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ONLINE ISSN : 1881-1361

PRINT ISSN : 0287-4547

Dental Materials Journal

Vol. 28 (2009) , No. 4 p.487-492

[\[PDF \(1304K\)\]](#) [\[References\]](#)**Bonding durability of custom-made mouthpiece for scuba diving after water storage under pressure**

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(Received November 26, 2008)

(Accepted February 12, 2009)

Abstract:

The purpose of this study was to assess the behavior of laminated thermoforming materials in an underwater environment to understand the durability of mouthpieces for scuba diving. Two thermoforming materials, polyolefin (PO) and ethylene-vinyl acetate copolymer (EV), were laminated and stored in air, 37°C water, and 37°C water under 0.2-MPa pressure for 1 and 4 weeks. The load/ bonding width (bonding strength: BS) and displacement at the start of delamination (SD) and fracture (FR) were analyzed with 3-way ANOVA. BS values at SD and FR in air were significantly greater than those under the other conditions, and the BS at SD of EV was significantly greater than that of PO, though the effects of materials, duration and their interactions were not significantly different. The displacements at SD and FR were significantly influenced by the material. These results suggest that both materials can be employed for making a diving custom mouthpiece.

Key words:

[Bonding durability](#), [Custom-made mouthpiece](#), [Water storage under pressure](#)

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To cite this article:

Chie IHARA, Hidekazu TAKAHASHI, Ryosuke MATSUI, Takuto YAMANAKA and Toshiaki UENO. Bonding durability of custom-made mouthpiece for scuba diving after water storage under pressure . Dent. Mater. J. 2009; 28: 487-492 .

doi:10.4012/dmj.28.487

JOI JST.JSTAGE/dmj/28.487

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