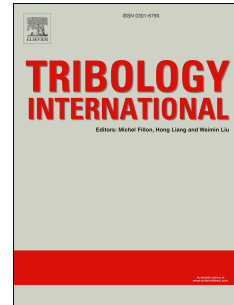


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Wear characterization of multilayer laser clad high speed steels

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Research Highlights

- The wear behavior of three laser clad high speed steel (HSS) alloys and one conventional spun cast HSS alloy was investigated by using a pin on disc tribometer at 25 °C as well as at 500 °C.
- The wear mechanism was found to be the combined effect of abrasive, adhesive and tribo-oxidative wear, with the latter becoming more prominent at 500 °C.
- The results showed that wear rates at 25 °C can not be related to the wear rates at 500 °C.
- Due to refined microstructures with higher hardness, laser clad HSS alloys showed superior wear resistance at 25 °C compared to the cast HSS alloy.
- Cast HSS alloy showed best wear resistance at 500 °C. Due to superior anchorage, the coarse MC carbides carried the load, enabling the matrix to form a stable oxide layer to resist the wear.

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