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**标题:** Effects of Pressure Maintenance and Strain Maintenance during Compression on Subsequent Dimensional Stability and Density after Relaxation of Blocks of Chopped Corn Straw

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**摘要:** Chopped corn straw is a viscoelastic material that can rebound after compression. Pressure maintenance and strain maintenance are two key processes that enhance the dimensional stability of post-compression straw blocks. To study the effects of stabilization processes on the dimensions of post-compression straw blocks, the authors comparatively explored the relationships of strain and stress with time during constant speed compression (CC), constant-speed compression followed by strain maintenance (CCS), constant-speed compression followed by pressure maintenance (CCP), and constant-speed compression, pressure maintenance followed by strain maintenance (CCPS), and uncovered the reasons for these relationships. The Burgers constitutive model fit well to the data during the pressure maintenance stage ( $R^2 > 0.990$ ), and the effects of pressure maintenance on strain and dimensional stability of post-compression straw blocks were investigated. The Wiechert model B ( $R^2 > 0.990$ ) was the constitutive model that best represented the strain maintenance stage. Additionally, the effects of strain maintenance during CCS and CCPS on relaxation rate and dimensional stability of post compression straw were compared. The relaxation density of post compression straw blocks was compared among different stabilization processes. The relaxation density of post-compression straw blocks was the largest after CCPS, followed by CCS and CCP.

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