



Fluidized Bed Technique: The use of fluidized sand bed as innovative technique for heat treating aluminum based castings

By Khaled A. Ragab, Fawzy Samuel, A.M. Al-Ahmari

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Heat treatment is the most common process used to alter the mechanical properties of aluminum alloys. Traditional heat treatment technology applies circulating air convection furnaces for the purposes of obtaining a T6 or T7 temper. With conventional heat treating systems, however, prolonged solution heat treatment and aging times of over 20 h are required for heat treatment of aluminum casting alloys, entailing high energy costs. The long cycle times required for heat treating with conventional systems go contrary to industry requirements where the goal is to improve the performance of the part and to reduce the time of manufacturing. The fluidized bed (FB) heat-treating process makes it possible to reduce the time required for heat treating significantly (2 h), while at the same time increasing the uniformity of the heat treatment process. The use of fluidized beds is considered to be an innovative technology for the heat treatment process of Al-Si cast alloys and appears to be more effective than conventional furnace techniques. This book, therefore, explains the influence of fluidized bed heat treatment on the performance of aluminum based castings used in automotive industry.

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Editorial Review

About the Author

I received my B.Sc and M.Sc degrees in Metallurgical Engineering from Cairo University (Egypt). In April 2012, I got my Ph.D degree in the field of Materials Science from University of Quebec at Chicoutimi (Canada). Currently, I work as a Postdoctoral fellow at the same university. My research focuses on advanced alloys used in automotive industry.

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