
Contribution ID: **71** Type: **Oral Presentation - Full Paper will be submitted**

# Reduction of energy losses of steel ladles by improved castables for the permanent lining

*Tuesday 20 May 2025 14:00 (20 minutes)*

The major challenges facing steel production today are reducing energy consumption and greenhouse gas emissions. Part of the solution is an improved refractory lining concept. A mostly overlooked element for better energy efficiency is the permanent lining of the steel ladle. In this study, the influence of the composition of monolithic permanent linings on thermal conductivity is investigated, using a new method to determine thermal conductivity up to 1600 ℃. FEM simulations show that the energy losses through the refractory lining are reduced by improved castables for the permanent lining. With these castables, it is possible to optimize the lining concept and achieve further reduction of energy losses.

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**Session Classification:** Energy savings and energy efficiency optimization

**Track Classification:** Energy savings and energy efficiency optimization