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BATT1014 - Measurement of $\text{Li}_7\text{P}_3\text{S}_{11}$ Solid-State Electrolyte Using Airtight Sample Holder

Introduction

LPS, a sulfide solid electrolyte with high electrical conductivity, is known to readily react with moisture in the air. For hygroscopic samples like this, using an airtight sample holder enables XRD measurement without exposing the material to water in the air.

Crystal phase analysis

- **Analysis:** Solid-state electrolytes
- **Use:** Improving ionic conductivity
- **Analyzed materials:** $\text{Li}_7\text{P}_3\text{S}_{11}$
- **Accessory:** Airtight sample holder (US patent 11,525,790)

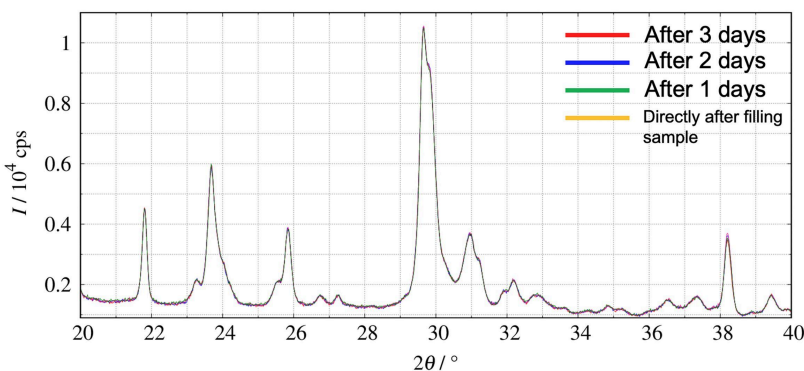
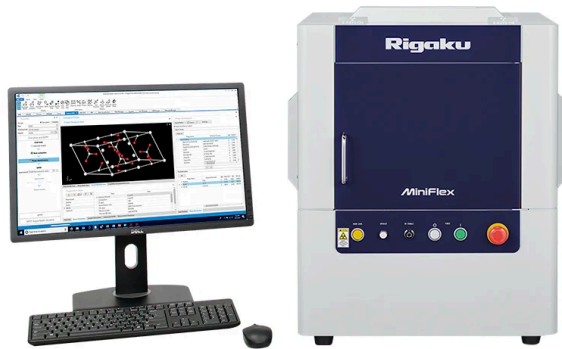


Figure 1: XRD profile for LPS
(Samples provided by: Hayashi Laboratory, Osaka Metropolitan University)

Conclusion

It was demonstrated that, by using an airtight sample holder, the XRD profile of LPS was unaffected by water in the air, exhibiting no change over a four-day period. Airtight sample holders are an ideal tool for verifying the synthesis of samples for which airtightness is required.

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