【Technical Data】	YAMAGUCHI MICA CO., LTD.				
Title	Investigation of silica content in YMC Products				
Category	Safety	Written by	T.Murahashi	Date	Jul. 15th, 2025

<Abstract>
If the product contains 0.1% or more crystalline silica, which is listed as Substances Subject to Labeling and Notification Obligations under the Ministry of Health, Labour and Welfare's regulations, it must be labeled according to GHS and included in the SDS. However, there are no rule for quantification method of crystalline silica contained in mica.

In this report, we tried to develop the quantification method by XRD.

As the results we revealed following.

① No crystalline silica peak in our mica product AB-25S.

② Since the lower limit of quantification for our XRD equipment is 0.5%, we determined that this XRD method cannot guarantee that the crystalline silica content is less than 0.1%.

<Method>

・Preparation of standard sample and obtaining XRD diffraction patterns.
Blank sample were prepared by pulverizing mica sheet.
To obtain diffraction patterns, those mica added 0.1~0.7% crystalline silica were analyzed by XRD.

・Quantification of crystalline silica contained in a mica product.
To quantification of crystalline silica, compared between AB-25S and standard samples diffraction patterns.

【Measurement conditions】

Device：Multi Flex（Rigaku Co.,Ltd.）、X-ray source：Cu/50kV/40mA、Detector：Scintillation detector
Slit：Receiving slit 0.3mm、Divergence slit 1°、Scattering slit 1°
Measurement range(2θ)：20.3~21.3°（Quantified by 20.86° that around second peak of crystalline silica.）、 Scanning speed：0.125°/min、Sampling Width：0.004°

<Results>

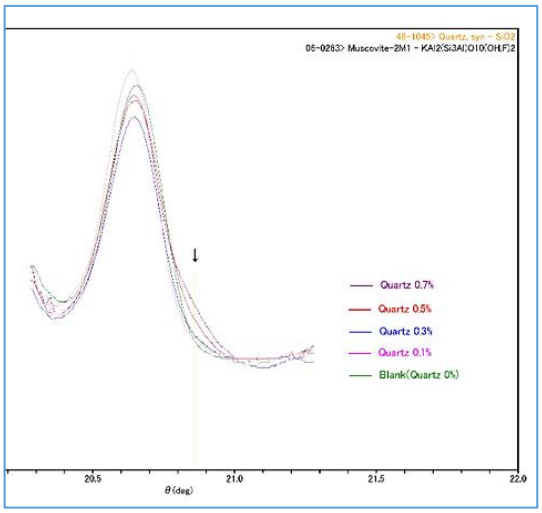

Fig.1 Result of standard sample by XRD measurement

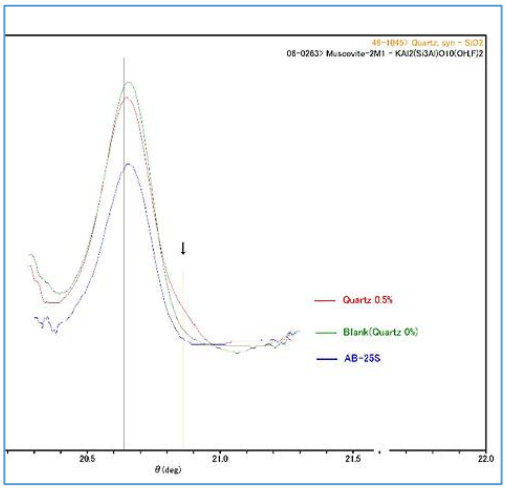

Fig.2 Result of Mica product AB-25S by XRD measurement

From the XRD measurements, Peaks were identified in samples containing crystalline silica at concentrations of 0.5% or more, and peak intensity depends on concentration (Fig.1).

On the other hand, no peaks of crystalline silica were identified at mica product AB-25S.

<Conclusions>

・From the results of standard sample, lowered limit of quantification was 0.5% at XRD analysis by our XRD equipment.

・No Peaks of crystalline silica were identified at AB-25S.

…Because the concentration of silica sand in the mica raw material is not zero, mica products contain trace amounts of crystalline silica. Due to limitations in the quantitative determination method, we cannot guarantee that the crystalline silica content in mica products is less than 0.1%.

…In order to accumulate data on crystalline silica content, we will analyze products with different conditions (raw material origin and manufacturing method), sericite, etc.