

Effects of Applied Pressure and Heat Treatment on the Microstructure of Squeeze Cast Al-Si Alloy Were Examined

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Abstract : The present contribution consists of a purely experimental investigation on the effect of Squeeze casting on the micro structural and mechanical propriety of Al-Si alloys destined to automotive industry. Accordingly, we have proceeding, by ourselves, to all the thermal treatment consisting of solution treatment at 540°C for 8h and aging at 160°C for 4h. The various thermal treatment, have been carried out in order to monitor the processes of formation and dissolution accompanying the solid state phase transformations as well as the resulting changes in the mechanical proprieties. The examination of the micrographs of the aluminum alloys reveals the dominant presence of dendrite. Concerning the mechanical characteristic the Vickers micro-hardness curve an increase as a function of the pressure. As well as the heat treatment increase mechanical propriety such that pressure and micro hardness. The curves have been explained in terms of structural hardening resulting from the various compounds formation.

Keywords : squeeze casting, process parameters, heat treatment, ductility, microstructure

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