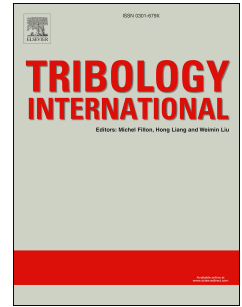


Accepted Manuscript

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PII: S0301-679X(18)30332-3

DOI: [10.1016/j.triboint.2018.07.004](https://doi.org/10.1016/j.triboint.2018.07.004)

Reference: JTRI 5298

To appear in: *Tribology International*

Received Date: 16 April 2018

Revised Date: 18 June 2018

Accepted Date: 3 July 2018

Please cite this article as: Larsson E, Olander P, Jacobson S, Boric acid as fuel additive – Friction experiments and reflections around its effect on fuel saving, *Tribology International* (2018), doi: 10.1016/j.triboint.2018.07.004.

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Boric acid as fuel additive – Friction experiments and reflections around its effect on fuel saving

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Abstract

This paper investigates the friction reducing properties and fuel saving potential of a boric acid based fuel additive with remarkably promising results in field tests. The effect of normal load and sliding velocity on the friction behavior was studied with a reciprocating model test developed to mimic the dual lubrication from the fuel additive and the engine oil. Substantial friction reductions were achieved when repeatedly spraying the fuel additive on base oil lubricated surfaces. The friction energy loss was reduced by up to 76% compared to references without the fuel additive.

We present combinations of assumptions regarding the fuel saving potential of this friction reduction that, if correct, explain the observed fuel efficiency improvements found in field tests.

Keywords: Fuel additive; Friction; Lubrication; Energy

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