

Tested for safety – trusted for performance

1 The science of composite warming



We know how important patient safety is to your practice. That's why we've conducted rigorous testing to ensure 3M™ Filtek™ Dental Restoratives are safe to warm, without compromising composite physical properties. So, you can warm with confidence:

- All recommended products **toxicology tested**
- **Minimal heat transfer to the pulp**^{1,2}
- **Biocompatible** according to ISO-10993-1:2018³
- 1st dental composite **cleared by the FDA** for warming⁴

Filtek Dental Restoratives that are safe to warm^{5,6}

- 3M™ Filtek™ Supreme XTE Universal Restorative
- 3M™ Filtek™ Easy Match Universal Restorative
- 3M™ Filtek™ Universal Restorative
- 3M™ Filtek™ One Bulk Fill Restorative
- 3M™ Filtek™ Bulk Fill Flowable Restorative
- 3M™ Filtek™ Supreme Flowable Restorative



Only use approved warming devices with select Filtek Dental Restoratives.

1 Daronch M, Rueggeberg FA, De Goes MF, Giudici R. Polymerization kinetics of pre-heated composite. *J Dent Res*. 2006 Jan;85(1):38–43 6.

2 Internal data.

3 Based on a review by a board-certified toxicologist.

4 3M™ Filtek™ Universal Restorative.

5 Warm capsules to up to 70°C for up to 1 hour.

6 Warm flowable syringes to up to 70°C for up to 1 hour, up to 25 times.

2 Unchanged physical properties

Not only does composite warming offer many benefits, including **better flow, improved adaptation***, and **reduced extrusion force****, but evidence has also demonstrated that prewarming has no adverse effect on:



- Degree of conversion¹
- Microhardness^{1,2}
- Fracture toughness²
- Surface roughness²
- Flexural strength³
- Other properties tested by Solventum



Prewarmed restorations exhibited 100% acceptable aesthetic, functional and biological properties.⁴

35 patients in a randomised clinical trial received two Class I restorations, one unheated and one preheated.

* Based on a 3M sponsored *in-vitro* study. 11 dentists placed 88 Class II MOD restorations. Teeth were microscopically examined for flaws, defects and voids. Comparisons made between techniques and operators.

** Internal data.

*** World Dental Federation

- 1 Gebril M, Grüll MP, Brillant MS, Sullivan B, Price RB. Effect of repeated heating and cooling cycles on the degree of conversion and microhardness of four resin composites. *J Esthet Restor Dent.* 2021 Dec;33(8):1201–1209. doi: 10.1111/jerd.12815. Epub 2021 Aug 23. PMID: 34424606.
- 2 Elkaffass AA, Eltoukhy RI, Elnegoly SA, Mahmoud SH. Influence of preheating on mechanical and surface properties of nanofilled resin composites. *J Clin Exp Dent.* 2020 May 1;12(5):e494–e500. doi: 10.4317/jced.56469. PMID: 32509233; PMCID: PMC7263773.
- 3 D'Amario M, Pacioni S, Capogreco M, Gatto R, Baldi M. Effect of repeated preheating cycles on flexural strength of resin composites. *Oper Dent.* 2013 Jan-Feb;38(1):33–8. doi: 10.2341/11-476-L. Epub 2012 Jul 7. PMID: 22770484.
- 4 Elkaffass AA, Eltoukhy RI, Elnegoly SA, Mahmoud SH. 36-Month Randomized Clinical Trial Evaluation of Preheated and Room Temperature Resin Composite. *Oper Dent.* 2022 Jan 1;47(1):11–19. doi: 10.2341/20-301-C. PMID: 35226749.

Tips for success



To temp



Time



Frequency



	To temp	Time	Frequency
Heat capsules	70°C	up to 1 hour	once
Heat flowable syringes	70°C	up to 1 hour	up to 25 times

Remember: remove your composite from the warmer if it won't be used immediately.



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