

Identification of the files and folders

Folder name: Aveiro EBSD

(Includes the crystallographic texture of Al6016-T4 measured by EBSD)

EBSD system: Bruker Quantax 400

Folders:

- Initial: Folder that contains files for the as-received sheet
- Tensile\RD: Folder that contains files with the measurement taken after tensile test along RD
- Tensile\TD: Folder that contains files with the measurement taken after tensile test along 90° from RD
- Cup\0 degrees from RD\Middle: Folder that contains files with the measurement taken at the middle of the cup height and along RD
- Cup\0 degrees from RD\Top: Folder that contains files with the measurement taken at the top of the cup height and along RD
- Cup\45 degrees from RD\Middle: Folder that contains files with the measurement taken at the middle of the cup height and along 45° from RD
- Cup\45 degrees from RD\Top: Folder that contains files with the measurement taken at the top of the cup height and along 45° from RD
- Cup\90 degrees from RD\Middle: Folder that contains files with the measurement taken at the middle of the cup height and along 90° from RD
- Cup\90 degrees from RD\Top: Folder that contains files with the measurement taken at the top of the cup height and along 90° from RD

Files:

- Raw.bcf: File with the EBSD raw data (Bruker file format)
- Raw.ctf: ctf file with the EBSD raw data (obtained from Raw.bcf file)
- odf.txt: file with 1000 orientations ($\varphi_1, \Phi, \varphi_2$, intensity) representing the crystallographic texture of the sample. This file was calculated from the ctf file, using the MTEX Matlab Toolbox [1].
- Results.pptx: PowerPoint file with the {100}, {110} and {111} pole figures and $\varphi_2=0^\circ, 45^\circ$ and 65° sections of Euler space. These figures were calculated from the ctf file, using the MTEX Matlab Toolbox [1].

[1] - Hielscher, R. and H. Schaeben (2008). "A novel pole figure inversion method: specification of the MTEX algorithm." Journal of Applied Crystallography 41(6), 1024-1037.

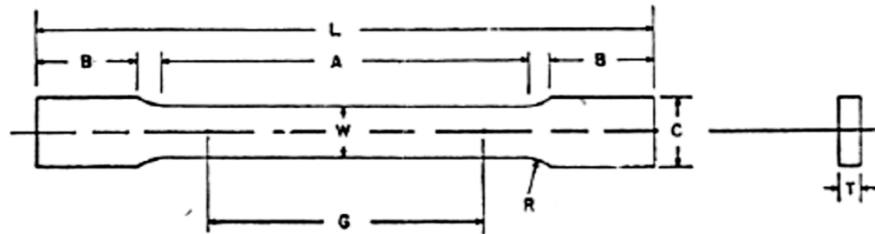
Folder name: Aveiro - Mechanical tests

Folder 1: Aveiro_Stress_strain

(include the stress and strains data of all the tests performed in Aveiro, Portugal)

File name: 1_Aveiro_Tension_0_45_90_stress_strain.xlsx

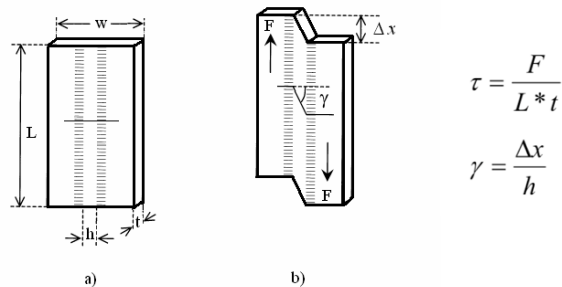
(Uniaxial tensile test at 0°, 45° and 90° from RD performed with tensile test machine Shimadzu 100kN and DIC-GOM system – Aramis v6.3 software, using standard specimens; A=75mm, w=12.5mm; October 2020)



Geometry of the tensile test specimen

File name: 2_Aveiro_Simple Shear_stress_strain.xlsx

(Simple shear test at 0° and 45° from RD performed with tensile test machine Shimadzu 100kN and DIC – Aramis system; November 2020)



Geometry of the shear sample before a) and after b) shear test. (L=34mm; h=3mm; w=13mm)

File name: 3_Aveiro_Reverse Shear_stress_strain.xlsx

(Simple shear test at 0° and 45° from RD with reverse loading at 20% shear strain performed with tensile test machine Shimadzu 100kN and DIC – GOM-Aramis; November 2020)

File name: 4_Aveiro_Tension_stress-strain_small samples.xlsx

(Uniaxial tensile test at 15°, 30°, 60°, 75° and 90° from RD performed with tensile test machine Shimadzu 100kN and DIC – Aramis system and using smaller specimens; A=25mm, w=9.5mm; December 2020)

Folder name: Belgium – Mechanical tests

File name: Shear ULiège.pdf

Description of the shear test performed in Liège)

File name: AA6016-T4 Shear ULiège.xlsx

(data of shear tests performed in Liège)

Folder name: Porto_cup drawing information

File: ESAFORM21_CCupDrawing.pdf
(Description of cup drawing test)

File: 21EsaformCCupForceStroke.xlsx
(Load-displacement curve from Cup Drawing Test)

File: 21EsaformCCupEaring.xlsx
(Earing Measurement)

Folder name: Tokyo - Mechanical tests

(experimental data from Tokyo, Japan; 2018 and 2020)

Files:

1_A6016-T4_Material test 2018 description
(description of tests performed in 2018)

2_A6016-T4_Material test 2018
(data of tests performed in 2018)

3_Tensile test data of A6016-T4_TUAT_2020
(data of tests performed in 2020: tensile test at 0°, 45° and 90° from rolling direction, performed with tensile test machine Shimadzu 100kN and an extensometer for strain measurement)