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Viscoelastic behavior of commercially available tissue conditioners under compression

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Abstract:
Three commercially available tissue conditioners —Tissue conditioner II (STII), Tissue conditioner (GTC), and Tissue Care (TTC)— were tested using a rheometer to evaluate their viscoelasticity under compression at a constant distortion (10%). Immediately after fabrication, STII showed the highest hardness and compressive modulus of elasticity, followed by TTC and GTC. TTC showed the highest relaxation rate, followed by GTC and STII. STII and GTC showed equivalent relaxation times, while TTC showed the shortest relaxation time. The modulus of viscosity was highest in STII, followed by GTC and TTC. The immersion of each sample in water resulted in increases in hardness, compressive modulus of elasticity, relaxation time, and modulus of viscosity and decreases in relaxation rates. The three products have different viscoelastic properties. Further, the results indicate that STII and GTC exhibit better performance when used as functional impression materials, while TTC exhibits better performance when used as a tissue conditioner.

Key words:
Tissue conditioner, Viscoelasticity, Rheometer

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