



## GUM METAL SUBJECTED TO CYCLIC TENSION LOADING ANALYSED BY FAST AND SENSITIVE INFRARED CAMERA

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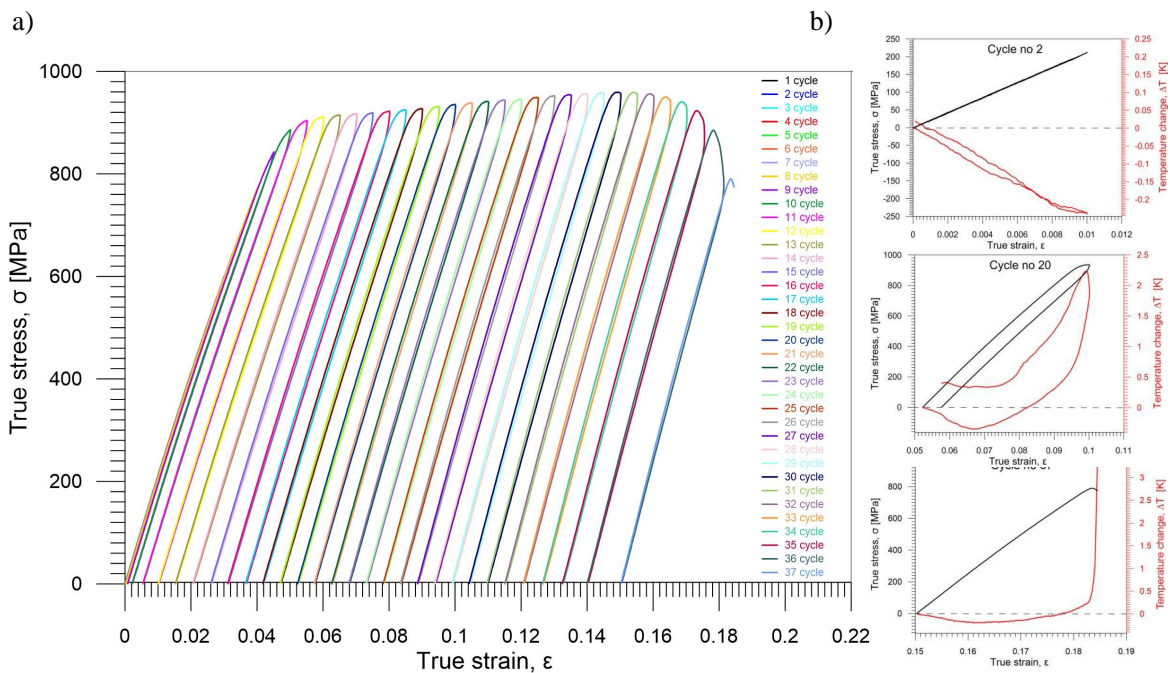
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### ABSTRACT

Gum Metal, a new multifunctional titanium alloy combining high elasticity of rubber and strength of metal, has been mechanically and thermomechanically tested. The subsequent tension deformation cycles have been conducted. At the strain rate of  $10^{-2}\text{s}^{-1}$  and step of 0.005 - 37 loading-unloading cycles until rupture were performed. Comparison of stress vs. strain curves is shown in Fig. 1a, whereas stress and temperature changes vs. strain for 2nd, 20th and 36th cycles in Fig. 1b.



**Figure 1.** a) Comparison of stress  $\sigma$  vs. strain  $\epsilon$  curves obtained for Gum Metal subsequent loading-unloading cycles at strain rate  $10^{-2}\text{s}^{-1}$  and step 0.005. b) temperature change  $\Delta T$  and stress  $\sigma$  vs. strain  $\epsilon$ .

**Keywords** (Gum Metal, cyclic loading, infrared camera, thermomechanical coupling)

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### References

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