Investigation of stiction phenomena in brake systems by electrochemical methods

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Corrosion of grey cast iron employed for the production of braking systems is an important issue in the automotive sector. In particular, short term corrosion of the grey cast iron discs can lead to undesired corrosion attack at dealers, while long term corrosion might impair comfort and durability of the breaking system. Moreover, corrosion attack of the grey cast iron might cause stiction phenomena between the breaking pad and disc leading to possible damage of the pad.

In this work, an experimental approach based on electrochemical methods was employed for the investigation of stiction phenomena at laboratory scale. A dedicated cell was developed and patented for the investigation of the stiction behaviour of different pad formulations

The procedure discussed in this work proved to be effective in inducing stiction phenomena and can be employed for the evaluation of susceptibility to stiction of different pad formulations. In particular, it can be employed to investigate the effect of pad constituents on stiction susceptibility. The complementary use of surface characterization techniques provides information about the stiction mechanism.