

Supplementary materials

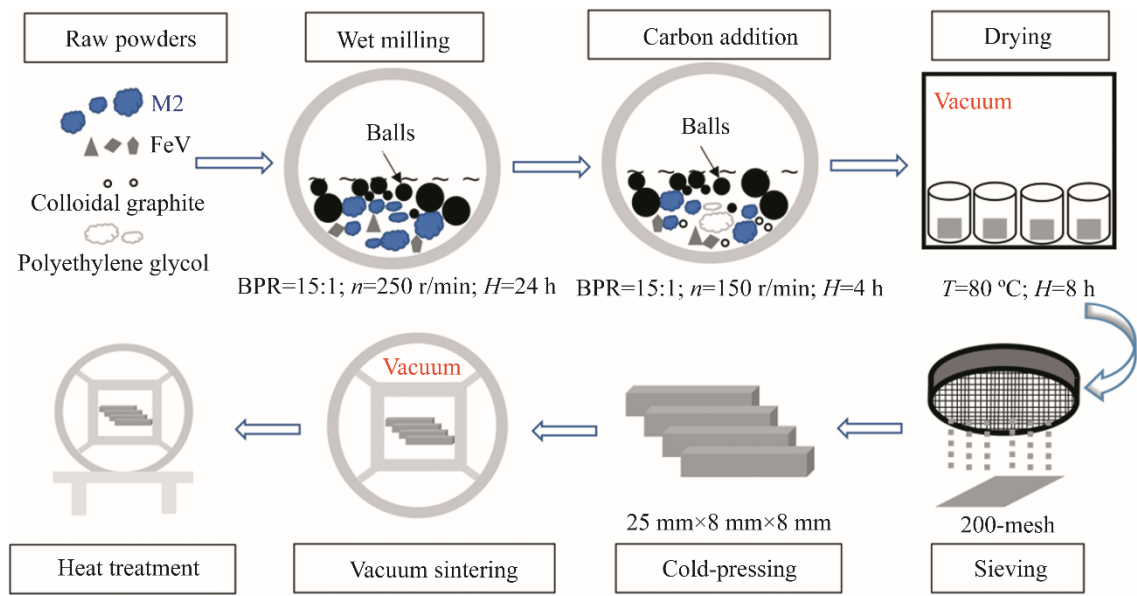


Figure S1 The graphical presentation of technical process of the experiment

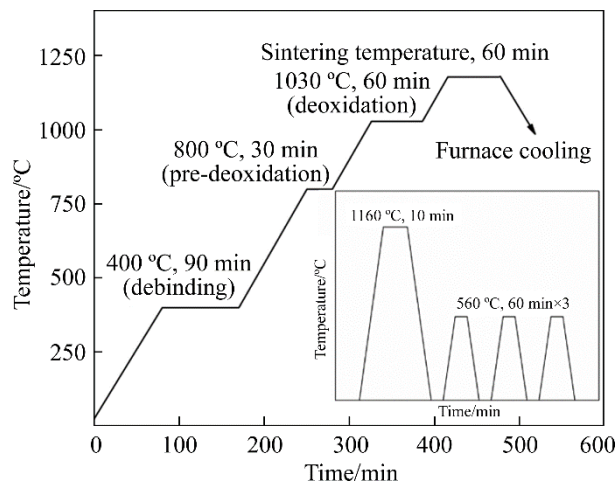
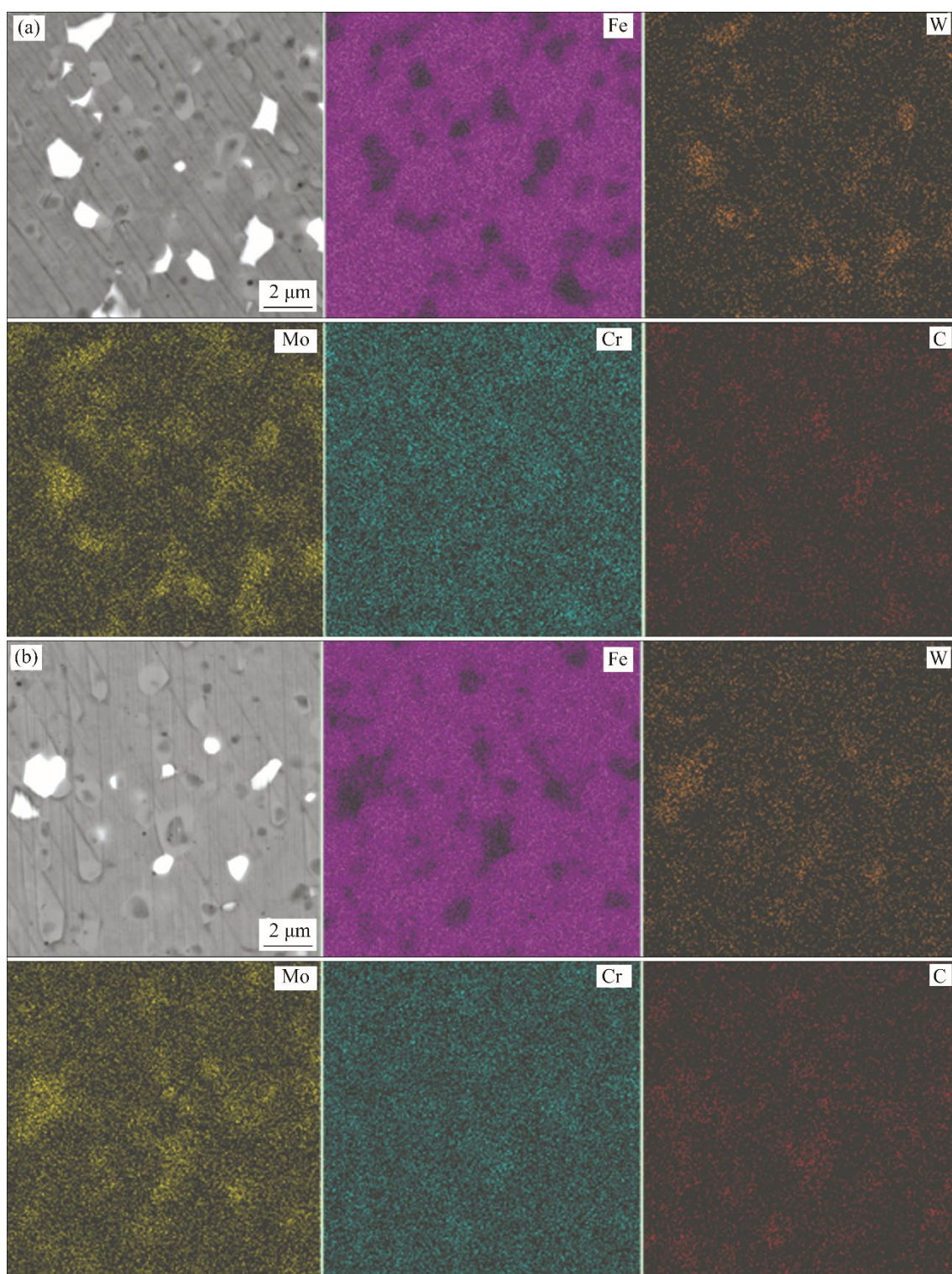
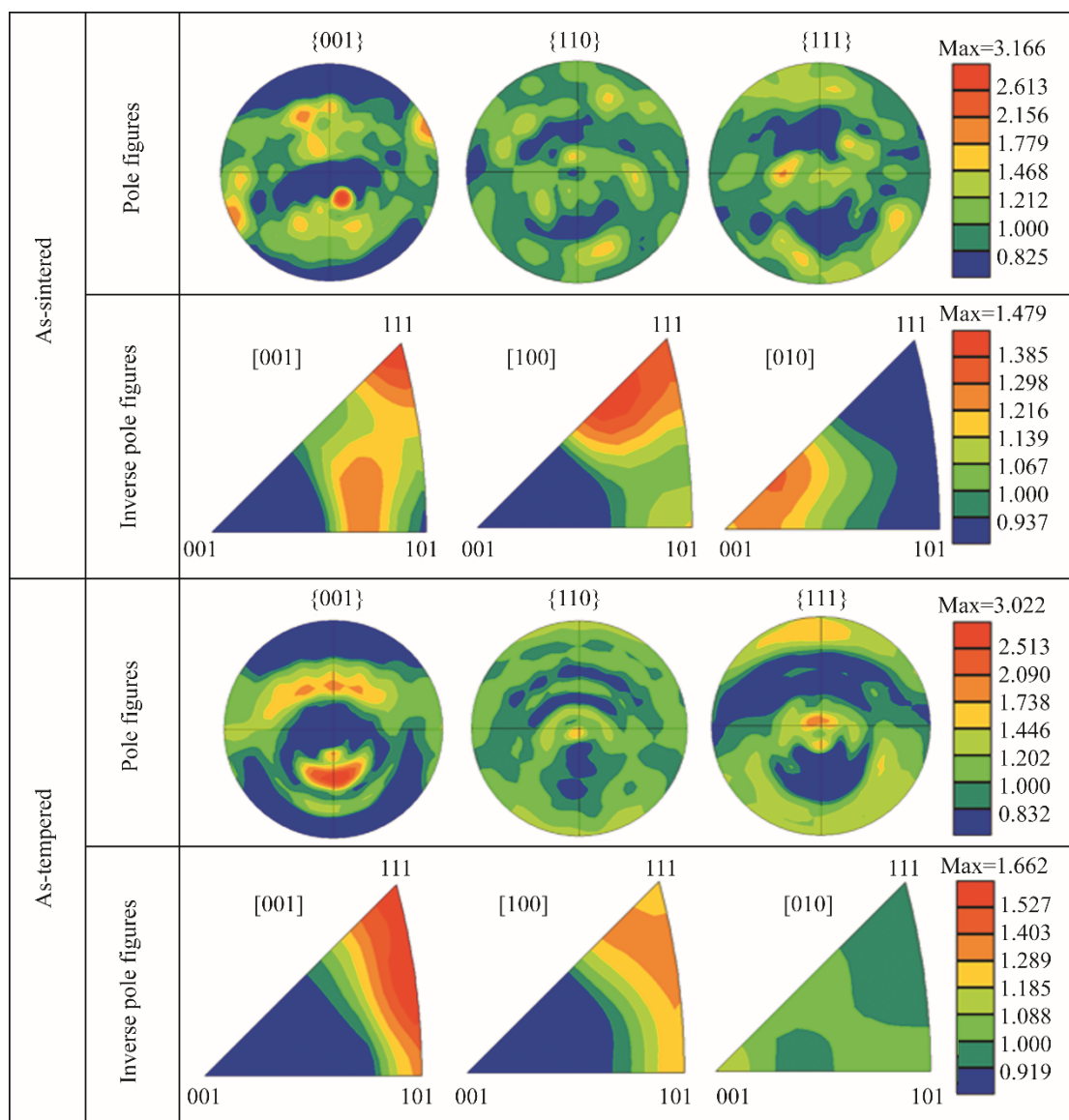


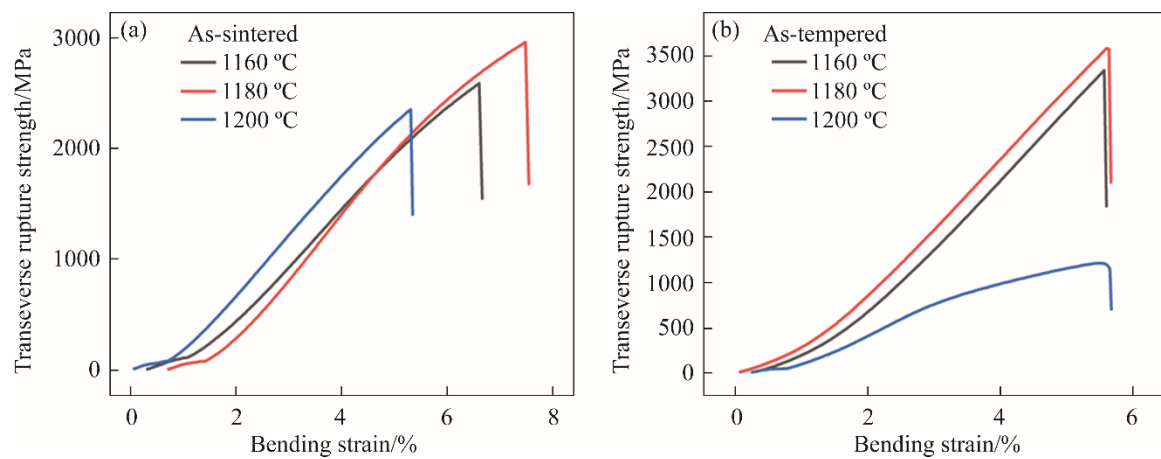
Figure S2 Sintering and heat treatment cycles of the green compacts



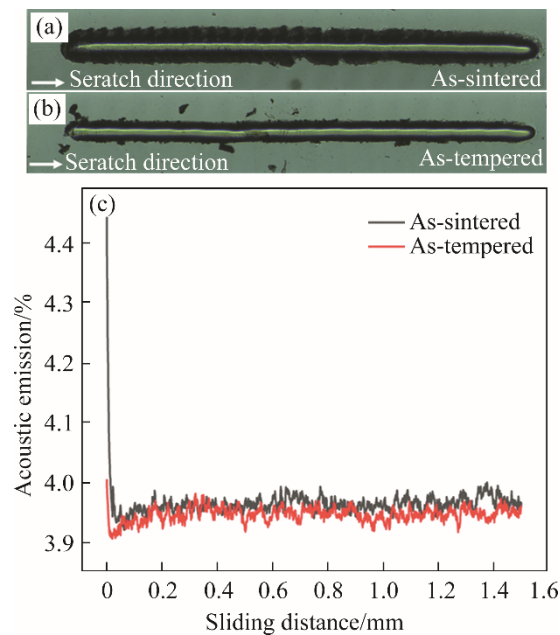
**Figure S3** EDS maps showing other elements distribution in samples (a) sintered at 1180°C and (b) heat treated



**Figure S4** Pole Figures (PFs) and Inverse Pole Figures (IPFs) of the matrix in samples sintered at 1180°C and heat treated



**Figure S5** Fracture strength strain-stress curves of (a) as-sintered and (b) as-tempered samples



**Figure S6** The scratch morphologies (a, b) and the acoustic emission variations (c) of samples sintered at 1180°C and heat treated