

ABSTRACT

NSR002 | Comparative in vitro study of selected physical properties of Activa, Cention N and Vitremer

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Background: The study aimed to establish the changes in surface roughness over a 1 year period of immersion in acid or artificial saliva for three materials (Vitremer, Activa, Cention N).

Methods: A total of 60 specimens were assessed for the three materials. The surface roughness (Ra) measurement was completed at various day intervals: 0, 1, 2, 7, 21, 28, 60, 90, 180 and 365. Scanning electron microscopy (SEM) was used additionally to examine the surface of each material.

Results: Linear regression analysis determined the association between the changes in weight, height and Ra. The result of this study showed that Vitremer ($p=0.001$) and Cention N ($p=0.000$) consistently had a significant increase in Ra when it was immersed in acidic media. Kruskal-Wallis test determined that in an acidic media, particularly day 1, 7 and 14; Cention N had significantly lower Ra compared to the other materials. At day 180, Vitremer had significantly higher Ra values than the other two materials. The SEM images showed loss of filler particles of the materials in acidic media and to a lesser extend for the saliva media. Vitremer showed the widest cracks with the most filler loss. The post experimental images of Activa in saliva resembled the pre-experimental images.

Conclusions: Within the limitations of the study, Activa had the lowest change in Ra from prolonged acidic attack followed by Cention N and Vitremer. Only Vitremer Ra was significantly increased by the saliva media.