ǥắǹǭǿ ǭȂ ǦǵȂǳǴ+ Ȕ ǟắǡǰǲǿ ǞǲǞǭǸ ǞǵȂ 1/01+ 090
ǴǞǞǼ9..ǰȄ-ǰắǵ-ắǿǳ.0/-3061.1057,87/5-0///0/1

Powder Metallurgy & Mining

Research Article Open Access

Porosity in Disk Shape Spray Formed Al-Si-Pb Alloy Preform

[1]Department of Physics, College of Engineering, Roorkee, India
[2]

e measured density was determined by Archimedes principle and followed by the ASTM B 328-96 practice. Mean values of three measurements were taken and hence the observed values are equal to mean ± δ. Where δ is the deviation from the mean value.

Surface tension of aluminum decreases [21] by increasing the lead content and hence the flow of aluminum should take place easily. The easy flow of aluminum should decrease the porosity of preform. But it was found that porosity increases by increasing the lead content. The increase in porosity with increase in lead content (Figure 6) can be due to the difference in solidification shrinkage of aluminum and lead. The solidification shrinkage of lead is higher than that of aluminum. In the deposit, lead solidifies after the solidification of aluminum rich phase, so there can be formation of shrinkage cavity around lead particles. Also, by increasing the lead content, the fraction of melt (as Pb) increases on the deposition surface. More melt will give rise to more solidification shrinkage porosity.

There can also be significant dissolution of hydrogen in the Al-Si-