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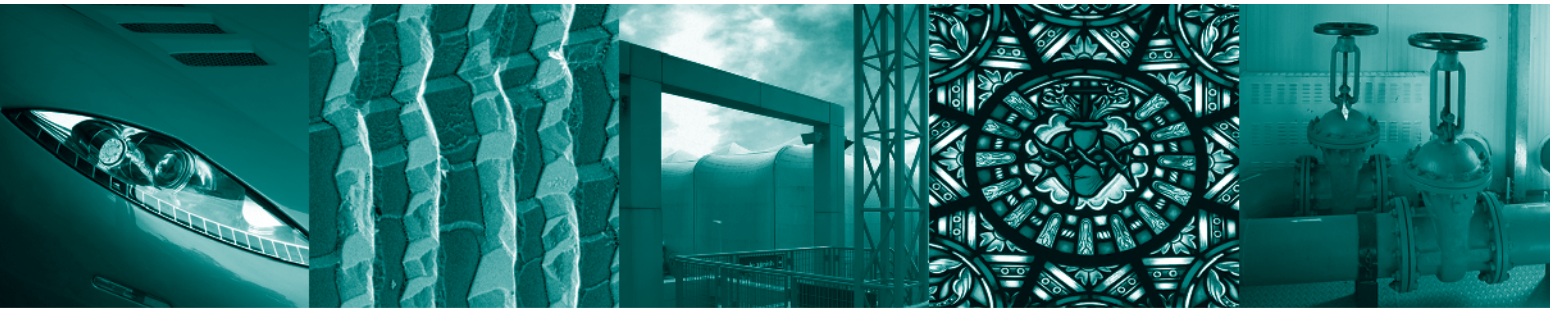

Editor-in-Chief Prof. Leszek A. Dobrzański

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Professor
Leszek A. Dobrzanski M Dr hc
Editor-in-Chief of the AMSE
President of the WAMME
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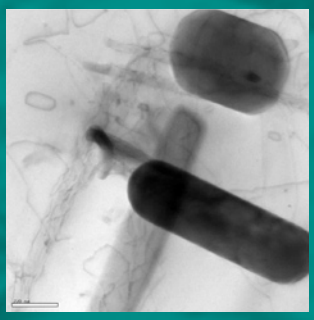
I am pleased to hand over to PT Readers the next issue of Archives of Materials Science and Engineering with the hope that the reading of papers contained in it will be interesting and invite PT authors to publish their works in next issues. I do recommend a scientific paper presented below.



The paper entitled "Microstructure and mechanical properties of C355.0 cast aluminium alloy" by G. Mrówka-Nowotnik and J. Sieniawski on a page 85 informs about the solidification process through analysis of the DSC curves that were obtained at solidification rate of 5K/min. During C355.0 alloy solidification an amount of different intermetallic phases may be formed. Their volume fraction, chemical composition and morphology exert significant influence on a technological and mechanical properties of the aluminum alloys. Therefore the examination and identification of intermetallic phases in examined alloy is a very important part of complex investigation. In this research the effect of precipitation hardening process on the microstructure and mechanical properties of C355.0 alloy was also investigated. The results show that the as-cast microstructure of C355.0 alloy after slow solidification at a cooling rate 5K/min, consisted a wide range of intermetallics phases. The microstructure of investigated C355.0 alloy included: β-Al_5FeSi, α-$Al_{12}(FeMn)_3Si$, Al_2Cu, Q-$Al_5Cu_2Mg_8Si_6$, Si and Mg_2Si phases. Significant changes in as-cast microstructure and mechanical properties followed after artificial aging due to a precipitation strengthening process were observed. To study the solidification process differential scanning calorimetry (DSC) was used. Hardness measurements were utilized to examined the effect of a precipitation hardening (T6) on the mechanical properties. The plastic and mechanical properties were evaluated by uniaxial tensile test at room temperature. To identify intermetallics in C355.0 alloy optical light microscopy (LM), X-ray diffraction (XRD), scanning (SEM) and transmission (TEM) electron microscope were used. The aim of this work was to analyze the solidification process and how T6 heat treatment influenced the microstructure and mechanical properties of C355.0 alloy. Additionally, this paper proposes the best experimental techniques for analysis of the intermetallic phases occurring in the cast and T6 condition. The paper provided essential data about influence of solidification process and aging parameters on the microstructure and mechanical properties of C355.0 alloys.