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Elastomeric Properties of Poly(glycerol sebacate) (PGS) Based Nanoparticle Composites HYUN-JOONG CHUNG, XINDA LI, ALBERT T.-L. HONG, University of Alberta — Owing to the unique combination of biocompatible, biodegradable, and elastomeric properties, poly(glycerol sebacate) and their derivatives are an emerging class of biomaterials for soft tissue replacement, drug delivery, tissue adhesive, and hard tissue regeneration. The mechanical properties of the polyester have been tailored to match a wide range of target organs, ranging from cardiac muscle to bones, by manipulating the process parameters to modulate cross-linking density. In the present study, we applied nanoparticles and cross-linking agents to further optimize their elastomeric properties. Especially, the study aims to enhance the practically important, but less studied, property of tear resistance. Microscopic origin of the property enhancement is discussed.

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