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Effect of Relative Material Stiffness of Binary Mixture Components to Compression[1] CRAIG BENTHAM, Pfizer Ltd., Sandwich, Kent, UK, MEENAKSHI DUTT, University of Cambridge, BRUNO HANCOCK, Pfizer Inc., Groton, Connecticut, USA, JAMES ELLIOTT, University of Cambridge — Typical powder blends will have constituent particles which will differ in material properties, such as stiffness, resulting in variation of coordination number and contact slipping state, at a local particle scale. At a macroscopic scale, the relative properties of the various components will influence the force and stress response of the blend to an external load or strain. Of particular curiosity is the distribution of load as a function of contact stiffness. We present numerical results from our studies on binary mixtures with components whose relative stiffness (Young's modulus) has been varied systematically. These mixtures settle under gravity followed by compression at a constant strain rate. In addition, we discuss the correlations between the contact slipping state, stiffness, and the load sustained.

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