

Soft. The world leader
in powering emergency lights



**Soft 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.

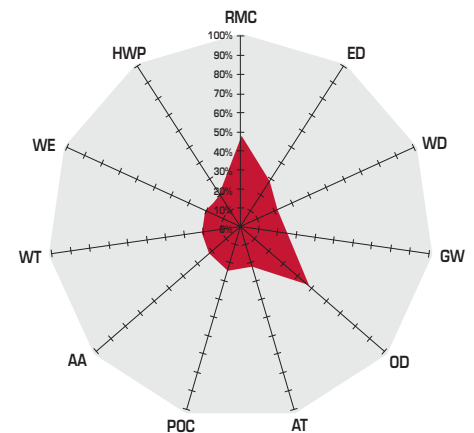
Furthermore, when you choose **ecolife**, you also get a battery that lasts up to 8 years at +40°C – twice as long as standard batteries available today. That means Saft **ecolife** batteries enable you to save money on maintenance, while you're helping save the planet.

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

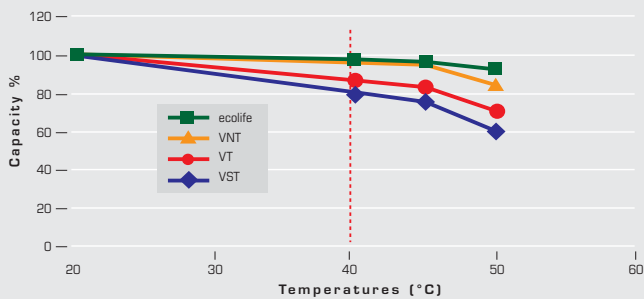
The VNT series benefits from our innovative PNE (Plastic-bonded Nickel Electrode) technology, which provides improved energy density and an excellent resistance to cold weather conditions. You can be sure of their reliability and autonomy outdoors, even at temperatures as low as -20°C.



	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)
VT	VT AA	Ni-Cd	700	600	60	30	45	14.0	50.2	26
	→ VT Cs	Ni-Cd	1350	1200	120	60	12	22.2	42.2	45
	→ VT Cs 1500	Ni-Cd	1650	1500	150	75	7	22.2	42.2	47
	→ VT Cs 1600	Ni-Cd	1750	1600	160	80	7	22.2	42.2	49
	→ VT 1/2 D	Ni-Cd	2500	2200	220	110	10	32.2	36.8	80
	→ VT D	Ni-Cd	4300	4000	400	200	6	32.2	60.3	120
	→ VT F	Ni-Cd	7500	7000	700	350	5	32.2	91.1	196
VST	VST AA	Ni-Cd	860	800	80	40	30	14.0	49.2	26
VNT	VNT Cs	Ni-Cd	1650	1600	160	80	8	22.2	42.2	45
	→ VNT D	Ni-Cd	4250	4000	400	200	6	32.2	60.3	115
ecolife	ecolife AA	Ni-Cd	650	600	60	30	30	14.0	49.2	26
	Consult Saft: ecolife Cs	Ni-Cd	1570	1500	150	75	8	22.2	42.2	45
	Consult Saft: ecolife D	Ni-Cd	4250	4000	400	200	6	32.2	58.6	115

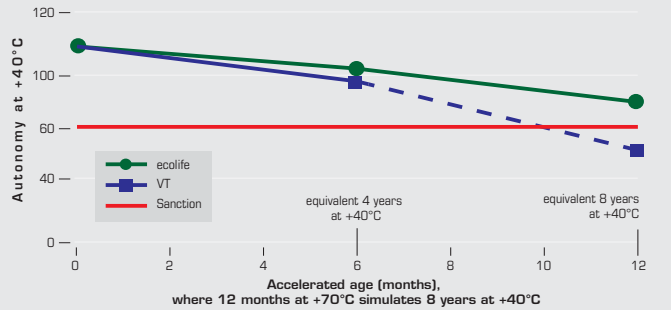
Charge efficiency profile

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



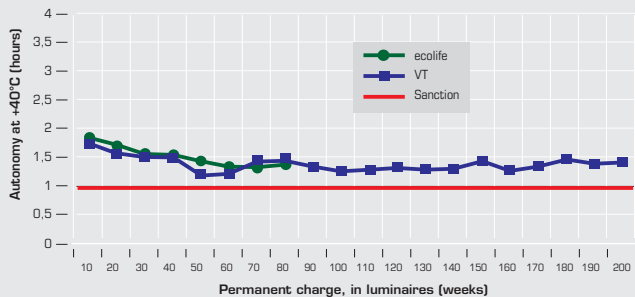
Ecolife autonomy at +40°C in luminaires after an accelerated ageing test

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



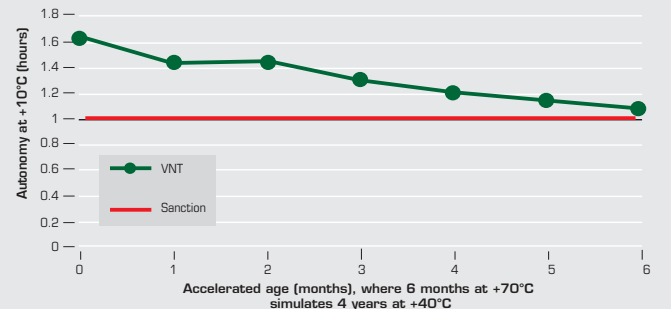
VNT and VT autonomy +40°C in luminaires

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

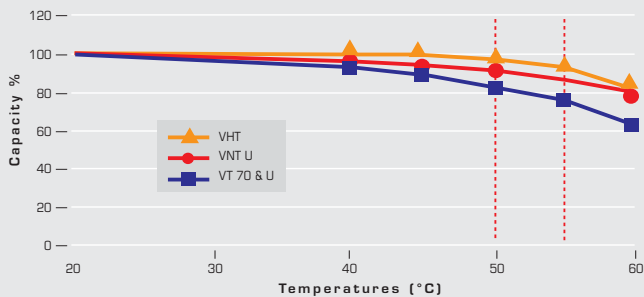
With their higher volumetric energy, the VHT range is particularly well adapted to low profile emergency lighting fixtures.



	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)
VT	VT Cs 1500 U	Ni-Cd	1650	1500	150	75	8	22.2	42.2	48
→	VT C 2500	Ni-Cd	2700	2500	250	125	6	25.3	49.5	75
→	VT D 70	Ni-Cd	4500	4000	400	200	6	32.2	60.3	128
→	VT D U	Ni-Cd	4700	4100	400	200	5	32.2	58.6	136
→	VT F 70	Ni-Cd	7700	7000	700	350	5	32.2	89.2	196
VNT	VNT Cs U	Ni-Cd	1650	1600	160	80	8	22.2	42.2	45
Consult Saft	VNT C U	Ni-Cd	2650	2500	250	125	8	25.3	49.5	75
→	VNT D U	Ni-Cd	4250	4000	400	200	6	32.2	60.3	115
VHT	VHT AA	Ni-MH	1150	1100	110	-	18	14.0	49.2	24
→	VHT Cs	Ni-MH	2200	2000	200	-	5	22.0	42.7	48
→	VHT 7/5 Cs	Ni-MH	4200	4000	400	-	20	22.2	60.0	74
→	VHT F	Ni-MH	11000	10000	1000	-	5	32.3	89.2	215

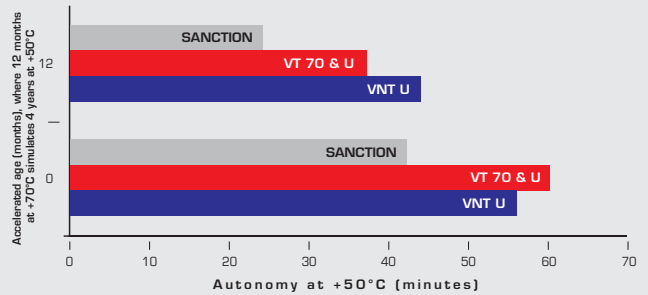
Charge efficiency profile

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



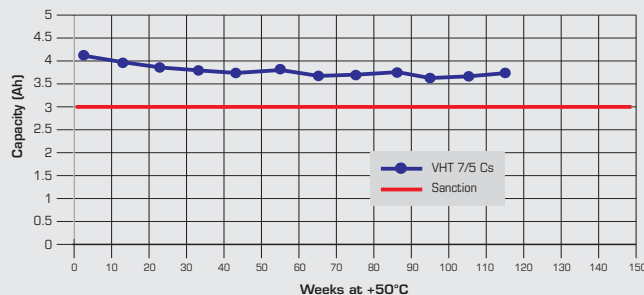
Autonomy of U-type cells after accelerated ageing test

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

