

# FOREWORD

Takuo Imai  
Managing Director  
General Superintendent, Chiba Works



The current interest in "new materials" has led to renewed attention to iron powder as a familiar, yet new material. In the automotive, electrical, and other mass-production industries, powder metallurgy, which aims at yield improvement and process elimination, has expanded quantitatively at a rate of 10% per year over the last ten years, as makers have developed techniques for achieving higher purity and higher strength, and reducing costs.

In the automotive industry, which consumes 70% of the iron powder produced for powder metallurgy applications, the production of iron powder parts has grown steadily in response to shifts in the direction of larger scale and higher grade products, as well as model changes. Iron powder consumption has now reached approximately 5 kg per vehicle, with powder metallurgy products recently finding increasing use in sliding parts for engines, gears, and other critical components. Because to the importance of iron powder parts in meeting the policy of CAFE (corporate average fuel economy), Kawasaki Steel will make every effort to supply the optimum iron powders to ensure that this kind of growth continues steadily into the future.

Our involvement in the iron powder industry began with research and development on an iron powder manufacturing process using high purity mill scale, which is a byproduct of iron making, and pulverized coke. In 1966, we constructed a tunnel furnace and finishing reduction furnace, and began to produce and sell a reduced iron powder called KIP 255 M. This iron powder won a reputation for its excellent compressibility and compactability, particularly in parts of complex shape. A later product, KIP 270 MS, provided the highest compressibility of the reduced iron powders and was well regarded as powder for high-density sintered parts.

In 1978, Kawasaki Steel began to produce atomized iron powders for parts which require higher purity and compressibility, using water atomizing technology developed in-house. Our two main product lines for powder metallurgy are reduced iron powders and atomized iron powders, but we also produce pre-alloyed and partially alloyed steel powders to meet the needs of high-strength applications, and a segregation-free pre-mixed powder, KIP Clean Mix, which features minimal segregation and scattering of graphite powder and thus contributes to improvement of the working environment. Taking advantage of the features of iron powder, we also supply iron-powder products for use in such diverse applications as body warmers, deoxidants, and chemical agents.

In response to growing demand, other makers are renovating equipment and constructing new facilities, but Kawasaki Steel is committed to remaining in the forefront of the iron powder industry, in order to meet the needs of our customers for improved quality and supply reliability.

This special issue introduces some of Kawasaki Steel's manufacturing processes, as well as our leading products and new entries in the market, with particular attention to technical analysis. As always, we trust that our readership will find these articles useful, and invite your comments and inquiries.