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Review of "Plasticity and ductility of an anisotropic recrystallized AA2198 Al-Cu-Li alloy in T3 and T8 conditions during proportional and non-proportional loading paths: simulations and experiments"

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Review of "Plasticity and ductility of an anisotropic recrystallized AA2198 Al-Cu-Li alloy in T3 and T8 conditions during proportional and non-proportional loading paths: simulations and experiments"

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Review of version 1

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Author We thank the reviewer for his nice comments and suggestions.

Reviewer 1 (Thomas Pardoen)

Reviewer This study on the ductile fracture of the alloy Al AA2198 is at the forefront of the research in the field. It combines really original mechanical tests, the question related to non proportional loadings that is not sufficiently treated in literature, a modern alloy and well executed FE plasticity simulations and a robust identification strategy of plasticity parameters.

Author We thank the reviewer for his rewarding comment.

Reviewer My only comments that deserve a minor revision are the following:
The discussion would be strenghtened by a figure providing the variation of accumulated equivalent plastic strain as a function of stress triaxiality for all tests on a single graph, with the final point being the true accumulated fracture strain. This would allow showing in a clear graphical way the impact of some of the non proportional loads more clearly than what is currently shown in the current version.

Author We have now added two figures that show the accumulated strain fields and that indicate the location at which the strain to fracture was determined in the simulation. The second figure shows the strain as a function of stress triaxiality for the entire loading history for the T3 and T8 materials. The results are commented in this section.

Reviewer Although the list of references has many relevant papers, it misses some key papers in the field that could be also used in the introduction and discussion. I'm thinking for instance of a paper by A. Benzerga on non radial loading (using void cell simulations) which very well makes the point on the effect (here related to void shape effects).

Author We have now added this reference.

Reviewer Please indicate and justify the number of elements chosen over the thickness in the FE models.

Author We made this change.

Reviewer there are several typos to correct :

ii: axisymmteric
vi: "in the fe software xx" change as "using the xxx"
several improper uses of past tense : ex. ix-line 4 "was" must become "is", xv "it showed" must become "It shows"
xii: "results for last strain field" add a "the"
xiv: "more close" - "closer"
xix: "Deschamps found a Bauschinger test" ???
xix: "reduction on ductility" prefer "of"
xix: "identified in in situ" prefer "from"

Author We made all the changes.

Editor’s assessment (Lazslo Toth)

This manuscript went through the review process very smoothly: both Reviewers proposed to accept it. The first Referee was asking for minor modifications: he proposed to add a figure in order to have more information on the variation of the accumulated equivalent plastic strain as a function of stress triaxiality. Then the Authors added two figures. One shows the accumulated strain fields and indicates the location at which the strain to fracture was determined in the simulation. The second figure shows the strain as a function of stress triaxiality for the entire loading history for the T3 and T8 materials. These results were also commented in the revised version. The second Referee was perfectly satisfied with the quality of the work and proposed to accept the paper as it was.

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