Data[*] from: Friction extrusion processing of aluminum powders: microstructure homogeneity and mechanical properties

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General information

The data is organized in three folders:
- Microstructure
- Mechanical properties
- Raw_data

These folders contain the data of the friction extrusion processing from AA7075 powder.

The processes are numbered as follows:
>   059 for the powder evolution analysis in SEM
>   197 for the cross-section microstructure and mechanical properties analysis

1. Microstructure

The folder "Microstructure" contains the microstructure in the cross-section of the extruded wire as well as the residual feedstock are included. Additionally, the corresponding energy dispersive X-ray results in the residual feedstock are also included.

2. Mechanical properties

In this folder, the mechanical properties (microhardness and ultimate tensile strength (UTS)) of the extruded wire and the corresponding hardness mapping are included. The comparison of two different temper states of the same alloy is also provided.

3. Raw_data

The log files from the FE100 of two extrusion processes are included in this folder. The process parameters can be found in the column "Tailstock Force Actual (kN) ()", indicating the extrusion force, and "Spindle Speed (rpm) ()", indicating the rotational speed. The temperature measured by type-K thermocouple can be found in the column "TC Ch2.1 [User7] (degC) ()".