

BATT1003 - Management of Graphitization Degree for Graphite Anode Material

Introduction

The crystallinity of anode material graphite is known to be related to battery capacity. Through analysis of d-spacing, crystallite diameter L and graphitization degree P_1 ($d_{002}=3.354P_1+3.44(1-P_1)$), it is possible to quantitatively evaluate and manage that crystallinity. Additionally, in Japan, measurement methods are standardized according to JIS R7651:2024, which uses Si as an internal standard.

Crystal phase analysis

- **Analysis:** Processed materials
- **Analysis method:** Graphitization analysis
- **Use:** Quality assurance
- **Analyzed materials:** C (Graphite)

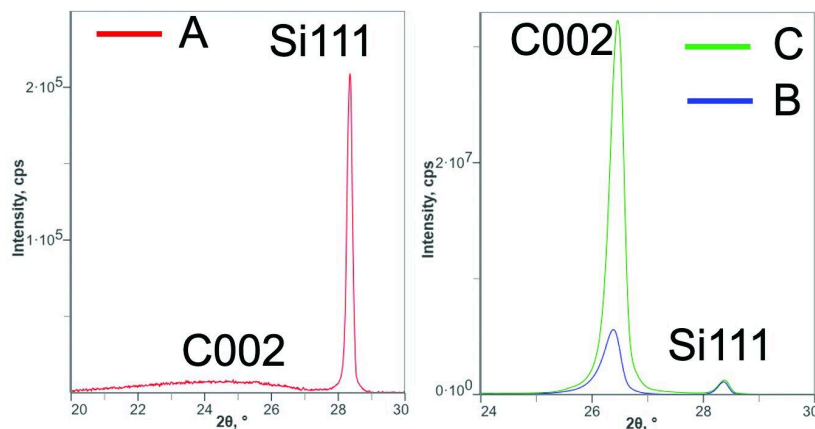


Figure 1: XRD profile for graphite samples A, B and C

Table 1: Results of calculating d_{002} , L_{002} and graphitization degree for Graphite Samples A, B and C (Graphitization progresses in the order of A, B and C)

Sample	d_{002} (Å)	L_{002} (Å)	P_1

A	3.44	14	0
B	3.371	575	0.76
C	3.363	1587	0.85

Conclusion

To ensure the quality of graphite, it is necessary to manage parameters related to the degree of graphitization. With sample A, because there is no progression in the graphitization degree, that sample would be deemed unsuitable as a anode material.

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