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Estimation of pellet size and strength of limestone and manganese concentrate using soft computing techniques

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Abstract

This paper presents a soft computing approach to estimate wet or green pellet size and strength and signifies the importance of individual process parameter. A huge portion of available minerals and materials is in the form of fine powder that makes their management and utilization a tedious job. Pelletization, a size enlargement technique, is used to tackle aforementioned problems and provides benefits such as ease of handling and storage, convenient transportation and improved process efficiency. Besides other characteristics, pellet size and strength are of prime significance and their accurate estimation can enhance the product quality. Real-life constraints (e.g., time in conducting experiments, repetition of experiments considering measurement errors, availability of resources etc.) pose difficulties in generating sufficient experimental data at the laboratory. Hence, the concept of random population generation of genetic algorithm is exploited to fulfil data requirement where fitness functions are formulated using multiple regression. Better visualisation of pel-

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