



Poster 5

Development of product and process technologies for manufacturing high value alloy steels used in critical applications



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ABSTRACT:

Benjamin Huntsman developed crucible steelmaking in the eighteenth century and found that the steel he produced was excellent for clock springs. This was one of the first industrial examples of the link between steel product quality and processing, and was a starting point for the development of modern clean steels. These steels, which find extensive use in aerospace applications and bearings, have stringent requirements for controlling inclusions based the detrimental impact on properties they have. Ever increasing performance requirements mean the programme sponsor, Liberty Speciality Steels, requires new technologies to link product and process. Three areas were selected to work on:

- Quantification of the inclusion floatation process by vibration monitoring
- Inclusion characterisation by x-ray computed tomography
- Slag chemistry analysis

Ultimately the project aim is to assess the viability of applying these technologies to a speciality steelmaking process with the hope of allowing further process developments to improve final product properties.



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