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On assessing grindability of recycled and ore-based crankshaft steel: an approach combining data analysis with material science

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Abstract

Material-related grindability variations when grinding recycled and ore-based steel can significantly impair the process efficiency during finishing of automotive crankshafts. To address this problem and to achieve more robust grinding processes, the underlying causes of variation need to be understood. The present work investigates the feasibility of using quality data obtained during production to study grindability variations and identify material-related effects. Analysis of non-destructive inspection protocols indicates steel supplier-dependent differences in grindability. However, no systematic grindability differences between recycled and ore-based steel could be identified. Possible correlations between grindability and material characteristics obtained from supplied steel certificates are discussed.

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