Investigation of powder densification in floating and single action dies to produce dense compacts with high aspect ratio

In this study the commercially pure Aluminum powders were compacted by single action and floating dies at room temperature. The effect of compaction method on densification was studied using density distribution, micro-hardness measurements and scanning electron microscope (SEM) along compaction axis of processed samples. The density measurements of compacted samples through floating die process show the uniform density distribution in comparison to single action process which are in good agreement with micro-hardness and SEM results. Results also show that the densification requires lower compaction load in floating die process than it in single action compaction process which is due to improvement of frictional condition by change in relative movement in the frictional surfaces of floating die process. Therefore it makes floating die more beneficial in producing dense compacts with high aspect ratio (ratio of height to diameter) which is not possible in single action die compaction process.

Keywords:

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