



SDI Review Form 1.6

Journal Name:	Advances in Research
Manuscript Number:	2015_AIR_18166
Title of the Manuscript:	The Influence of Homogenisation Treatment on Aging Response of 6063 Aluminium Alloy
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



SDI Review Form 1.6

PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>INTRODUCTION:</p> <p>1. Lines 22 to 28: I think that this text has been obtained in some bibliographic reference. So I suggest to include it.</p> <p>MATERIALS AND METHODS</p> <p>2. Lines 69 to 70: This is necessary to describe here how many test samples were tested in each group (as-received and heat treated samples)?</p> <p>3. Lines 75 to 77: Although the authors have specified the standards for strength and impact tests, but it is necessary to show a figure with the geometry and dimensions of the specimens, especially for the charpy test.</p> <p>3. Lines 80 to 82: This is necessary to describe here how many measurements of microhardness were performed on each sample?</p> <p>RESULTS AND DISCUSSION</p> <p>4. Lines 88 to 92: Figure 1 has been mentioned in the text after the Figures 2 and 3. Also, better explain why the obvious need to homogenize the as-received samples, considering that it was not carried out in the same microstructural analysis to identify possible structural defects and second phases both undesirable. In this sense, I recommend submit a micrograph of the</p>	<p>The source has been duly cited and referenced in the manuscript.</p> <p>The mechanical tests were carried out on 35 heat treated samples (group I & II). Only metallographic analysis of as-received sample was done.</p> <p>The Figures of the tensile and Izod impact test specimens showing the geometry and dimensions has been inserted in the manuscript.</p> <p>This has been stated as 3 in the manuscript.</p> <p>This has been corrected. The need for homogenization of the as-received samples has been given and highlighted with yellow colour in the manuscript. The undesired phases referred to were the rod-like phases present in the as-received and T6 tempered microstructures (Figs. 3 & 4).</p>



SDI Review Form 1.6

	<p>samples as rerecebidas to better justify the homogenization treatment (See item 5 below).</p> <p>5. Lines 99 to 102: Again need comparative micrographs (before and after treatment) to show the presence and removal of intermetallic phases. In this sense, I propose to show "arrows" such phases in Figures 2, 3, 4, 5, 6 and 8.</p> <p>6. Lines 106 to 109: Which particles has been seen spheroidization (Si? Fe intermetallic phases?, ...?) In what figures they are characterized?</p> <p>7. Figure 1: Changing the scale of the X axis from minutes to hours.</p> <p>8. Lines 113 to 114: How to establish that there was an increase of precipitates density since they were not measured and quantified?</p> <p>9. Lines 117 to 122: The authors mention the presence and intermetallic Fe, but not present an analysis by diffraction of X-rays On the other hand, is shown in Figure 9 microanalysis by energy dispersive spectrometry (EDS), but it is not clear to me whether the points analyzed represent these intermetallic.</p> <p>10. Figures 1 and 7: The results of the graphs presented in Figures 1 and 7, which are for the resistance and impact tests do not represent reliable results due not present a statistical treatments. Note that we are</p>	<p>The micrograph of the as-received (Fig. 3) and that of samples that were aged without prior homogenization (Fig. 4) has been inserted with arrow indicating the rod-like/sharp edge phases that required modification prior to aging.</p> <p>Comparative micrographs had been provided with arrows indicating the elongated and spheroidized phases.</p> <p>Even though XRD analysis of the present phases was not carried out, the EDX pattern (Figs.11 and 12) gave an insight of what the spherical and rod-like phases could likely be. The spherical phase is likely to be Al-Fe-Si-Mn while that of Rod-like phase is Al-Cu-Cr.</p> <p>The scale of the X axis has been changed to hours.</p> <p>This statement has been withdrawn.</p> <p>Yes, the XRD was not carried out. The points analyzed by EDS are the rod-like phases present in the as-received sample and the spherical phases obtained in the homogenizes and T6 tempered samples as indicated in the EDS pattern Al-Cu-Cr and Al-Fe-Si-Mn respectively.</p> <p>This great improvement in the mechanical properties of homogenized and T6 tempered</p>
--	--	--



SDI Review Form 1.6

	demanding that the authors present the quantity of samples tested for each group. For thus, the results present a mean value, the minimum and maximum values measured.	samples were amazing and this is the novelty of this research work. The quantity of samples tested for group I and II has been stated in the materials and methods section of the manuscript and highlighted with yellow colour. The results plotted were true statistical data as they represent average value obtained.
<u>Minor</u> REVISION comments	<p>In all case that appears Vickers hardness unit in HVN, I suggest change to HV.</p> <p>In the graphs of Figures 7 and 8, I suggest identifying the origin of samples: as received and heat treated.</p>	<p>This has been effected both on the diagrams and the text.</p> <p>These two figures are for heat treated samples only. Homogenized and T6 tempered samples.</p>
<u>Optional/General</u> comments	In order to better characterize the phases present, the micrographs of the microstructures must be submitted best explained. Featured with "arrows" on the inside of the figures are necessary to show the phases present. The results of the graphs presented in Figures 1 and 7, which are for the resistance and impact tests do not represent reliable results due not present a statistical treatments. Note that we are demanding that the authors present the quantity of samples tested for each group. For thus, the results present a mean value, the minimum and maximum values measured.	These comments have been addressed in the manuscript.