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Analysis of the Cold Compaction Behavior of Titanium Powders: A Comprehensive Inter-model Comparison Study of Compaction Equations

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Abstract

A brief background to compaction equations and their application to titanium powder is presented. The behavior and mechanisms of densification in selected titanium powders is critically analyzed by means of a comprehensive inter-model comparison of existing compaction equations. The results are discussed in terms of the comparative evaluation of cold uniaxial compaction tests of sponge Ti, CP TiH(sub2), CP Grade 2 Ti, and TiH(Sub2)-SS316L nanocomposite powder samples, which were conducted at applied compaction pressures of up to 1250 MPa.