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# BATT1023 - Assessment of Particle Diameter and Interparticle Voids for Cathode Material for Lithium-Ion Batteries

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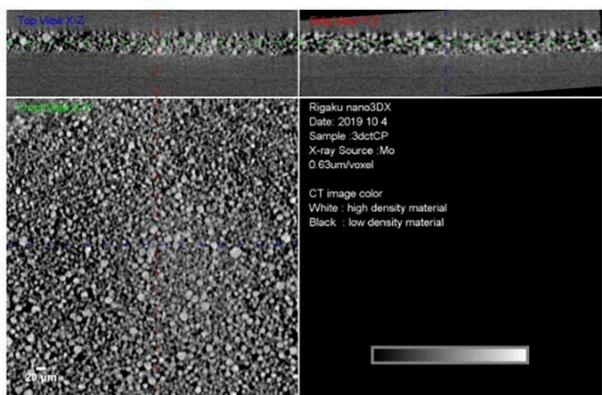
## Introduction

In the development of lithium ion-battery cathode material, the distribution of active material, their particle diameter and interparticle voids are important for the sake of improving battery capacity. In assessments of active material using SEM, etc., only surface observations of the sample are possible, and evaluations of particle size and voids within the sample are not feasible. With X-ray CT, the state of both the surface and inside of test-produced cathode material can be non-destructively observed in three-dimensions, and the distribution of active material as well as particle diameters and voids can be assessed.

### Non-destructive analysis

- **Analysis:** Cathode material
- **Analysis method:** VGSTUDIO MAX
- **Use:** Optimizing electrochemical performance
- **Analyzed materials:** Cathode material for lithium-ion batteries

CP



NP

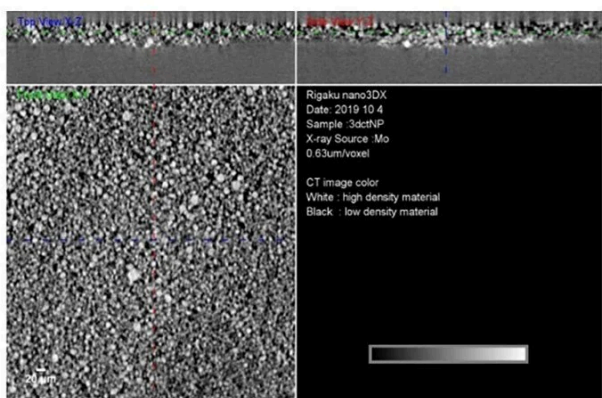


Figure 1: Cross-section image

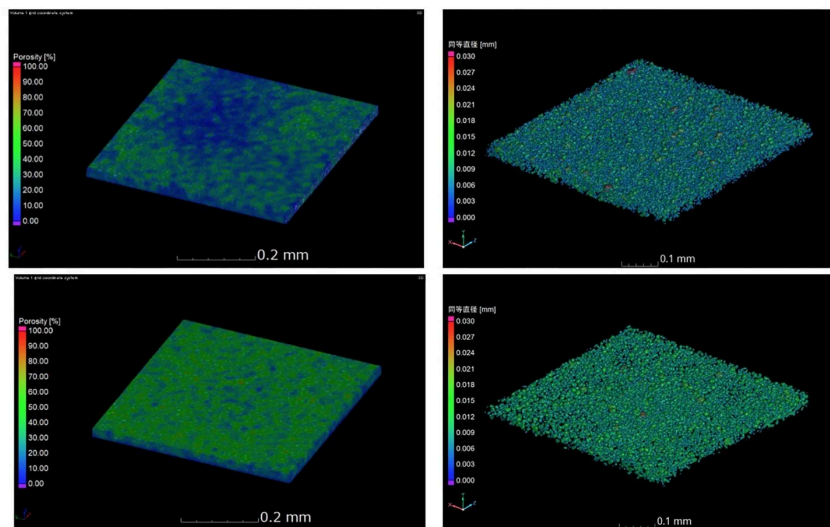


Figure 2: Assessment of interparticle voids and particle diameters in active material

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## Conclusion

Using two types of cathode material with differing preparation methods, the interparticle voids and particle diameters in active material were assessed. It was successfully determined that Sample CP has fewer voids than Sample NP, and that particles of varying size are dispersed in the former. By assessing battery capacity using this cathode material, it is also possible to infer the relationship between battery capacity and the interparticle voids and particle diameters of the active material.

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