Metals: Advances in Research and Application

2011 Edition

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General Editor

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University of Mentouri, Constantine: Effect of pre-aging and maturing on the precipitation hardening of an Al-Mg-Si alloy

"The effect of pre-aging and maturing at room temperature on hardening response of an Al-Mg-Si alloy is investigated using differential scanning calorimetry (DSC), hardness measurements (Hv) and scanning electron microscopy (SEM). Two experimental conditions are examined," scientists in Constantine, Algeria report.

"First, natural aging for different times (3 weeks and I month) followed by artificial aging at 180 degrees C as function time. Second, pre-aging at temperatures in the range 75-100 degrees C followed by artificial aging at 180 degrees C after natural aging for the same periods. The present results indicate that the effect of the pre-aging just after the heating and quenching is used in order to correct the undesirable effect of aging at room temperature. However. during the artificial aging. the alloy hardening becomes faster," wrote T. Abid and colleagues.

The researchers concluded: "Aged samples which have already undergone pre-aging and maturing reveal the better hardening response."

Abid and colleagues published their study in the *Journal of Alloys and Compounds* (Effect of pre-aging and maturing on the precipitation hardening of an Al-Mg-Si alloy. *Journal of Alloys and Compounds*, 2010;490(1-2):166-169).

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