

New Wheels Steels and Cost Effective Wheel Management Strategies (R3.101)

Background

Railway wheels are subjected to stresses that make them one of the most maintenance-intensive components of a railway. Investigation of new steels by the previous Rail CRC indicated that these steels had superior mechanical and metallurgical properties when compared to conventional wheel steels. This would provide an opportunity to significantly reduce maintenance costs and improve system reliability through the application of a more resilient wheel material. The project was initiated to further explore manufacturing and operational risk components to enable commercialisation of the new wheel steels.

Objective

The primary objective of the project is to develop the application of low carbon bainitic-martensitic steels to provide superior cost effectiveness and safety for railway wheels. The secondary objectives are alternate wheel management practices such as the development of alternate wheel reconditioning and condemning criteria, and associated cost benefit analysis of all of the aforementioned.

Outcomes

Outcomes of this research are expected to be:

- the production of an industrial scale quenching rig for verification tests,
- verification of properties of industrial production bainitic-martensitic railway wheels,
- advanced risk assessment of in-service trials of bainitic-martensitic railway wheels,
- product testing of industrial production bainitic-martensitic railway wheels as a risk management precaution prior to in-service trials, and
- in-service trials of bainitic-martensitic railway wheels.

Benefits

Rollingstock operators, track infrastructure owners and the general population will benefit through improved risk management practices for cracked wheels.

Project timeframe

1 June 2008 to 31 May 2011

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