

Dear Editor

Hi

My paper in title: Evaluation of nano ceramic coating on radiographic defects of thin-walled AL4-4 aluminum alloy sand casting.

**Abstract**

Internal volumetric defects are among the problems in gravity casting of aluminum parts. The main internal volumetric defects are gas and shrinkage defects which form during solidification of the melt and drastically reduce the quality of the produced parts. These defects adversely affect the mechanical properties of thin walled castings parts. In this study, coatings containing ceramic nanoparticles were applied on the sand mold and the effect of mold coatings on the reduction of defects were investigated. X-ray radiography was used to detect defects in sand molds with coating containing ceramic nanoparticles. For comparison, this test was performed on molds with micro-ceramic and graffiti coatings and uncoated sand mold. The results showed that the maximum amount of gas and shrinkage defects was observed in casting parts from AL4-1 alloy in uncoated molds. On the other hand, the minimum defects were found in molds coated with ceramic nanoparticles. It seems that the reduced defects in cast parts in molds coated with ceramic nanoparticles may be due to high thermal and chemical stability and higher heat transfer rate of the coating. These results can facilitate the production of high quality parts made of aluminum alloys using nanotechnology.

I don't send my paper to any journal; please you publish my paper, thank you very much.

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