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## Evaluation of RRSB distribution and lognormal distribution for describing the particle size distribution of graded cementitious materials

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**Abstract:** Graded blended cement made of graded Portland cement (PC), blast furnace slag (BFS) and fly ash (FA) is attractive for cement production. For manufacturing graded blended cement, a suitable mathematical expression should be introduced to describe the particle size distribution (PSD) of its components and control the quality of graded blended cement. This study aims to evaluate Rosin-Rammler-Sperling-Bennet (RRSB) distribution and lognormal distribution for describing the PSD of the components of graded blended cement. RRSB distribution and lognormal distribution are used to fit the PSD of ungraded and graded PC, BFS and FA. It is found that lognormal distribution exhibits smaller fitting errors for describing the PSDs of graded PC, BFS, FA and ungraded FA. What is more, lognormal distribution exhibits good simplicity and popularity. Hence, it is recommended to use lognormal distribution to control the PSD of graded blended cement in manufacturing process.

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