



Speaker 6

The road to net zero, the testing of a new hybrid fuel for sintering



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ABSTRACT:

Iron ore sintering produces a significant portion of CO₂ emissions within integrated blast furnace steelmaking, therefore providing a great opportunity to decarbonise. Use of a novel hybrid fuel made from sustainable biomass and anthracite coal can offset up to 30% of CO₂ emissions. The combustion properties of the hybrid were investigated using a bomb calorimeter and a simultaneous thermogravimetric analyser. Results of which were compared to coke breeze, the current fuel for the process. Heat of reaction was higher for the hybrid fuel 27.911 MJ/kg compared to 26.534 MJ/kg. Although proximate analysis showed higher volatiles content that correlated with slightly lower combustion temperatures. To reveal the impact of hybrid fuel on sinter quality, it was incorporated into a ore blend and evaluated in a sinter pot. The strength and reducibility of the sinter was analysed using standard tests as well as XRD and optical imaging to identify the mineralogy and structure.



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