公司介绍
Company Profile

赣锋锂电
GanfengLiEnergy

浙江锋锂新能源科技有限公司

江西赣锋锂电科技股份有限公司子公司，隶属于赣锋锂业集团（A股代码：002460，H股代码：01772）。

浙江锋锂新能源科技有限公司成立于2017年，主要从事高安全性能、高能量密度的固态锂电池及固体电解质材料的研发、设计、生产与销售，产品已广泛应用于新能源汽车、便携式储能、电动两轮车、智能机器人、消费数码等多个领域。

Zhejiang FunLithium New Energy Technlogy Co., Ltd.

A subsidiary of Jiangxi Ganfeng LiEnergy Technology Co., Ltd, an affiliate company of Ganfeng Lithium Group (A shares 002460, H shares 01772) .

Zhejiang FunLithium New Energy Technology Co., Ltd. was founded in 2017, focusing on the R&D, design, manufacturing and marketing of solid electrolyte materials and solid-state batteries with high safety performance and high energy density. The products have been widely used in areas of electric vehicle, portable power station, electric bicycle, and smart robot, consumer electronics, etc.

核心优势
Key advantages

人才积累 Talent

创始人拥有20年固态电池研发经验、核心研发团队拥有10年以上固态电池从业经历，拥有完善的研发机制及技术经验。

FunLithium founder has over 20 years of experience in the solid-state technology, and the R&D team has over 10 years of experience with well-established research and development mechanism.

行业认可 Expertise

参与《固态电池固液含量测定试验方法》、《电动汽车用锂离子固态动力蓄电池性能试验方法及技术要求》等行业标准制定。

FunLithium participated in the drafting of industry standards and regulations such as "Test method for solid-liquid content determination of solid-state batteries" and "Test method and requirement for solid-state batteries for electric vehicles".

技术沉淀 Technology

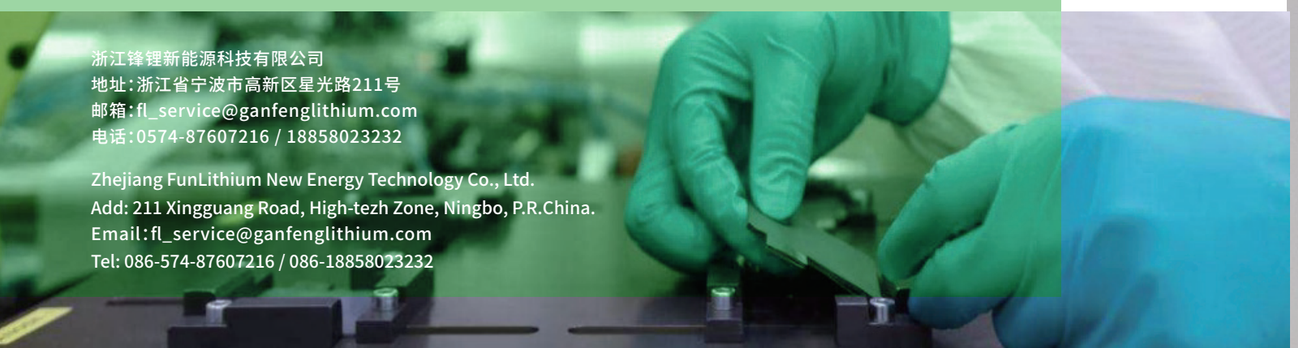
公司已布局国际及国内固态电池专利200多项，其中已授权专利97项，在国内固态电池领域处于领先地位。（截至2022年7月）

FunLithium leads the solid-state battery patents in China, with over 200 international and domestic patent applications, 97 of which have been granted (as of July 2022).

完整生态 Industrial loop

赣锋锂业集团拥有完整的锂产业链，贯穿资源开采、锂金属及化合物加工、锂电池制造与回收，助力企业获得适宜原材料，并将前沿技术快速落地。

Ganfeng covers through upstream lithium resources, midstream lithium chemicals, to downstream lithium battery manufacturing and recycling, securing the material supplies for the R&D and mass production of solid-state batteries.



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SOLID-STATE BATTERY
固态电池

为世界创造高性能、高安全的新一代电池

A new generation of batteries with higher safety and better performance

浙江锋锂新能源科技有限公司
Zhejiang FunLithium New Energy Technology Co., Ltd.

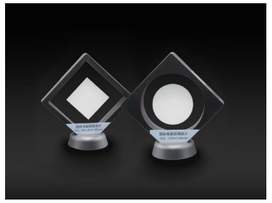
主要产品
Product Portfolio

氧化物 固体电解质材料 Oxide Solid Electrolyte

公司研发的氧化物固体电解质材料包括NASICON结构和Garnet结构两个系列产品。产品形式包括粉体、浆料、电解质片，离子电导率达到规模化产品一流水平，批次稳定性高。目前产能可达百吨级，并将于2023年投产千吨级电解质材料产线。

The oxide solid electrolyte materials developed and produced by Funlithium include NASICON and Garnet structures in forms of powder, slurry, and electrolyte sheet. Being one of the first in the industry to achieve mass production capability with stable batch consistency and first-class ionic conductivity, the company will ramp up its production capacity to kiloton in 2023.

结构 Structure	室温离子电导率 Ionic Conductivity@RT	产品粒度 Particle Size
NASICON	体相电导率 Bulk：≥4.5 mS/cm 总电导率 Total：≥0.8 mS/cm	粉体 Powder：300/600/5000/10000nm 浆料 Slurry：150/300/600nm
Garnet	常规产品 Standard Product：≥0.8 mS/cm 高电导率产品 Next-Gen.：≥1.5 mS/cm	粉体 Powder：300/500/5000/10000nm 浆料 Slurry：160/300/500nm



结构 Structure	室温离子电导率 Ionic Conductivity@RT	产品规格 Dimensions
NASICON	(5.0±0.5) x 10^{-1} mS/cm	圆片 Round：Φ12mm/Φ16mm/Φ20mm 方片 Square：20×20mm/60×60mm 厚度 Thickness：260μm/280μm/300μm 其它规格可定制 Customizable

硫化物 固体电解质材料 Sulfide Solid Electrolyte

硫化物固体电解质是目前离子电导率最高的一类无机固体电解质材料，具有热稳定性好、电化学窗口宽、机械性能好等优点，是全固态电池重点采用的电解质材料。公司已研制出LGPS、LPSC、$Li_7P_3S_{11}$与Li_3PS_4等硫化物体系固体电解质材料，离子电导率达到目前行业最高水平，量产能力达到行业领先水平。公司采用自产的优级硫化锂原料，向行业提供性能最优的硫化物电解质产品。

Sulfide solid electrolyte is a kind of inorganic solid electrolyte material with the highest ionic conductivity. Attributing to good thermal stability, wide electrochemical window, and good mechanical performance of the material, it is considered to be a key electrolyte material used in all-solid-state batteries. FunLithium provides LGPS, LPSC, $Li_7P_3S_{11}$ and Li_3PS_4 with the highest ionic conductivity with mass production capability and competitive price.

产品名称 Product Name	室温离子电导率 Ionic Conductivity@RT	产品粒度 Particle Size
LGPS	≥12.0 mS/cm *	0.5~50 μm
LPSC	≥20.0 mS/cm *	2.0~50 μm
LPS7311	≥2.5 mS/cm	0.5~20 μm
LPS314	≥3.0 mS/cm	0.5~20 μm

* 烧结块体

混合固液锂离子电池 Solid-liquid Hybrid Electrolyte Li-ion Battery

赣锋锂电率先实现混合固液锂离子电池的产业化及装车示范运营。同时，公司已将电池产品导入便携式储能、电动两轮车、智能机器人、消费电子等多个应用领域。公司现有固态锂电池产能2GWh，并在重庆拟建设新的生产制造基地，设立先进电池研究院。

Ganfeng LiEnergy takes a lead in the industrialization of hybrid solid-liquid electrolyte li-ion batteries, and pioneered in automotive demonstration project. The batteries have also been introduced into other applications, including portable power stations, electric bicycles, smart robots, consumer electronics, etc. The company now has a 2GWh production line, and is building a new manufacturing base and an advanced battery research instute in Chongqing, China.

260 Wh/kg
电芯能量密度
Cell Energy Density

2000 @RT, 1C/1C
室温循环寿命
Cycle Life @RT (25°C)

1000 @HT, 1C/1C
高温循环寿命
Cycle Life @HT (45°C)

85% @-20°C
低温容量保持率
Low-temperature Capacity

安全测试项目 Safety Test Items	《电动汽车用动力蓄电池安全要求》 Safety Requirement for EV Batteries “GB38031-2020”	赣锋锂电混合固液锂电池安全性能 Safety Performance of GF Hybrid Electrolyte Battery
针刺 Nail Penetration	新国标已取消 Canceled in the new GB requirement	5mm 钢针，针刺速度 25mm/s φ5mm steel nail, vilosity of 25mm/s
加热 Thermal Stability	加热至130°C Heat the cell to 130°C	加热至180°C Heat the cell to 180°C
过充电 Overcharge	以1C充电至终止电压1.1倍 Charge the cell with 1C to 1.1 U_{max}	以1C充电至终止电压1.5倍 Charge the cell with 1C to 1.5 U_{max}
挤压 Crush	变形量达到15%或挤压力达到100 kN Crush until 15% cell deformation or 100 kN	变形量达到30%或挤压力达到200 kN Crush until 30% cell deformation or 200 kN

动力领域 Electric Vehicle

50Ah	318.5*100.1*11.7mm
55Ah	353.5*100.1*11.7mm
120Ah	548.0*116.0*12.0mm

便携/户用储能、电动两轮车 Portable/Household Power Station, Electric Bicyles

28Ah	133.0*202.0*7.6mm
31Ah	117.0*169.0*11.7mm
42Ah	162.0*226.0*8.4mm

锂金属负极固态电池 Solid-liquid Hybrid Electrolyte Li Metal Battery

锂金属负极固态电池解决了传统液态锂电池面临的高能量密度与高安全性能无法兼顾的问题，可将能量密度提升至400Wh/kg以上，并具备远超国标要求的安全性能，计划2023年底量产。

High energy density and high safety performance can both be achieved with hybrid electrolyte lithium metal batteries, while it is difficult to balance for conventional liquid electrolyte batteries. The company is commercializing and starting to mass produce the batteries by the end of 2023.

400 Wh/kg
电芯能量密度
Cell Energy Density

70 Ah
车规级电芯尺寸
Automotive Grade Battery

5C @RT
持续放电能力
Continuous Discharge Rate

200 °C 加热测试 Thermal Stability
超高安全性能
Super-high Safety Performance