Serial No.	Test Category	Test Items	Test Contents	Instruments	Mechanism/Method overview	Requirements of Sample	Test Time（for one single sample）	Test Period（from receiving the sample to uploading the results）	Test Ability	Remarks
1	Materials	EIS Test for Coin Cell	Obtaining Nyquist plot for coin cell	Bio-Logic Electrochemical Workstation	Coin cells are firstly assembled by the materials to be tested, and then activated and adjusted to a specific SOC. The cells at the specific SOC would be tested to acquire their Nyquist Plots using an electrochemical workstation under a specific temperature, and finally the kinetic differences of the several materilas could be compared.	Coin cells activated and adjusted to a specific SOC should be provided	1 day	3~5 days	8 samples per day	
2	Materials	CV Test for Coin Cell	Acquiring CV curve for coin cell	Bio-Logic Electrochemical Workstation	Coin cells are firstly assembled by the materials to be tested, and then the cells would be charged and discharged for 3 times using an electrochemical workstation under room temperature to obtain their CV curves.	Coin cells without activating should be provided	3~5 days	3~5 days	4 samples per week	
3	Materials	Lithium Ion Diffusion Coefficient Test for Coin Cell	Using PITT to test lithium ion diffusion coefficient	Bio-Logic Electrochemical Workstation	Coin cells are firstly assembled by the materials to be tested, and then activated and adjusted to a specific voltage (generally 0.8V, 0.1V and 0.01V for anodes; and 3.7V, 3.9V and 4.3V for cathodes). A potentiostatic step was performed using an electrochemical workstation to calculate the lithium ion diffusion coefficient.	Coin cells activated and adjusted to a specific SOC should be provided	2~3 days	5~7 days	4 samples per week	

4	Materials	Cycling Test at 45 ℃ for Coin Cell	Cycling test at 45 ℃ for coin cell	Land Battery Test System	Coin cells are firstly assembled by the materials to be tested, and then activated and placed on the battery test system under the temperature of 45 ℃. The cells would be charged and discharged for 30 cycles using the C-rate of 1C, and finally the capacity retention for each cycle could be obtained.	Coin cells activated and adjusted to a specific SOC should be provided	4~5 days	5~7 days	4 samples per week	
5	Materials	Borderline of Lithium Plating for Coin Cell	Acquiring the borderline rate of lithium plating occuring for coin cell	Land Battery Test System	Coin cells are firstly assembled by the materials to be tested, and then activated for 3 cycles. A sequence C-rates would be applied to the cells for discharging until a unique signal implying for lithium plating occurs, and finally the borderline rate of lithium plating could be confirmed.	Coin cells without activating should be provided	3~4 days	7~9 days	10 samples per week	
6	Materials	In situ Expansion-rate Test	In-situ expansion of materials during charge and discharg process	Keyence Sensor, Arbin Battery Test System	The battery is activated with successively small currents of 0.02C, 0.05C and 0.1C, and then charged and discharged at 0.2C for one cycle to ensure a complete SEI formation. The battery is then cycled at 0.5 C for several times and the expansion thickness of the anode is measured synchronously during the whole process.	30 g powder	10 days	25 days	18 samples per month	
7	Materials	In situ X-ray Diffraction Test	The examination of structural evolution of the materials upon charge/discharge process or dynamic temperature	Bruker X-ray Diffractometer	Synchronous detection of the structural evolution of the materials during charge/discharge or heating/cooling process.	30 g powder	1 days	4 days	16 samples per month	

8	Batteries	Power Test	The power test of pouch cells or cylinder cells	Land Battery Test System	The battery is adjusted to a specific SOC (generally 50% SOC), and then charged and discharged for 10s, respectively, with varied rates at a specific temperature (the varied range of rates should be adjusted according to the specific capacity of the battery). Fianlly the power of the baterries could be calculated.	Pouch cells or cylinder cells activated and adjusted to a specific SOC should be provided	1~2 days	5~7 days	8 samples per week	
9	Batteries	Single-layer Pouch Cell Fabrication and its Electrochemical Performance Tests	The electrochemical performance of materials	Land, Arbin, Maccor Battery Test System, Bio-Logic Electrochemical Workstation	The materials can be fabricated into a single-layer pouch cell, and its electrochemical performance, involving EIS, DCR, charge/discharge curve, rate capability, discharge capacity at different temperatures, high-temperature storage performance, critical rate for lithium plating, cycle performance, and so on, could be examined by using the battery test system or electrochemical workstation.	Anode powder (500g per sample)	2~3 weeks	3~4 weeks	4 samples per month	
10	Batteries	EIS Test for Symmetrical Cell	EIS test of the cathode/anode at specific SOC	Bio-Logic Electrochemical Workstation	The cycled battery is disassembled upon a specific SOC in an argon atmosphere. Symmetrical cells are fabricated by using either positive or negative electrodes harvested from the battery to obtain the separately positive or negative EIS information.	Pouch cells or cylinder cells activated and adjusted to a specific SOC should be provided	2~3 days	8~10 days	5 samples per month	