Application Note BATT1001

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BATT1001 - Qualitative Analysis of Impurities (Sulfate) in Mixed Nickel-Cobalt Sulfide

Introduction

To ensure the quality of mixed nickel-cobalt sulfide, a raw material used to make batteries, the sulfate content needs to be minimized. Using XRD makes it possible to distinguish between sulfide and sulfate. Performing quantitative analysis using Rietveld analysis makes it possible to detect component amounts as well.

Crystal phase analysis

- **Analysis:** Processed materials
- **Analysis method:** Qualitative/quantitative analysis
- **Use:** Quality assurance
- **Analyzed materials:** Mixed nickel-cobalt sulfide

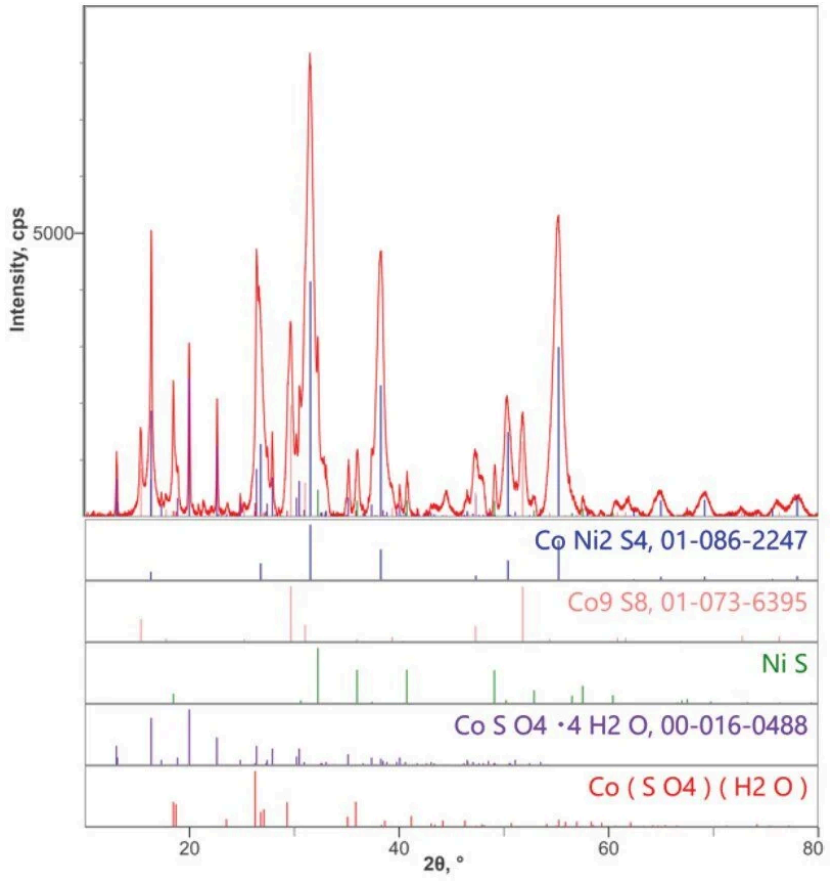

Figure 1: Qualitative analysis (5 components identified)

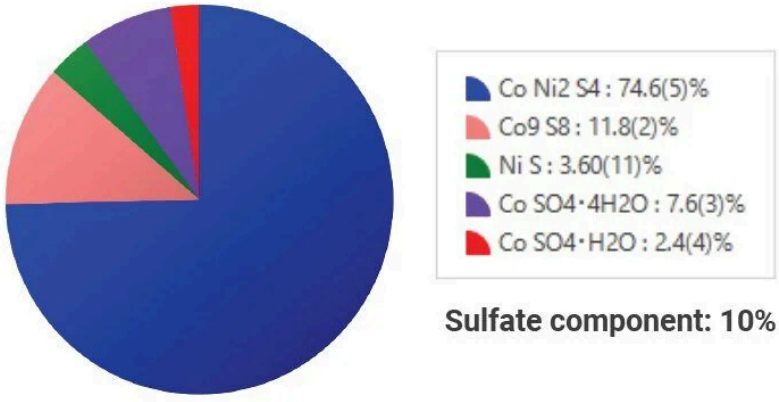

Figure 2: Results of quantitative analysis using Rietveld analysis (Sulfate component has a 10% residual)

Conclusion

As a result of this analysis, a 10% residual was detected for the sulfate component. With the acceptable amount of sulfate component set to 1% or lower, it can be easily determined based on the result that this batch contains an anomaly.

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