Dental Cementology: the key to longevity in indirect dentistry

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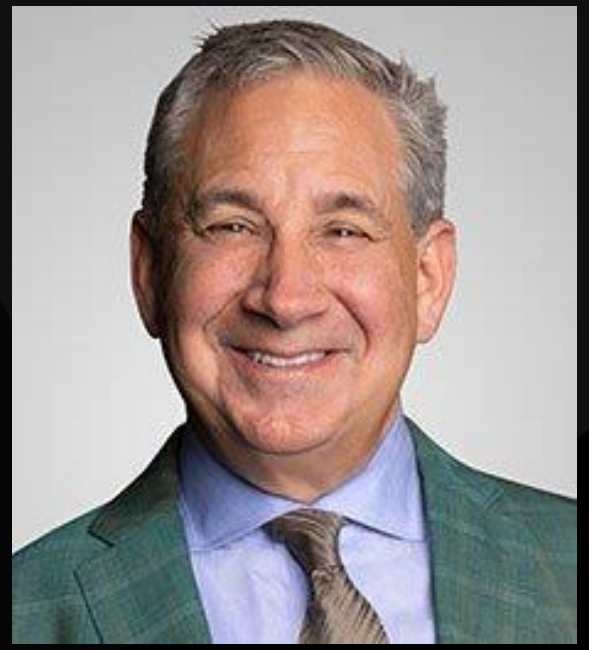

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Restoration	Cement Choice	Tooth Preparation	Restoration Preparation
Zirconia	Cement - good retention only	Ensure clean preparation (pumice or scrub)	Air abrade restoration (50-60 µm aluminum oxide, < 2bar), apply RMGI or SARC cement
	Bond - SARC	Ensure clean preparation	Air abrade restoration (≤50 µm aluminum oxide, < 2bar), , apply zirconia primer, apply SARC cement
	Bond - ARC	Ensure clean preparation, etch and/or bonding agent according to manufacturer's instructions	Air abrade restoration (50-60 µm aluminum oxide, < 45 PSI), , apply zirconia primer, apply bonding agent and ARC cement (dual cure)
Lithium Silicate or Disilicate	Bond - SARC	Ensure clean preparation	etch restoration with 5% HF acid etch for 20s, apply silane primer apply SARC cement
	Bond - ARC	Ensure clean preparation, etch and/or bonding agent according to manufacturer's instructions	etch restoration with 5% HF acid etch for 20s, apply silane primer, apply bonding agent, apply ARC cement
Leucite-Reinforced Ceramics	Bond - ARC	Ensure clean preparation, etch and/or bonding agent according to manufacturer's instructions	etch restoration with 9.6% HF acid etch for 1 minute (max 2.5 minutes), apply silane primer, apply bonding agent, apply ARC cement
Hybrid Ceramics	Bond - ARC	Ensure clean preparation, etch and/or bonding agent according to manufacturer's instructions	air abrade restoration with 25-50 µm aluminum oxide (1.5 - 2 bar), apply silane primer for 60 seconds, apply bonding agent and ARC dual cure cement (verify with manufacturer's directions)

Restoration Type		Glass Ionomer or Ceramir Cement	Self Adhesive Resin Cement	Adhesive Resin Cement
Full Crown	Zirconia	√*	√	√**
	Gold or PFM	√*	√	√**
	Emax or Obsidian		√	√
	CAMouflage			√
Veneer	Emax			√
	Feldspathic Porcelain			√
Onlay	CAMouflage/Lava Ultimate			√
	Enamic		√	√
	Obsidian or Emax		√	√
Implants		√	√	Not really needed

	Glass Ionomer or Ceramir Cement	Self Adhesive Resin Cement	Adhesive Resin Cement
	Meron Plus QM	RelyX Unicem-3M	RelyX Ultimate-3M
	GC Fujicem Evolve	SpeedCEM Plus - Ivoclar	EZ CEM - Zest
	*Ceramir - Doxa	Maxcem Elite - Kerr	Bifix QM - Voco
		Bifix SE - Voco	RelyX Veneer
VOCO Ceramic Bond and Monobond Plus are primers that enhance the bond strength of the cement to the crown. They works on both resin cement classifications, BUT has no effect on the Glass Ionomer classification. Works on all types of crown materials.	*Ceramir is not truly a glass ionomer, but has similar properties. For these cements to be successful, the prep must have retention (4-6 mm tall with minimal taper)	THE CERAMIC PRIMERS ENHANCE the bond strength on the CROWN, NOT THE TOOTH. No additional primer/adhesive is necessary for these, unless specifically directed for material or by doctor	These cements require an adhesive and primer for them to work properly. Primers will help, but additional adhesive is necessary inside the crown and on the tooth for the cement to work properly.

Cementation take aways — RMGI and SARC

- RMGI and SARC provide similar bond strengths
- No adhesive necessary
- Bond strengths of 5-20 MPa observed
- Bioactive cements (Ceramir, Activa, etc.) behave similarly to RMGI

Cementation take aways - ARC

- ARC Provides highest bond strengths.
- Enamel bond (30-40 MPa)> Dentin Bond (18-30 MPa)
- Dentinal bond strength is not enhanced by etching.
- ARC bond strength is dependent upon the adhesive used.

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