【Technical Data】	YAMAGUCHI MICA CO., LTD.				
Title	Investigation of silica content in YMC Products 3				
Category	Safety	Written by	T. Murahashi	Date	Aug. 18th, 2025

<Abstract>
Using powder X-ray diffraction measurements at the Aichi SR beamline BL5S2, we confirmed that the contents vary of crystalline silica depending on the manufacturing process crystalline silica.

<Implementations>
In our previous report, we confirmed that the concentration of crystalline silica in AB-25S (our mica products) were very low, based on powder X-ray diffraction (XRD) measurements.
In this report, we analyzed several samples produced via various manufacturing processes using XRD to accumulate data on crystalline silica concentrations in mica products.

<Samples and Methods>
The preparation of the standard samples and the measurement method were the same as the previous report" Investigation of silica content in YMC Products 2[Aichi SR Powder X-ray Diffraction]".
In this report, we prepared the following four samples, manufactured by different process.
- Wet-ground Mica Powder by YMC process (**AB-25S**: used in previous report)
- Wet-ground Mica Powder by **MEDIA MILL** process
- **Dry-ground** Mica Powder
- Wet-ground Mica Powder by **other company's product**.

<Results>

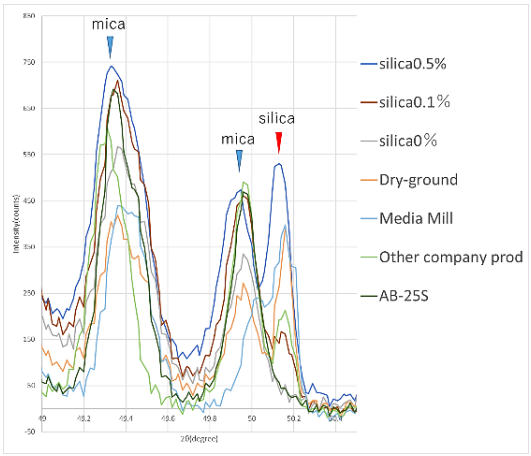

Fig.1 Results of powder X-ray diffraction measurements.

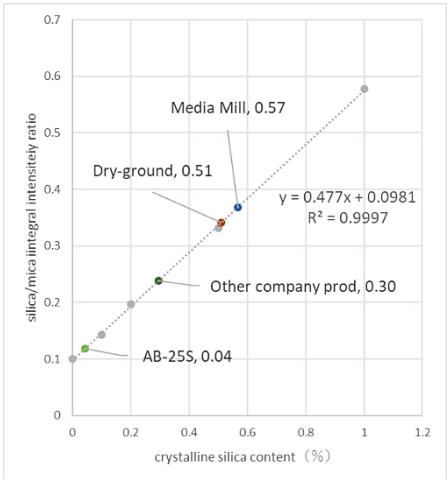

Fig.2 Correlation between the integrated intensity ratio of mica/silica and silica concentration.

In the XRD measurements, AB-25S had almost no peaks corresponding to crystalline silica, whereas other products manufactured by the Media Mill or the dry-ground process had that peak (Figure1).
Next, the integrated intensity ratio of crystalline silica to mica were calculated, and a very high correlation was found with the crystalline silica content. (Figure2). On the basis of this correlation, the crystalline silica content was found to be 0.04% in AB-25S and 0.1% in Dry-ground or Media Mill. These results suggest that the silica content varies depending on manufacturing processes.
However, in these measurements, spots were observed in the diffraction pattern of a 2D detector due to the large micas (a particle size of approximately 20–30 μm). Therefore, although the measurement results showed a tendency for silica content, the analysis accuracy was not enough for accurate determination.

<Conclusions>
Using powder X-ray diffraction measurements at the Aichi SR beamline BL5S2, we confirmed that crystalline silica concentrations in mica products vary depending on the manufacturing process. On the other hands, the analysis accuracy was not enough for accurate determination.