

Front Cover Design Concept: Exploring the Mountain Range of Powder Technologies

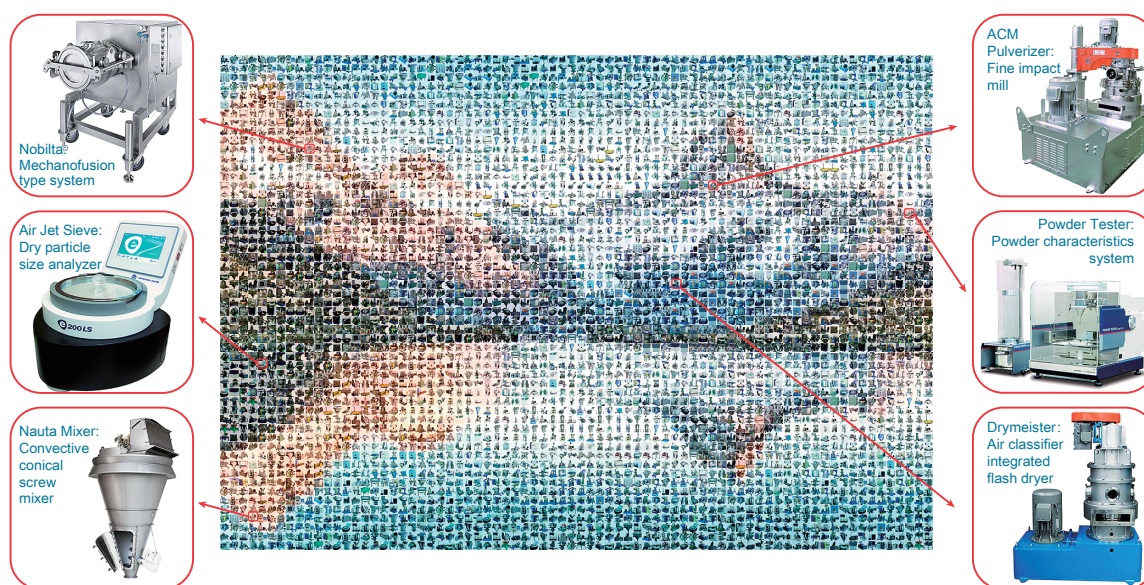
The front cover image presents an AI-generated mosaic illustration of the concept known as the *Mountain Range of Powder Technologies*¹⁾, originally introduced in a commemorative lecture delivered in 1976 by Mr. Masuo Hosokawa, then President of Hosokawa Micron Corporation, on the occasion of the company's 60th anniversary and described in "Hosokawa Micron's 100-Year History"²⁾. He later initiated the publication of the *KONA* journal in 1983 with the aim of promoting powder technology on a global scale. The mosaic illustration features each pixel composed of various powder-related machinery and equipment.

Powder technology encompasses the measurement of characteristics and physical properties of powders and particulate materials, the execution of diverse processing and treatment methods, and the creation of powder products and raw materials tailored for specific applications. These processes are categorized into fundamental unit operations—such as grinding, classification, mixing, drying, and characterization—alongside auxiliary handling techniques. Equipment for these operations has been developed in accordance with the nature of the materials and the specific processing conditions.

The mountains depicted in the *Mountain Range of Powder Technologies* symbolize the diverse array of equipment and technologies—varying in type, scale, and mechanism—sourced globally and utilized in each unit operation. Surrounding these mountains, engineering innovations have emerged to integrate the technologies of individual peaks, thereby enabling efficient system design and scale-up for the production of desired powder-based products.

In this context, the following future challenges have been identified. The first challenge involves identifying and pioneering new, unexplored peaks within the vast landscape of powder technology—namely, the development of novel and distinctive key products. The second challenge is the development of the foothills pertaining to the advancement of foundational production technologies that support systematization and rationalization, including the establishment of original methodologies. Additionally pointed out is the importance of the exploration of neighboring technological domains and the expansion of the powder technology sphere. Crucially, these adjacent ranges must align with the evolving needs of future generations while maintaining a connection to the core powder technology domain. Such integration may lead to the emergence of a new technological mountain range for the next era.²⁾

It is hoped that continued research and development in powder and particle science and technology—which spans a wide array of industrial and everyday uses—will contribute to human welfare and the preservation of the global environment.



References

- 1) Hosokawa Micron Corporation, Integrated Report <<https://www.hosokawamicon.co.jp/en/ir/library/integrated.html>> accessed 2025-9-25.
- 2) Hosokawa Micron Corporation, The History of Hosokawa Micron: Celebrating 100 Years – Continuing as a Leader in Powder Technology, 2016.