (Product Environmental Profile), please contact Saft.

### ecolife, an unbeatable ecological footprint



	+40 °C	+50 °C	4 years design life	8 years design life	cold temperature (outdoor)	eco-design
VST	●		●			
VT	●		●			
VT 70 & U		●	●			
VNT	●		●		●	
VNT U		●	●		●	
ecolife	●			●	●	●
VHT		●	●		●	

**Whatever your application, whatever your specifications, whatever your needs: There is a Saft battery that fits.**

# Saft's offer for +40°C

## Safety first

Emergency lighting units exist to ensure the safety of the people who live and work in the buildings in which they are installed. Saft cells and their components have been carefully chosen and designed to guarantee quality and dependability throughout the entire service life of such luminaires. Our products meet or surpass the requirements of a variety of norms and standards, including IEC 60598-2-22.

## Long life

Saft's +40°C VT, VNT and VST nickel-cadmium (Ni-Cd) batteries have been designed to last at least 4 years and have an excellent charge efficiency in alignment with IEC 61951-1 (T-type). Saft's ecolife batteries will last up to 8 years, significantly reducing maintenance costs.

## Sturdy and resistant to cold

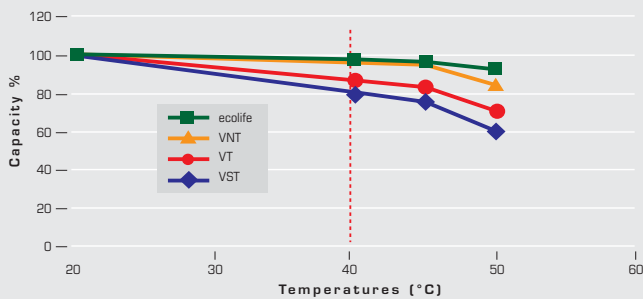
The VNT series benefits from our innovative PNE (Plastic-bonded Nickel Electrode) technology, which provides improved energy density and an excellent resistance to cold weather conditions. You can be sure of their reliability and autonomy outdoors, even at temperatures as low as -20°C.



	Saft Type	Technology	IEC Capacity at 0.2C rate		Standard charge (16h)	Recommended permanent charge	Typical internal impedance	Max. dimensions for bare cells		Typical weight
			Nominal voltage 1.2 volts/cell	Typical (mAh)	Minimum (mAh)	Current (mA)	Current (mA)	(mOhm)	Diameter (mm)	Height (mm)
<b>VT</b>	<b>VT AA</b>	Ni-Cd	700	600	60	30	45	14.0	50.2	26
	→ <b>VT Cs</b>	Ni-Cd	1350	1200	120	60	12	22.2	42.2	45
	→ <b>VT Cs 1500</b>	Ni-Cd	1650	1500	150	75	7	22.2	42.2	47
	→ <b>VT Cs 1600</b>	Ni-Cd	1750	1600	160	80	7	22.2	42.2	49
	→ <b>VT 1/2 D</b>	Ni-Cd	2500	2200	220	110	10	32.2	36.8	80
	→ <b>VT D</b>	Ni-Cd	4300	4000	400	200	6	32.2	60.3	120
	→ <b>VT F</b>	Ni-Cd	7500	7000	700	350	5	32.2	91.1	196
<b>VST</b>	<b>VST AA</b>	Ni-Cd	860	800	80	40	30	14.0	49.2	26
<b>VNT</b>	<b>VNT Cs</b>	Ni-Cd	1650	1600	160	80	8	22.2	42.2	45
	→ <b>VNT D</b>	Ni-Cd	4250	4000	400	200	6	32.2	60.3	115
<b>ecolife</b>	<b>ecolife AA</b>	Ni-Cd	650	600	60	30	30	14.0	49.2	26
	Consult Saft: <b>ecolife Cs</b>	Ni-Cd	1570	1500	150	75	8	22.2	42.2	45
	Consult Saft: <b>ecolife D</b>	Ni-Cd	4250	4000	400	200	6	32.2	58.6	115

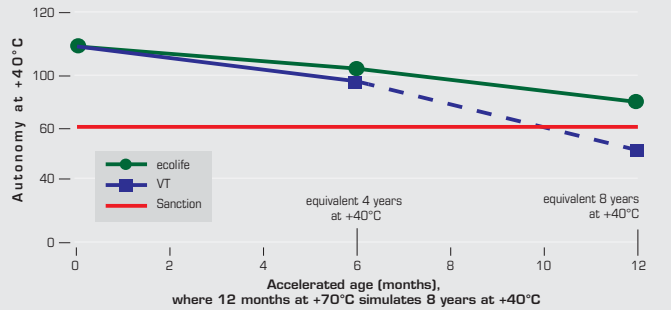
### Charge efficiency profile

The charge efficiency for all of Saft's batteries is at 80% or higher at +40°C



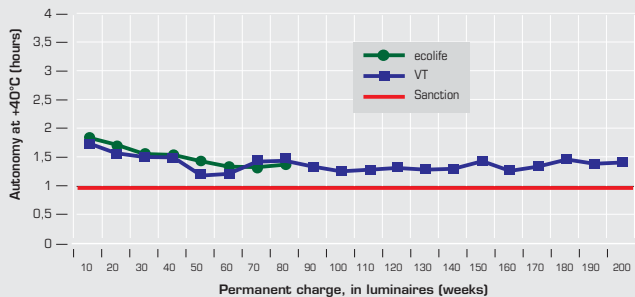
### Ecolife autonomy at +40°C in luminaires after an accelerated ageing test

Even 8 years into its use, the ecolife range shows its significantly superior autonomy.



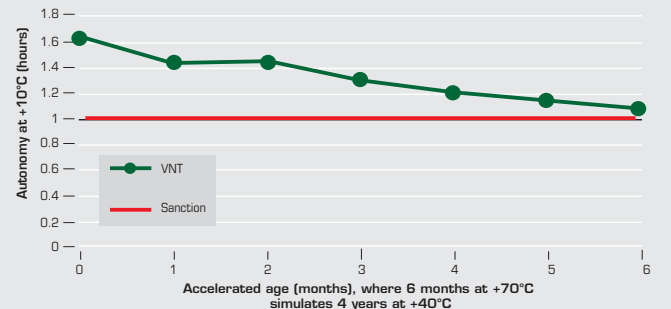
### VNT and VT autonomy +40°C in luminaires

The autonomy of the VNT and VT series clearly surpasses the hour required by IEC 60598-2-22



### VNT autonomy at +10°C after an accelerated ageing test

Even after 4 years, the VNT series maintains its significantly superior autonomy.



# Saft's offer for +50°C/+55°C

## Safety guaranteed, even in extreme conditions

Choosing from this line means you can ensure the safety of building occupants even in the severe conditions described by IEC 60598-2-22. The specific electrochemical design and carefully chosen components of our cells can withstand temperatures all the way up to +50°C for at least 4 years or longer, and still be ready to

function immediately if they are needed. As a result, they are a highly reliable choice for outdoor ELUs as well as units that will be exposed to significant temperature variations.

## Excellent charge efficiency

Our products have an excellent charge efficiency all the way up to +55°C, as defined by IEC 61951-1 (Ni-Cd type U), US UL924 and IEC 61951-2 (Ni-MH).

## Suitable for low profile fixtures

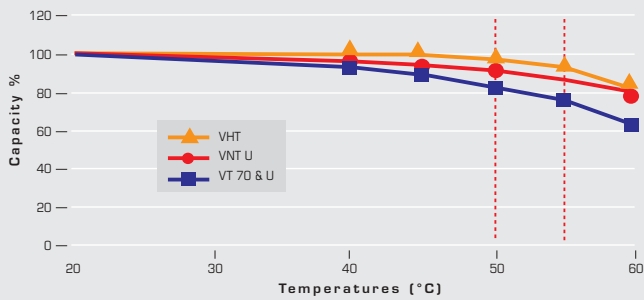
With their higher volumetric energy, the VHT range is particularly well adapted to low profile emergency lighting fixtures.



	Saft Type	Technology	IEC Capacity at 0.2C rate		Standard charge (16h)	Recommended permanent charge	Typical internal impedance	Max. dimensions for bare cells		Typical weight
			Nominal voltage 1.2 volts/cell	Typical (mAh)	Minimum (mAh)	Current (mA)	Current (mA)	(mOhm)	Diameter (mm)	Height (mm)
<b>VT</b>	<b>VT Cs 1500 U</b>	Ni-Cd	1650	1500	150	75	8	22.2	42.2	48
→	<b>VT C 2500</b>	Ni-Cd	2700	2500	250	125	6	25.3	49.5	75
→	<b>VT D 70</b>	Ni-Cd	4500	4000	400	200	6	32.2	60.3	128
→	<b>VT D U</b>	Ni-Cd	4700	4100	400	200	5	32.2	58.6	136
→	<b>VT F 70</b>	Ni-Cd	7700	7000	700	350	5	32.2	89.2	196
<b>VNT</b>	<b>VNT Cs U</b>	Ni-Cd	1650	1600	160	80	8	22.2	42.2	45
Consult Saft	<b>VNT C U</b>	Ni-Cd	2650	2500	250	125	8	25.3	49.5	75
→	<b>VNT D U</b>	Ni-Cd	4250	4000	400	200	6	32.2	60.3	115
<b>VHT</b>	<b>VHT AA</b>	Ni-MH	1150	1100	110	-	18	14.0	49.2	24
→	<b>VHT Cs</b>	Ni-MH	2200	2000	200	-	5	22.0	42.7	48
→	<b>VHT 7/5 Cs</b>	Ni-MH	4200	4000	400	-	20	22.2	60.0	74
→	<b>VHT F</b>	Ni-MH	11000	10000	1000	-	5	32.3	89.2	215

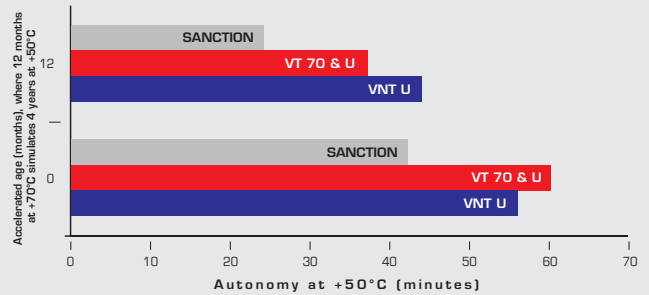
### Charge efficiency profile

The charge efficiency for this entire range is excellent:  
The VNT-U and VHT series deliver more than 80% of capacity at +55°C.



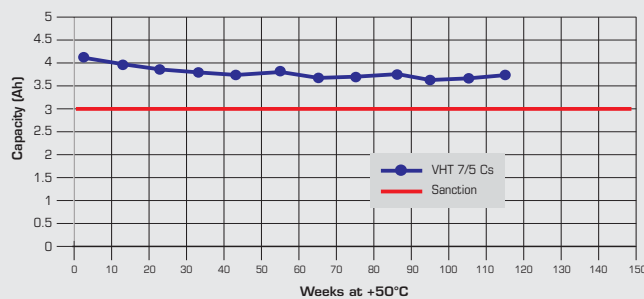
### Autonomy of U-type cells after accelerated ageing test

The VT-70, VT-U and VNT-U series surpass IEC 61951-1 requirements for U-type cells



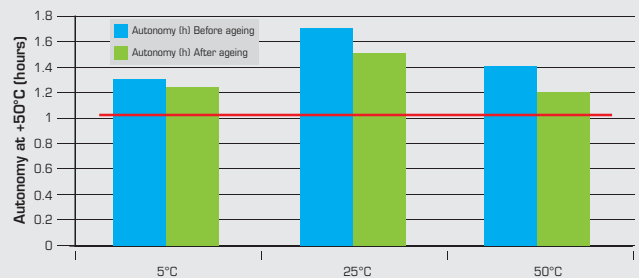
### Intermittent charge at +50°C, with discharge at C/4

The VHT range is designed to operate for 4 years at +50°C using an intermittent charge



### Autonomy of VNT-U after an accelerated ageing test

Even after 4 years at +50°C, the VNT-U shows its significantly superior autonomy over a whole range of temperatures, surpassing the minimums required by IEC 60598-2-22



## SAFT RECHARGEABLE BATTERY SYSTEMS SALES NETWORK

### FRANCE - Saft

12, rue Sadi Carnot, 93170 Bagnolet  
Tel : +33 1 49 93 19 18  
Fax : +33 1 49 93 19 68  
E-mail: rbs.info@saftbatteries.com

### AUSTRALIA - Saft Batteries Pty Ltd

Unit 18, 167 Prospect Highway  
PO Box 883 - Seven Hills NSW 2147  
Tel : +61 (2) 9674 0700  
Fax : +61 (2) 9620 9990  
E-mail : david.anderson@saftbatteries.com

### CHINA

#### Saft (Zhuhai Free Trade Zone) Batteries Co., Ltd.

Room 2408, 24/F, Lucky Mansion  
No.660 Shangcheng Road - Shanghai 200120  
Tel: +86 21 5866 6405  
Fax: +86 21 5866 6403  
E-mail: ben.li@saftbatteries.com

### GERMANY - Saft Batterien GmbH

Loeffelholzstrasse, 20 - 90441 Nürnberg  
Tel : +49 911 94174 32  
Fax : +49 911 94174 25  
E-mail: horst.bock@saftbatteries.com

### HONG KONG - Saft Hong Kong Ltd

Unit 1107-9, Westin Centre  
26 Hung To Road, Kwun Tong, Kowloon  
Tel : +852 2796 9932  
Fax : +852 2798 0619  
E-mail: ivan.lam@saft.com.hk

### ITALY - Saft Batterie Italia S.r.l.

Palazzo Cimabue  
Via Cassanese 224  
20090 Segrate - Milano  
Tel : +39 02 89 28 07 47  
Fax : +39 02 89 28 07 62  
E-mail: valerio.telo@saftbatteries.com

### NETHERLANDS - Saft Batterijen B.V

Achtseweg Zuid 151  
5651 GW Eindhoven  
Tel : +31 40 272 1902  
Fax : +31 40 272 1904  
E-mail: guido.jasper@saftbatteries.com

### RUSSIAN FEDERATION - ZAO ALCATEL (Saft)

15A, Leninskiy prospect  
119071 Moscow  
Tel : +7 495 937 09 67  
Fax : +7 495 937 09 06  
E-mail: dmitry.lozin@alcatel-lucent.com

### SINGAPORE - Saft Batteries Pte Ltd.

54 Genting Lane  
#03-03 Ruby Land Complex Block II  
Singapore 349562  
Tel : +65 6512 1500  
Fax : +65 6746 6772  
E-mail: colin.chan@saftbatteries.com

### SPAIN / PORTUGAL - Saft Baterias S.L.

Avenida Fuente Nueva 12, Nave 15  
San Sebastian de los Reyes  
28700 Madrid  
Tel : +34 916 593 480  
Fax : +34 916 593 490  
E-mail: pedro.sanchez@saftbatteries.com

### SWEDEN / NORWAY - Saft AB

Jungnergatan - Box 709  
SE 572 28 Oskarshamn  
Tel : +46 491 680 00  
Fax : +46 491 680 85  
E-mail: christer.steen@saftbatteries.com

### UNITED KINGDOM - Saft Ltd.

1st Floor, Unit 5, Astra Centre  
Edinburgh Way, Harlow  
ESSEX, CM20 2BN  
Tel : +44 12 79 77 25 50  
Fax : +44 12 79 42 09 09  
E-mail: phil.horsley@saftbatteries.com

### USA - Saft America Inc.

313 Crescent Street  
Valdese, NC 28690  
Tel : +1 828 879 5083  
Fax : +1 828 879 3981  
E-mail: jorge.pacheco@saftbatteries.com  
Customer service  
Tel : +1 828 879 5014  
Fax : +1 828 879 3981

## SAFT RECHARGEABLE BATTERY SYSTEMS AUTHORIZED SALES AGENTS AND DISTRIBUTORS

### ARGENTINA - CH Sistemas Electronicos

Riobamba 350  
1025 Ciudad Autonoma de Buenos Aires  
Tel / Fax : +54 11 49 54 72 00  
E-mail: ch@ch-sistemas.com.ar

### Probattery Baires Full Trading

Paz Soldan 4960 C1427DSF - Buenos Aires  
Tel : +54 11 45 14 68 68  
Fax : +54 11 45 14 68 66  
E-mail: gfreund@probattery.com.ar

### AUSTRIA - SED

Gorkstrasse 16 - 1230 Wien  
Tel : +43 1 616 03 03 27  
Fax : +43 1 616 03 03 6  
E-mail: sed@vienna.at

### BELGIUM - Helpelek

Avenue du Couronnement, 11  
B-1200 Brussels  
Tel : +32 2 775 03 00  
Fax : +32 2 762 37 01  
E-mail : info@helpelek.be

### BRAZIL - Barasch Sylmar

R.Guaicurus 345  
Agua Branca Sao Paulo  
SP 05033-000  
Tel / Fax : +55 11 3864 63 66  
E-mail: barasch@barasch.com.br

### CZECH REPUBLIC - Battex Spol. s r.o.

Politických vězňů 1337  
274 01 Slaný  
Česká republika  
Tel: +420 312 520116  
Fax: +420 312 520117  
E-mail: vesely@battex.cz

### DENMARK - Scansupply A/S

Blokken 44 - DK 3460 Birkerød  
Tel : +45 45 82 50 90  
Fax : +45 45 82 54 40  
E-mail : flemming@scansupply.dk

### EGYPT - Elmetra

47, Ahmed Taysir St.  
Ramo Tower B#104 - Heliopolis, 11341 Cairo  
Tel : +20 2 2621864  
Fax : +20 2 4031195  
E-mail : info@elmetra-eg.com

### FINLAND - Hansabattery OY

Kilonkallio 3A, 02610  
Espoo  
Tel : +358 207 631880  
Fax : +358 207 631889  
E-mail : hans.sandstrom@hansabattery.fi

### HUNGARY - Kapacitas

Szentpétery u.24-26  
H-1115 Budapest  
Tel : +36 1 463 08 80  
Fax : +36 1 463 08 99  
E-mail : varga@akku.hu

### JAPAN - Sumitomo Corporation

Triton Square Office Tower Z 22F  
1-8-12, Harumi, Chuo-Ku  
Tokyo, 104-6222  
Tel : +81 3 5144 9081  
Fax : +81 3 5144 9267  
E-mail : yoshiaki.nozawa@sumitomocorp.co.jp

### KOREA - Cellcom Co Ltd.

1026-8, Sanbong-Dong, Gunpo-City  
Kyunggi-do  
Tel : +82 31 428 0100  
Fax : +82 31 459 7500  
E-mail : djkim127@cellcomkorea.com

### POLAND - Wamtechnik Sp. Z o.o.

19, Czajewicza street - 05-500 Piaseczno  
Tel : +48 22 75 02 142  
Fax : +48 22 75 02 139  
E-mail : pwlodarczyk@wamtechnik.com.pl

### ROMANIA - Sprinter 2000 SA

60 Calea Feldioarei - Brasov 2200  
Tel : +40 268 472 333  
Fax : +40 268 472 334  
E-mail : office@sprinter2000.ro

### SAUDI ARABIA & ARABIC GULF COUNTRIES

Dar Al Fursan Trading Est  
PO Box 16221, Riyadh 11464  
Tel / Fax : +966 1 462 08 16  
E-mail : nader.altaher@daralfursan.com

### SWITZERLAND - Leclanché SA

BU Distribution  
Avenue des Sports 42  
Boîte Postale  
1401 Yverdon-les-Bains  
Tel : +41 24 424 6514  
Fax : +41 24 424 6560  
E-mail : yann.beaufils@leclanche.ch

### TUNISIA & MAGHREB - SEEEP

46, Avenue de Madrid - Tunis  
Tel : +216 71 342 602  
Fax : +216 71 353 523  
E-mail : seep@gnet.tn

### SOUTH AFRICA - Just Batteries

14, Railway Avenue  
Benoni 1501  
South Africa  
Tel: +27 11 421 7981  
Fax: +27 11 421 7986  
E-mail: malcolm@justbatteries.co.za

For other countries, please send your  
batteries request to:  
rbs.info@saftbatteries.com

### Saft

#### Rechargeable Battery Systems

12 rue Sadi Carnot  
93170 Bagnolet  
Tel: +33 (0)1 49 93 19 18  
Fax: +33 (0)1 49 93 19 68  
E-mail: rbs.info@saftbatteries.com

www.saftbatteries.com

Doc. N°11122-2-0309

Edition : Spring 2009

Data in this document is subject to change without notice and becomes contractual only after written confirmation.

Published by the Communication Department

Photo Credit: Bodine, Cooper Industries, Legrand, Saft, Thomas & Betts

Société anonyme au capital de 31 944 000 Euros

RCS Bobigny 383 703 873

Design by D' Communication



SAFT