

## عنوان مقاله:

Tribological effect of thermocycling on dental nano-composite

## محل انتشار:

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## خلاصه مقاله:

The effect of thermocycling on the tribological properties of a commercial dental nano-composite has been studied by using the nano-scratch experiment. For this purpose some disk specimens from Filtek Z350 XT (3M ESPE, Germany) nano-composite, each of the diameter 10 mm and the thickness 4 mm were prepared. Half of the specimens were stored in distilled water at ambient conditions and the other half were thermocycled in distilled water for 1000 cycles between temperatures 5°C and 55°C. The nano-scratch experiment was applied on both non-thermocycled and thermocycled specimens by using Triboscope system (Hysitron Inc., USA) and Berkovich indenter. The nano-scratch experiments were performed by both constant and increasing loads for each sample. Atomic force microscopy (AFM) images were taken from the scratch site for analyzing the surface deformation of the samples. The scratch profile, residual scratch depth, scratch hardness and critical scratch load were obtained from the nano-scratch test and AFM images. The results indicate that the residual scratch depth and the critical scratch load of the thermocycled samples have been decreased compared to the non-thermocycled ones. However, the scratch hardness of the thermocycled samples has been increased in comparison to the non-thermocycled specimens.

## کلمات کلیدی:

Tribological properties; nano-scratch experiment; dental nano-composite; thermocycling

## لینک ثابت مقاله در پایگاه سیویلیکا:

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