COMMENTARY

TEAR STRENGTH OF FIVE ELASTOMERIC IMPRESSION MATERIALS AT TWO SETTING TIMES AND TWO TEARING RATES

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New addition silicone and polyether products with "enhanced" characteristics continue to be introduced by various manufacturers. One manufacturer recently introduced a new addition silicone–polyether hybrid impression material (SENN, GC America, Alsip, IL, USA). Although many of these new products have properties that are remarkable improvements over the older polysulfide and condensation silicones for making crown and bridge impressions, it is easy to make the incorrect assumption that all of these new products have similar properties. This article from the School of Dentistry, University of Alabama at Birmingham, reports on the tear strength of several new impression materials based on a new laboratory test.

The authors argue that the new tear strength test using a thin specimen (about 0.1-mm thick) is more clinically relevant than tests involving thicker specimens (0.2- to 1.0-mm thick) used by previous investigators; however, this argument cannot be verified by this in vitro study. The authors did show that three of the four addition silicones tested had higher tear strengths than the polyether and hybrid impression materials tested. They also showed that, for some of the impression materials tested, a higher tear rate and a delay in testing from immediately after setting to 24 hours resulted in higher tear strengths.

Although the authors report tear strengths, they appear to be measuring tensile strengths. It would be interesting to determine if the presence of a notch or crack in the test specimen affected the results. It would also be interesting to determine the effect of specimen thickness on the trouser tear test. One advantage of the trouser tear test is that it includes the deformation of the specimen in the calculation of the tear energy.

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