

Pause duration evaluation for relaxation in PPC test

**Camel
Hazel Li**

Pause duration evaluation for relaxation in PPC test

- Problems: Current PPC test at low temp method did not fully take into account the impact of battery heating before pulse.

Current test method	Evaluation on sodium-ion cell (O3 type cell)	Summary and Suggestion	Effect
Soak time at target temp (min 16h- max 48h) at low temp	Evaluation 1: Soak the fully charged cell at -29°C for 5H (monitor cell temp and OCV all the time)	Summary: Soak 3H is enough Suggestion: The soaking time can be shortened according to battery condition.	Save test time
Pause time (min 120 min max 12 h) before adjust SOC at Low temp	Evaluation 2: pause 60s before adjust SOC at -29°C— SOC-OCV comparison between 25°C&-29°C	Summary: Pause 60s is enough Suggestion: The pause time before SOC adjustment can be shortened	Save test time
pause time (600sec)after SOC adjustment before pulse at Low temp	Evaluation 3: pause for 2H (monitor cell temp and OCV all the time) after SOC adjustment before pulse at - 29°C	Summary: At least pause 2H Suggestion: The pause time after SOC adjustment before pulse should be extended until the temperature and SOC are completely stable	Improve the accuracy of test results

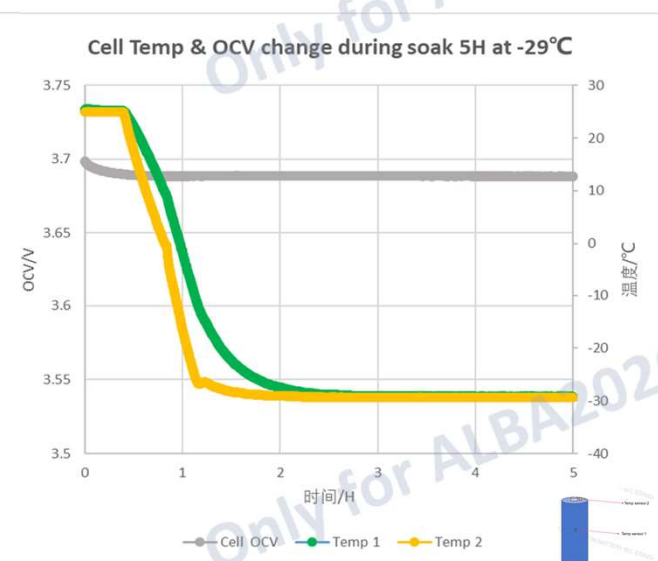


Pause duration evaluation for relaxation in PPC test



Evaluation 1

Soak the cell at target temp for 5H and test

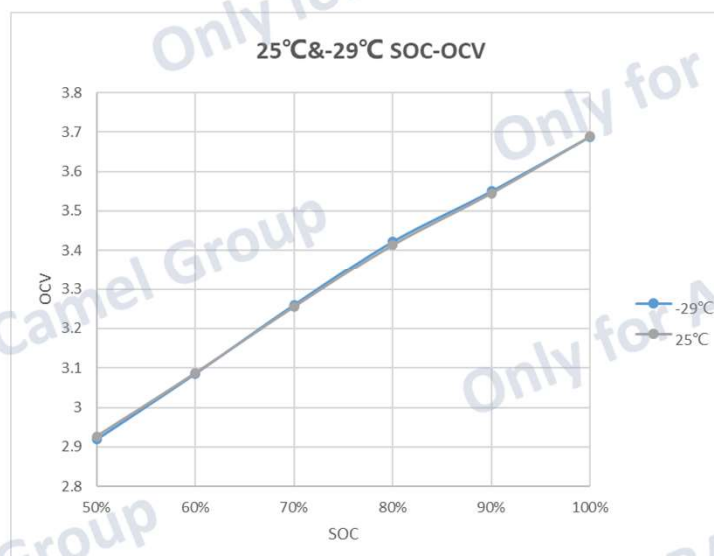


Summary 1:

Soak the cell at -29°C 3H is also enough, both OCV and temp of the cell are getting stable

Evaluation 2

25°C&-29°C SOC-OCV comparison

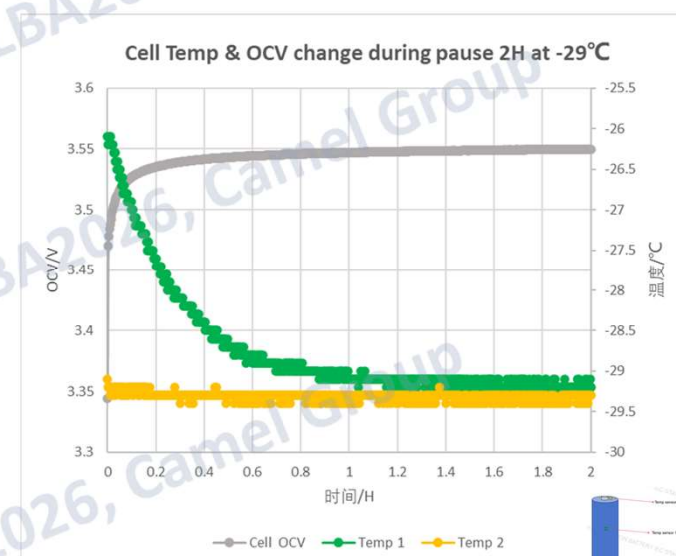


Summary 2:

The SOC-OCV curve at low temp almost coincides with that at room temp, indicating that it is not necessary to rest for too long before adjusting the SOC.

Evaluation 3

pause 2H at target temp after SOC adjustment



Summary 3:

Pause the cell 2H after SOC adjustment at -29°C, both OCV and temp of the cell are getting stable