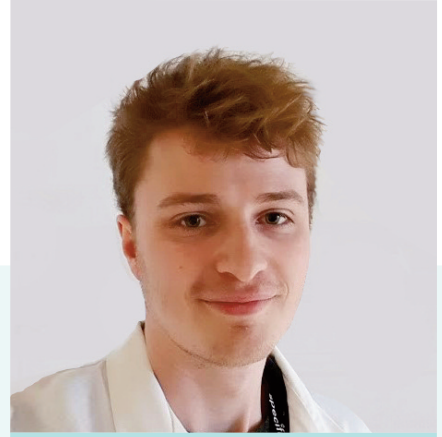




Poster 4

Novel coating solutions for the improvement of scale surface condition



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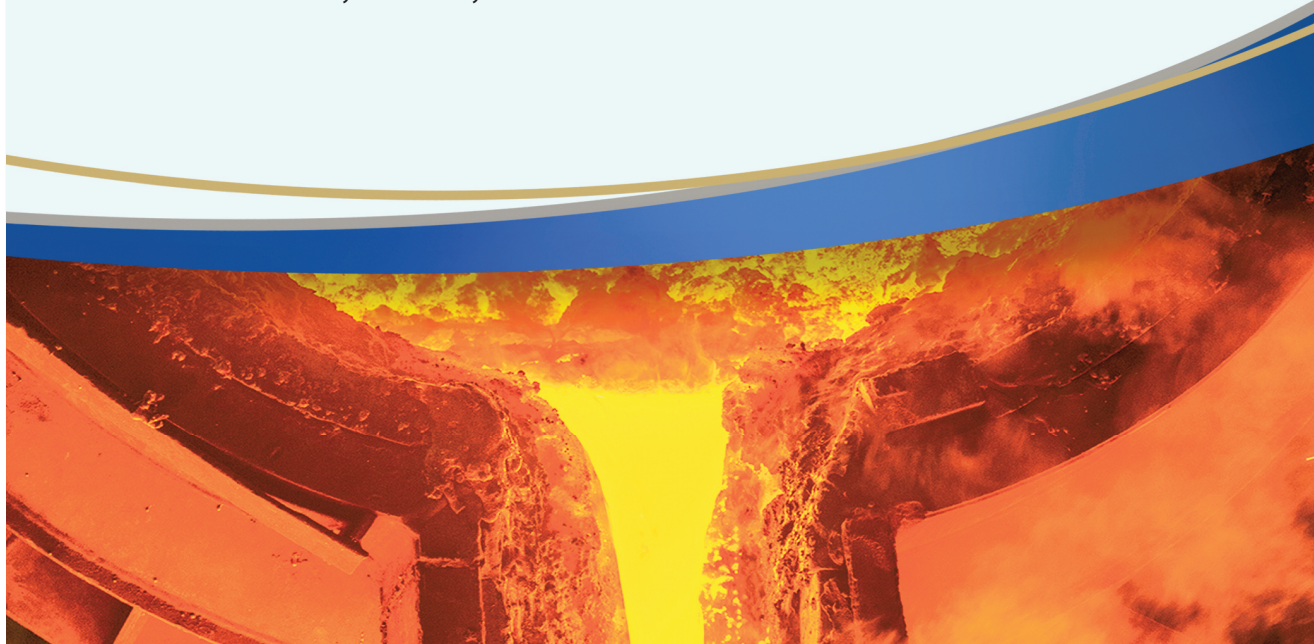
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ABSTRACT:

TATA Steel's low carbon steel conveyance tubes undergo a 900°C normalisation to remove an undesirable heat affected zone caused by high frequency induction welding. This reheating, however, generates significant surface conditioning issues and instigates severe processing inefficiencies due to the parent hollow's insufficient protection from high temperature oxidation.

This poster highlights the kinetics of the scale grown by normalisation and will further characterise the key oxide layers; FeO, Fe₃O₄, Fe₂O₃, permeating on the steel surface. In addition, the research details the trialling of novel preventative coatings using phosphate based technology.

Inexpensive and commercially viable, these coatings aim to increase yield and surface quality of TATA Steels' Tube products. Techniques for analysis and characterisation include Raman Spectroscopy, Energy-Dispersive Spectroscopy, Simultaneous Thermal Analysis and X-Ray Diffraction.



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