Development of Measuring Method for Crystal Shape using Super High Speed Real-time Image processing system in the Crystallization Tank

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Summary

Crystallization is widely used from a fine separation in the laboratory to a large-scale plants of medicine manufacture industry and chemical industry, etc. It is to possess precision and a large amount of processing performance in crystallizing process. Additionally, the average diameter or the diameter distribution and the shape of the crystals are required in the recent crystallizing processes. In such crystallizing processes, the on-line measuring method is indispensable.

In this study, we developed the on-line method by which the diameter distribution based three dimensional shape of crystals in tank. This method was achieved by combining the suction probe method and our super high speed real-time image processing system.

Four matters which we researched about this method are as follow.

1. The construction of measurement system which included electric circuits and image detector.
2. The studies about a precision, an upper limit on the crystal concentration and a lower limit of the crystal diameter.
3. The development of the quickly method based on the unique shape of crystal and the images observed to vertical direction.
4. The development of the detailed method based on and the images observed to eight directions which were set 45-degree interval on the horizontal plane.

As the results, it was clearly understood that the diameter distribution of crystals in tank were measured quickly and accurately by this method.