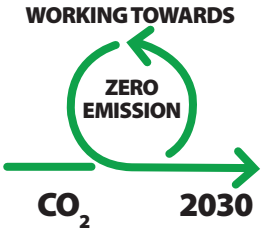
Our value proposition is.....

to provide sustainable energy saving solutions towards zero carbon emission

CRYSTAL SOLAR ENERGY
FIRE SAFE BATTERY TECHNOLOGY



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CRYSTAL SOLAR ENERGY®
POWER SOLUTIONS

Approved Seller

CLEAN ENERGY COUNCIL APPROVED SOLAR RETAILER

CLEAN ENERGY COUNCIL MEMBER

SMART ENERGY COUNCIL MEMBER

THE LOGO

Symbolises our Sun and the abundant energy it provides for us to harness.

The Company

Founded by engineers with a cumulative experience of over seventy two years; Crystal Solar Energy's philosophy is to provide the very best in Energy Savings, Energy Efficiency and Sustainability. We adopt and deploy new technologies and processes to bring value to our customers.

Our experience

Our extensive multi facet industry experience, and strong engineering background has seen Crystal Solar Energy at the forefront of the ever-changing field of renewable energy adoption, transition and energy savings. Our team of professionals strive to bring the emerging technologies to you at all times.

Product Knowledge

Our core philosophy is to offer you the best and reliable products available in renewable energy. Our engineers and technologists understand the finer details of these products and offer you the best suited to your needs; this makes different from our peers. You can be confident that you receive the best advice, products that perform well with long warranty and peace of mind.

New Technologies

New developments take place in renewable energy at a rapid pace. Besides conventional Solar PV on roof, Light weight Solar Panels and Solar PV Car Ports is emerging as front runner to provide large scale solar PV solutions. Combined with battery storage technologies like Lithium Titanate Oxide (LTO), and Sodium ion batteries provide and end to end solution for customers looking for transition to renewable energy. These Battery storage solutions also allows us to introduce fast DC - DC EV charging stations minimising dependency on the grid power upgrade! Another facet we are pursuing is Thermal Energy Storage using Sand as a medium, which provides up to 100% energy offset from conventional natural gas for large scale users.

Our engineers and technologists keep up to date on product developments through partnership, training and seminars and expos. Thus, our customers are offered the best technology suited for their business, ensuring their investment brings good return on investment.

Advice & Support

Our advice is simple, honest and pertinent. You can be rest assured that you are receiving the best for you for now and a long term. All our advice is based on the knowledge we harness from the manufacturers, industry peak bodies and world's best testing labs. More importantly, our advice is complimentary and reliable. Our after sales support is one of the best in the industry.

The Natural Choice

Crystal Solar Energy has provided sustainable solutions for industry sectors such as dairy, cold storage, printing, manufacturing, pharmaceutical industry, to name a few. We have delivered cost savings in their energy consumption, helping them to transition to renewable energy.

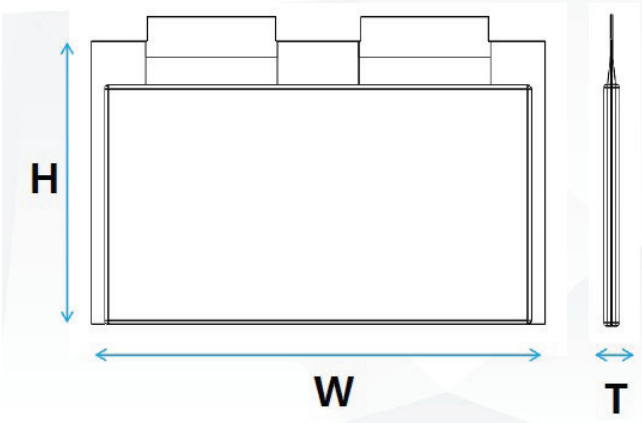
We have demonstrated our ability to identify and provide practical solutions to our customers. We value our clients' need to achieve cost savings in their energy consumption. Offer solutions to achieve energy efficiency. We are proud to be a bespoke service provider in the this area and our commitment to excellence combined with our expertise, product selection, implementation with long warranties and ongoing follow up service sets Crystal Solar Energy apart from our peers.

LITHIUM TITANATE BATTERY TESTING REPORT

The cell configuration, testing are and the results of the tests are provided in the following slides below. These tests were conduted in China.

Test	Type	Requirement	Result
GB/T 31484-2015	"Cycle Life Requirements and Test Methods for Traction Batteries Used in Electric Vehicles"	Cell and module third party test report	Meets Requirement
GB/T 31485-2015	"Safety Requirements and Test Methods for Traction Batteries for Announcement requirements Electric Vehicles" Third-party test report for batteries and modules	Cell and module third party test report	Meets Requirement
GB/T 31486-2015	"Electrical Performance Requirements and Test Methods for Traction Batteries for Electric Vehicles"	Cell and module third party test report	Meets Requirement
---	"Safety Technical Conditions for Electric Buses"	Third-party detection of battery unit thermal runaway	Recommended Catalog Requirements
		Expansion of thermal runaway of rechargeable energy storage system Third-party	
		Detection of flame retardant performance of plastic parts inside the box: horizontal combustion HB class, vertical combustion V-0 class	
		IP67	
GB/T 31467.3-2015	Lithium-ion traction battery packs and systems for electric vehicles Part 3: Safety requirements and test methods	Battery pack or system third-party test report	
PV8450-2018-1	"Test Conditions for Lithium-ion Batteries for Electric Vehicles"		

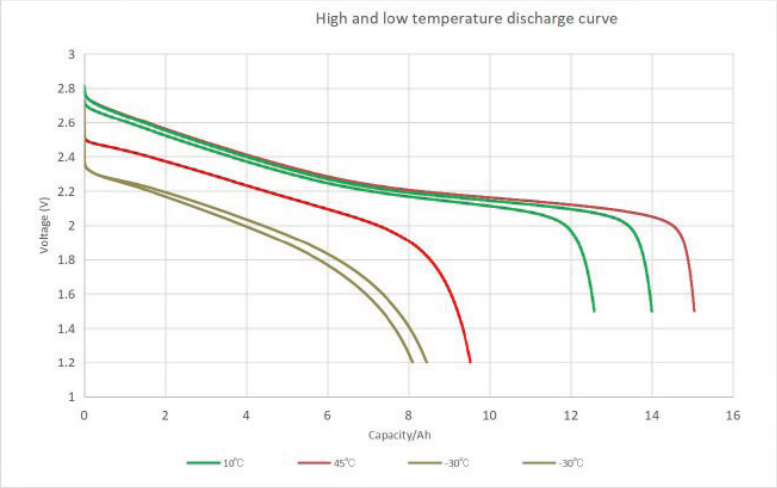
✓ Cell parameters



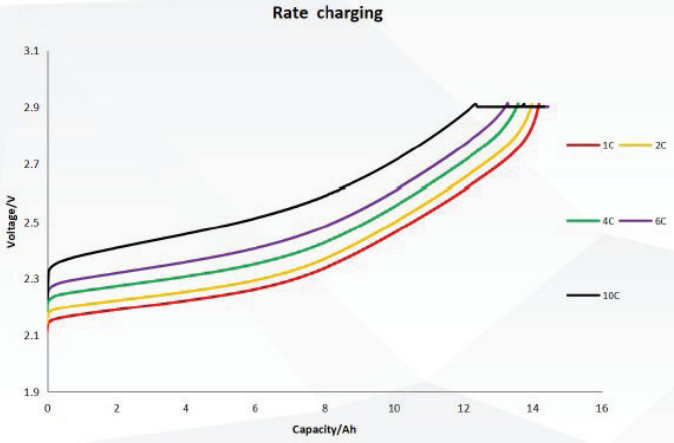
project	parameter
Dimensions (mm)	W*H*T=212*128*7.2
Upper and lower limit voltage range (V)	1.5-2.9V
Rated voltage (V)	2.3
Rated capacity (Ah)	14
Energy density (Wh/kg)	95
Maximum continuous charging rate	10C
Maximum continuous discharge rate	6C
Maximum peak charge rate	15C
Maximum peak discharge rate	12C
Operating temperature range (°C)	Charging: -10~45 Discharging: -20~45
cycle life	32000 times@25°C 1000 times@60°C

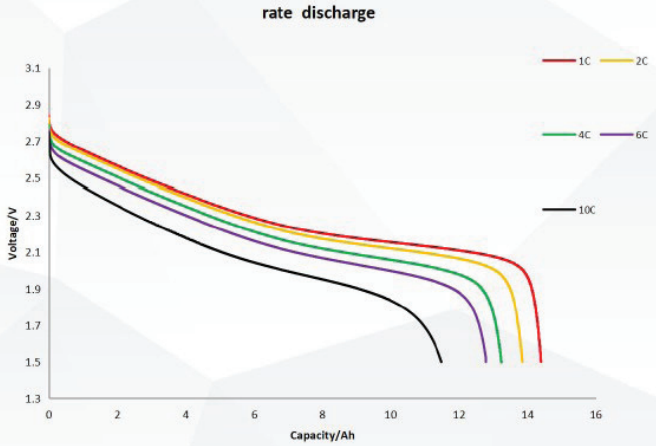
✓ Cell Capacity at different temperatures

Discharge temperature (°C)	discharge capacity (Ah)	Discharge capacity/25°C discharge capacity (%)
-20	9.54	67.63%
25	14.10	100.00%
55	15.25	108.13%



✓ Rate charge and discharge

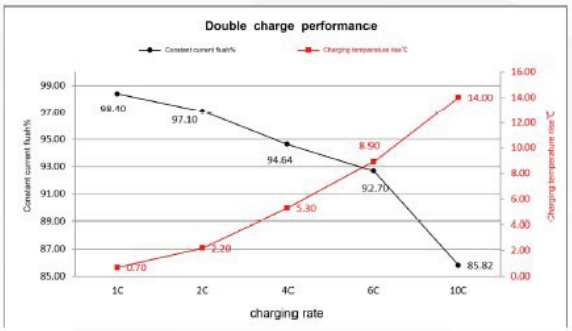


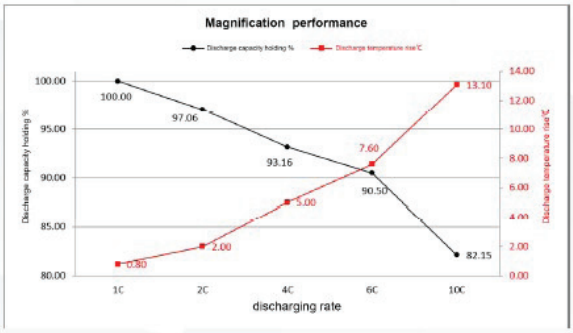


✓ Rate charge and discharge

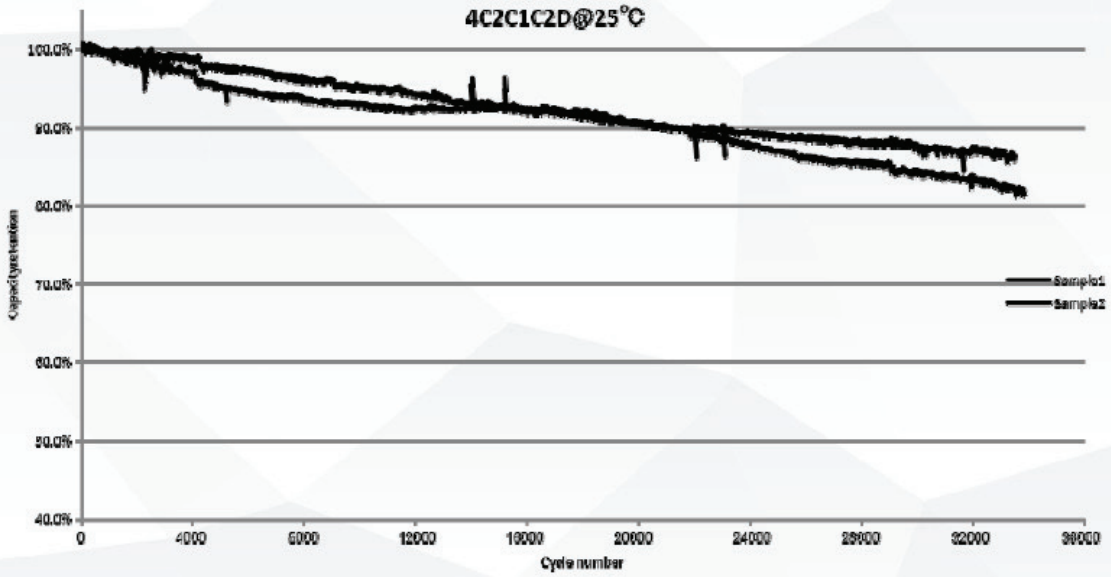
	magnification	Constant current ratio/%
Double charge performance	1C	98.4
	2C	97.1
	4C	94.64
	6C	92.7
	10C	85.82

	Rate/C	Capacity retention/%
Magnification performance	1C	100
	2C	97.06
	4C	93.16
	6C	90.5
	10C	82.15



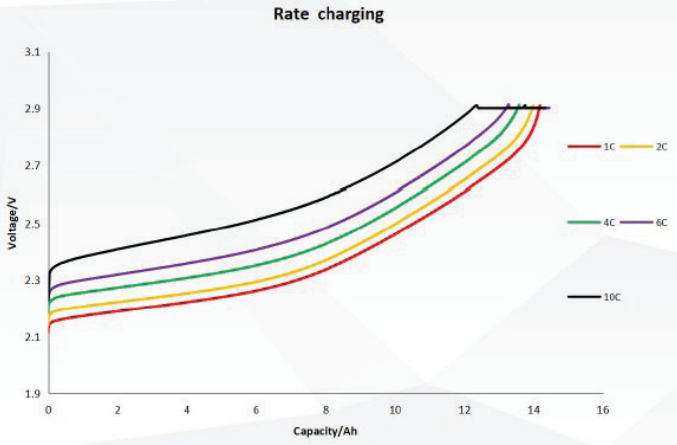


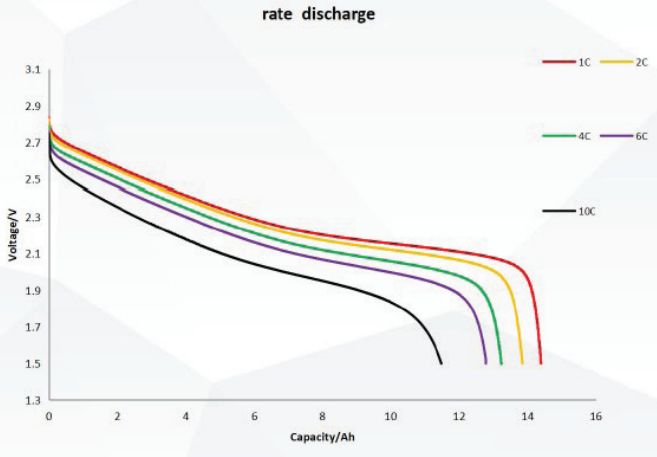
✓ Cycle life (RT, 4C2C1CC/2CD)



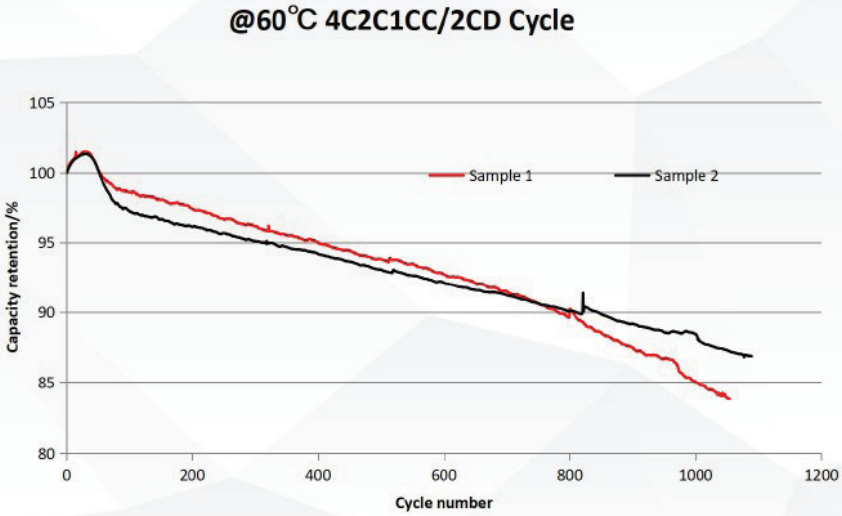
Conclusion: The cycle life exceeds 32,000 cycles.

✓ Rate charge and discharge





✓ Cycle life



Conclusion: suffient for high temperature cycle design requirements: 1000 times.

✓ The safest lithium battery in the world

serial number	project	standard test	Test Results	Conclusion
1	Over charge	GB-T 31486-2015	4 passes	OK
2	Puncture	GB-T 31486-2015	4 passes	OK
3	Short circuit	GB-T 31486-2015	4 passes	OK
4	Heating	GB-T 31486-2015	4 passes	OK
5	Mono thermal runaway	"Technical Conditions for Electric Buses"	2 passes， untriggered	OK

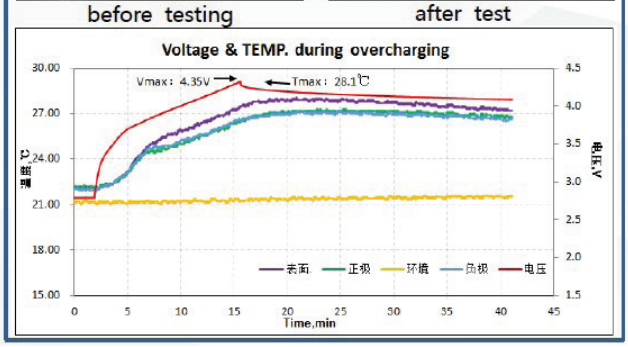
✓ Safety testings

overcharge test

Sample 1 (Passed)

before testing

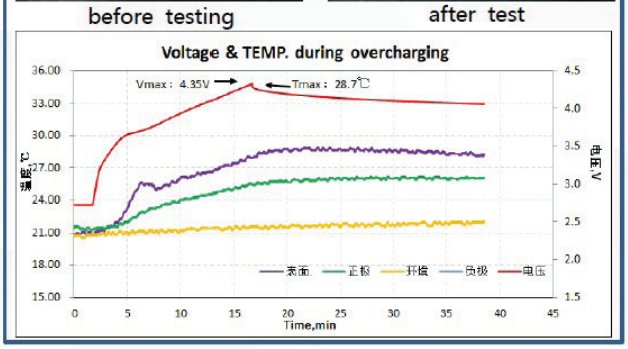
after test



Sample 2 (Passed)

before testing

after test



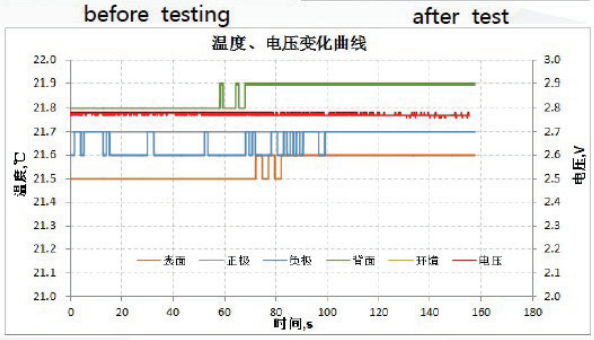
✓ Safety testings

puncture test

Sample 1 （Passed）

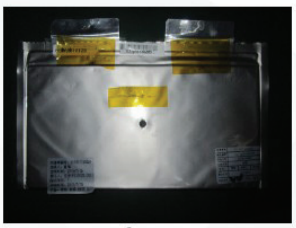
before testing

after test

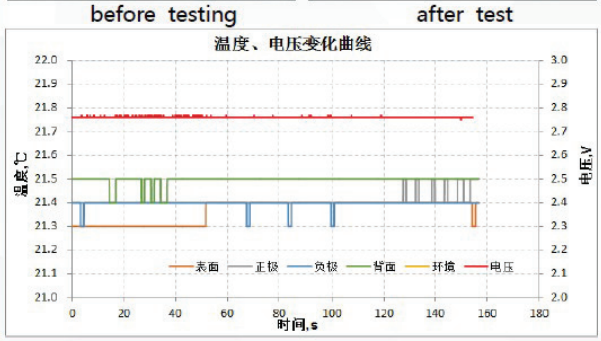


Sample 2 （Passed）

before testing



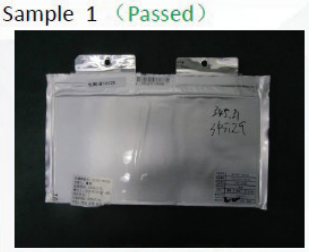
after test



✓ Safety testings

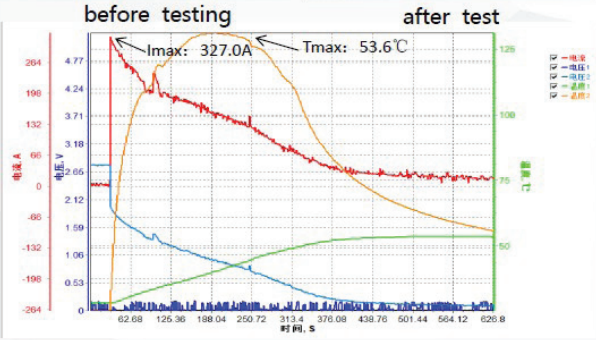
short circuit test

Sample 1 （Passed）

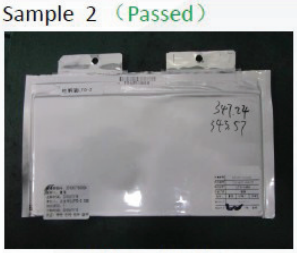


before testing

after test

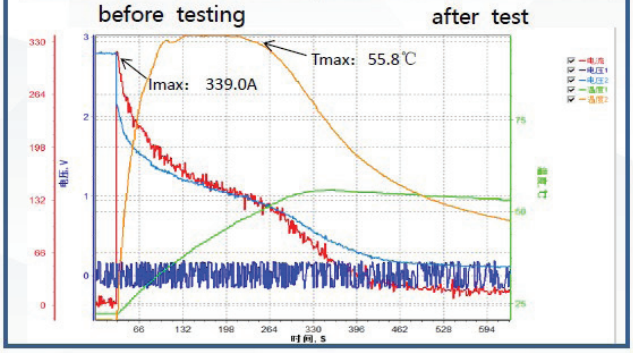


Sample 2 （Passed）



before testing

after test



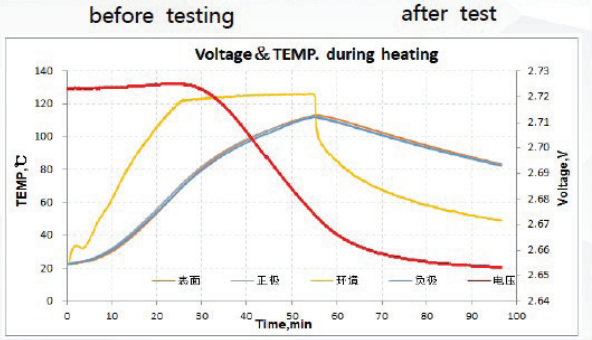
✓ Safety testings

heating test

Sample 1 （Passed）

before testing

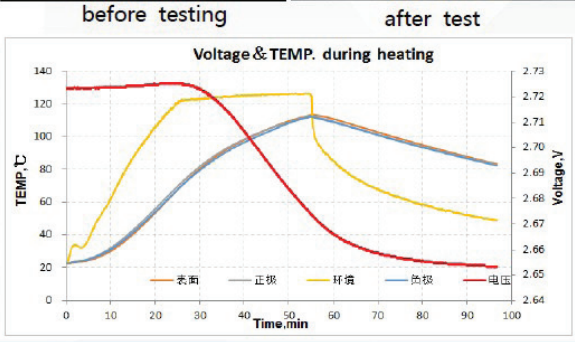
after test

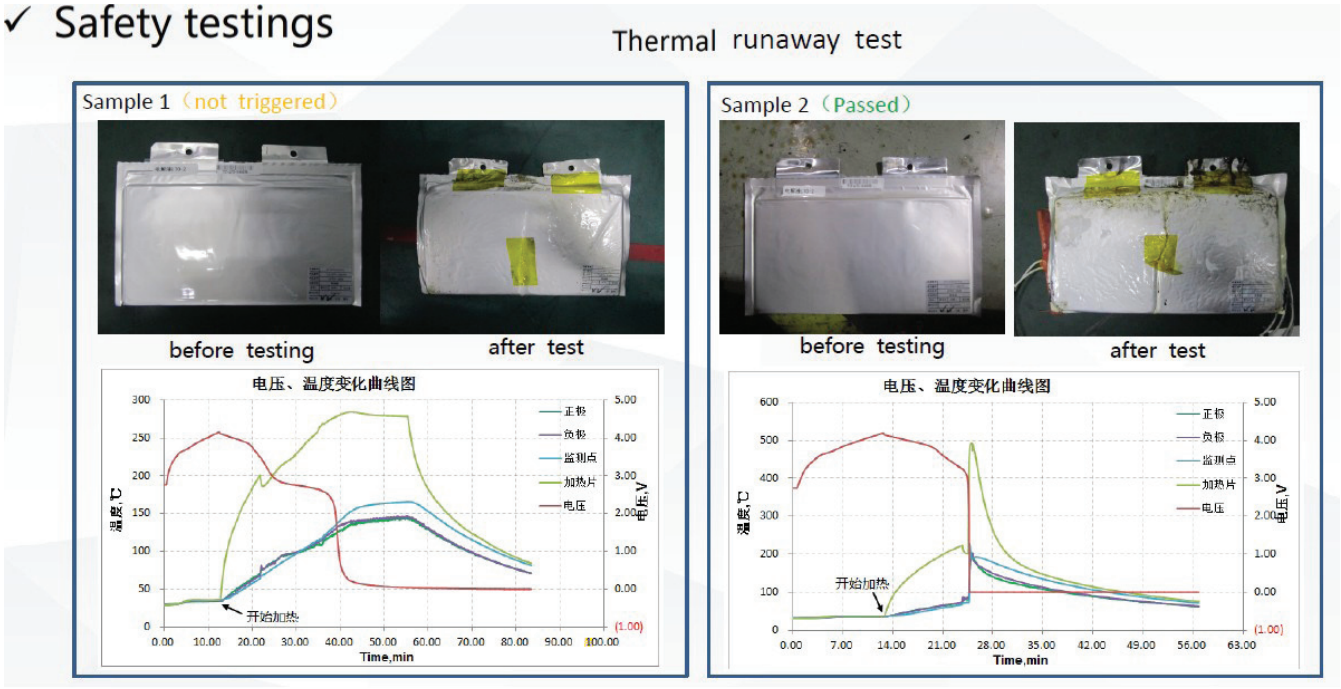


Sample 2 （Passed）

before testing

after test





CONCLUSION

Cell advantages:

The lithium titanate battery has a high cycle life of 40,000 times (@25°C);

Lithium titanate battery cell has passed the safety tests in terms of overcharging, pinprick, short circuit, heating, monomer thermal runaway, and other safety factors, it has the absolutely high safety performance.

Application scenarios:

Mainly used in bus, port AGV, heavy truck (port tractor, urban construction and factory dump truck slag Earth trucks, etc.), mine trucks and other fields that require high battery storage

Recreational Vehicles (Caravans), Home battery storage and for factories where cycle load is high

BUSINESS MODEL

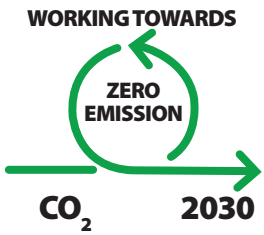
The Business model is being worked out as the areas of application for this safe battery is being projected.

THE MARKET POTENTIAL

There are 792,713 registered RVs in Australia. This includes caravans, campervans, and other types of recreational vehicles. The RV industry in Australia is a significant contributor to the economy, valued at $27.1 billion. The number of RVs registered has been steadily growing, with a 21% increase since 2019.

There are Lithium Iron Phosphate batteries available to replace Lead Acid / AGM batteries currently. Transition to a Fire Safe Battery is paramount for the safety of the RV and personnell.

Finer details can be provided as it is being worked out.



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