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Modeling of intermix slab length in continuous casting process

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Continuous casting has relevant impacts in terms of productivity and cost in slab steel producing industries, which tends to be better when the work rate of the casting machine increases, through production scheduling of larger heat sequences. However, a limiting factor in this is the large number of different types of grades in production orders. One way to overcome this would be to generate intermix steel. In this work, the intermix steel generated in the tundish was evaluated for a two-strand slab casting machine with the goal of validating a mathematical model for predicting the intermix zone steel that needs to be identified and scraped or downgraded after that procedure. The developed model proved to be simple to apply and effective in predicting the intermix length. A correction factor could be implemented in the model to adjust some delay to start the mix zone or to advance the end of the intermix, but the original modeling condition guarantees that the entire intermix length will be within the length predicted by the model. The validation of this model was carried out using slab samples of different lengths, during the operational practice of a continuous casting machine at the ArcelorMittal Pecém.