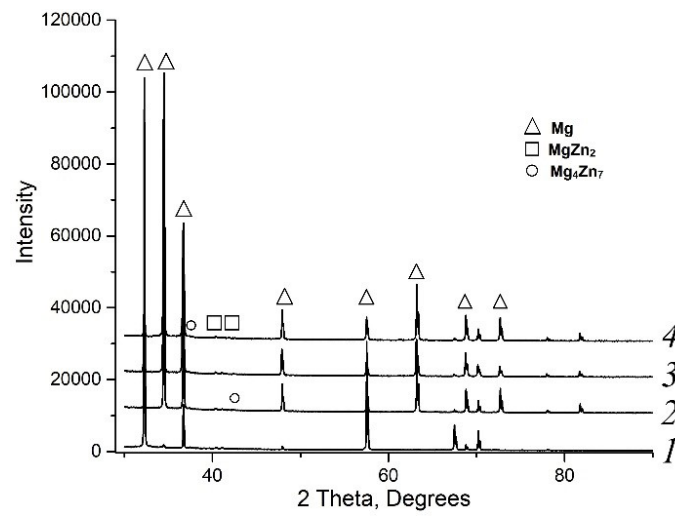
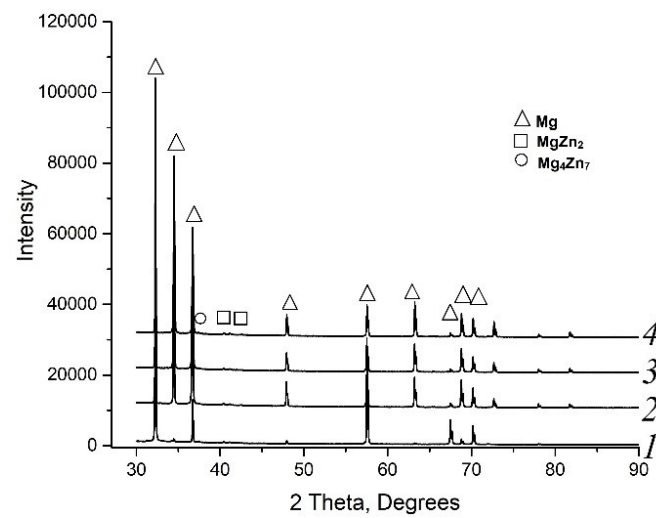


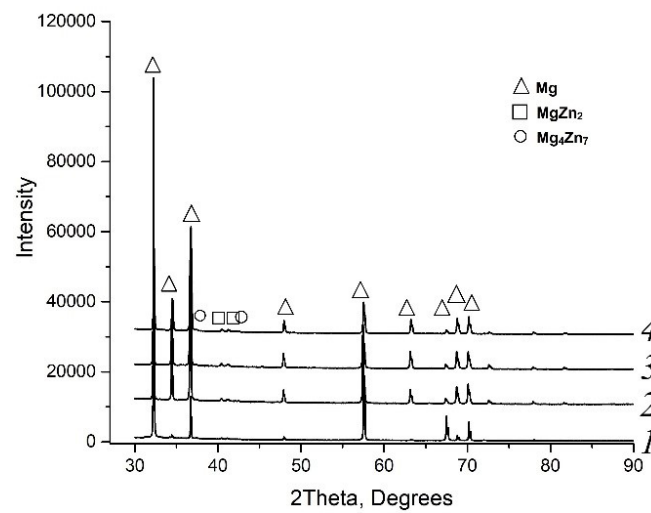
## Supplementary material



a

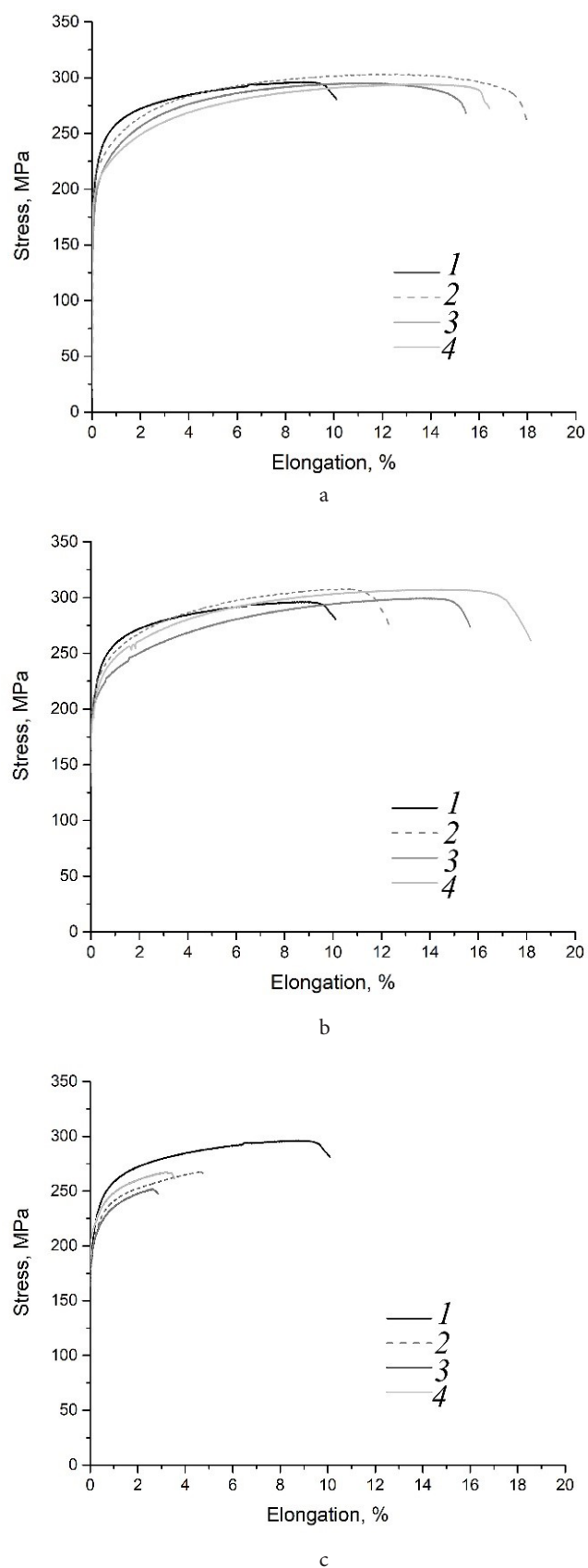


b



c

**Fig. S1.** X-ray diffraction patterns of Mg-8.6Zn-1.2Zr alloy: 400°C (a), 300°C (b), 200°C (c). 1 — initial state; 2 — ECAP without UST; 3 — ECAP with UST (5 μm); 4 — ECAP with UST (10 μm).



**Fig. S2.** Mechanical test curves for Mg-8.6Zn-1.2Zr alloy: 400°C (a), 300°C (b), 200°C (c); 1 — initial state, 2-ECAP without UST, 3 — ECAP with UST (5  $\mu\text{m}$ ), 4 — ECAP with UST (10  $\mu\text{m}$ ).