

**Clarification of Mechanism of Ballast Crushing and Grain Refining Progress and
Proposal of Remaining Life Prediction Method**

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In order to clarify the ballast crushing and grain refining progress, we conducted a field survey to investigate the grain size distribution of the ballast, and cyclic loading test and tie tamper tamping test to evaluate the factors affecting the ballast crushing and grain refining. Based on the test results, we proposed a method for estimating the present particle size distribution of ballast from the past tonnage and maintenance history. Furthermore, we suggested a method to predict the remaining ballast life from the current particle size distribution using the proposed estimation method.