Title	Effects of granular strength on pore structure of Ni. Zn ferrite powder compacts and sintered bodies
Sub Title	
Author	鹿島田, 民治(Kashimada, Tamiharu)
Publisher	慶応義塾大学藤原記念工学部
Publication year	1967
Jtitle	Proceedings of the Fujihara Memorial Faculty of Engineering Keio University (慶応義塾大学藤原記念工学部研究報告). Vol.20, No.81 (1967.) ,p.244(68)- 244(68)
JaLC DOI	
Abstract	
Notes	Summaries of Doctor and Master Theses
Genre	Departmental Bulletin Paper
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO50001004-00200081-0068

Effects of Granular Strength on Pore Structure of Ni·Zn Ferrite Powder Compacts and Sintered Bodies

Tamiharu KASHIMADA*

In an attempt to elucidate the role of granules in powder metallurgy, effects of forming pressure and firing temperature on the pore structure of Ni · Zn ferrite powder compacts were studied employing granules with different granular strengths. A mercury porosimeter and gas penetration devices were employed for the determination of pore size and its distribution, and specific surface area respectively. Results are summarized as follows:

The compact made of soft granules was found to have larger specific surface area than that of hard granules, thus suggesting that the former contains long and twisted pores compared with the latter. Mercury porosimetry of the compacts showed that with increasing forming pressure, pore size distribution became sharp, and that the mean pore diameter decreased.

On heating the compacts, the mean pore diameter of sintered body was found to increase gradually until 1000°C, but decrease above it. Thus, the large pore increased in diameter at the expense of small pores up to 1000°C and became smaller in size above it.

Variation in surface area during sintering, studied by gas flow method, could be explained successfully by what has been just mentioned. It was found also that the specific surface area by transient Knudsen flow was much larger than that by Poiseulle's flow. Such a difference will serve as a measure of complication of the compacts for the pore structure analysis, since the air peneration rate method detects no fine cavities in the compacts.

On the basis of these results and discussions described above, the behavior of granules in powder metallurgy was explained from the pore structure.

*鹿島田民治