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ONLINE ISSN : 1881-1361

PRINT ISSN : 0287-4547

Dental Materials Journal

Vol. 29 (2010) , No. 4 p.433-437

[\[PDF \(1485K\)\]](#) [\[References\]](#)**A micro-mechanical evaluation of the effects of die hardener on die stone**[Li-Hong He](#)¹⁾, [Ludwig Jansen van Vuuren](#)¹⁾, [Nina Planitz](#)¹⁾ and [Michael V. Swain](#)¹⁾

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(Received October 13, 2009)

(Accepted March 31, 2010)

Abstract:

The purpose of this study was to investigate the properties of a die hardener penetrated layer and evaluate its protective effects on the surface of die stone. A commercial die hardener (PDQ die hardener, Whipmix corp., USA) was tested on a die stone (GC Fujirock[®] EP die stone, GC Europe, Belgium) and a dental plaster (Dental Stone, United States Gypsum Company, USA). Nanoindentation and micro-scratch tests were performed on both coated and uncoated specimens. The scratch damage was observed by SEM and the penetration depth of die hardener was detected by the affiliated EDX. Upon drying, the die hardener penetrated into the die stone to a depth of 3-5 μm , and deposited a thin film on the surface of die stone. Although the die hardener penetrated layer did not show improved mechanical properties, the die hardener film on the surface did protect the specimens from abrasion damage.

Key words:[Die hardener](#), [Nanoindentation](#), [Micro-scratching](#)[\[PDF \(1485K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

To cite this article:

Li-Hong He, Ludwig Jansen van Vuuren, Nina Planitz and Michael V. Swain. A micro-mechanical evaluation of the effects of die hardener on die stone . Dent. Mater. J. 2010; 29: 433-437 .

doi:10.4012/dmj.2009-094

JOI JST.JSTAGE/dmj/2009-094

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[View "Advance Publication" version \(July 17, 2010\).](#)



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