

19. Comparative evaluation of physical properties of nanoparticle incorporated addition silicone with other elastomeric impression materials

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Aim: To study the changes in physical properties of nanoparticle incorporated addition silicone and comparing the same with other commercially available pvs and polyether impression materials. **Materials and methods:** Polyether (group a) the most hydrophilic of other elastomers is used as a control material. Other groups include 4 commercially available pvs (group b,c,e,f) and nanoparticles incorporated addition silicone (group d). The pre-set and post-set wettability of each impression material is evaluated using artificial saliva and a slurry of caso4 dihydrate respectively. The contact angle made by the saliva or caso4 drop with the respective impression material measured and evaluated using drop shape analysis. Also each impression material is used to make impression of a standard die, dipped in artificial saliva. The number of voids in the impression and the stone cast poured from the impression are counted and evaluated. **Results and conclusion:** It was found that pe impression material has the least contact angles and fewer number of voids and the most hydrophilic of the studied impression materials. The nanoparticle filled pvs material has pre-set wettability comparable to pe but has significantly lower post-set wettability. The material also has lesser voids compared to other pvs impression materials. All other pvs impression materials have significantly lower wettability and more voids when compared to pe..

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