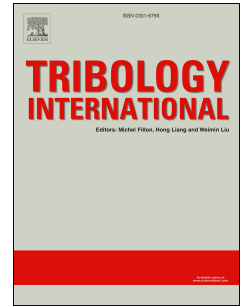


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## Sealing performance solution by means of a liquid-gas interface tracking approach: application to viscoseals

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### Abstract

Through this work, we present a numerical approach to predict the sealing performance of a viscoseal under laminar regime by tracking the lubricant-gas interface using a VOF-based method. The results are compared to the experimental data presented by Stair and Hale [1]. Special care is given to the lubricant-gas interface advection, where a compressive second order interface reconstruction scheme is used to produce a sharp interface. We considerably reduced the computational time by using a coupled pressure-velocity algorithm, employing a pseudo-transient under-relaxation scheme and by imposing a periodic boundary condition based on the viscoseal geometry. While, to the author's knowledge, being used for the first time to predict the sealing performance of the viscoseal, this interface tracking approach showed a high accuracy across the range of tested parameters.

**Keywords:** Viscoseal, Hydrodynamic lubrication, Two-phase flows, VOF method

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