

THE DENTAL ADVISOR

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Composite Core Materials

Bonded resin composites have become the core material of choice for rebuilding broken down teeth before placing an extra-coronal restoration. Composites used as core materials bond to tooth structure and may be light-cured, dual-cured or self-cured. The short cure time allows crown preparations to begin immediately after core placement. These materials require a clean, dry field during placement. Compatibility of the adhesive and composite is essential to achieving a predictable bond to the tooth.

Mode of Delivery

Some composite core products utilize automix cartridges with small tips for direct syringing into tooth preparations. Others can be loaded into small syringes (Centrix) for delivery after hand-mixing. They may also be supplied in tubs, compules and/or unit-dose packaging.

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	Product	Company	Packaging	Automix Mixing	Viscosity
Dual-cured	ABSOLUTE DENTIN	PARKELL	Automix cartridge	Yes	Low
	BIS-CORE	BISCO	Syringes	No	High
	BUILD-IT! FR	PENTRON CLINICAL TECHNOLOGIES	Automix cartridge	Yes	Low
	COMPCORE AF DUAL-CURE	PREMIER	Automix cartridge	Yes	Low
	CORE PASTE SYRINGEABLE	DEN-MAT	Automix cartridge	Yes	Low
	ENCORE D/C	CENTRIX	Automix cartridge	Yes	Med
	FLUOROCORE	DENTSPLY/CAULK	Syringes	No	High, med
	LUXACORE AUTOMIX DUAL	ZENITH/DMG	Automix, Smartmix	Yes	Low
	PARACORE	COLTENE/WHALEDENT	Automix cartridge	Yes	Med
REBILDA DC	VOCO GMBH	Automix, QuickMix	Yes	Low	
Light-cured	BISFIL CORE	BISCO	Syringe, unit dose	na	High
	CLEARFIL PHOTO CORE	KURARAY AMERICA	Syringe	na	High
	ENCORE SUPERCURE	CENTRIX	Unit syringe	na	High
	LIGHT-CORE	BISCO	Syringe, unit dose	na	High
Self-cured	CLEARFIL CORE NEW BOND	KURARAY AMERICA	Tubs	No	Med
	CORE-FLO	BISCO	Syringes, tubs	No	Low
	CORE PASTE SYRINGEABLE	DEN-MAT	Automix cartridge	Yes	Low
	ENCORE	CENTRIX	Tubs	No	Med
	ENCORE AF	CENTRIX	Tubs	No	Med

Overall rating = 75% clinical rating + 25% property rating.

*Costs are listed for comparison only and are not used to calculate the ratings; all costs shown in U.S. dollars.

Viscosity

Most composite core materials have a medium or low viscosity, allowing flow into undercuts and around pins and posts. The few products that have a high viscosity can be placed with hand instruments. The light-cured core materials tend to have the highest viscosity and are more packable.

Method of Placement

Preferences for obtaining proper form and contour of composite core materials vary among dentists. Core forms, matrix bands or hand molding are often used and may depend on the size of the build-up needed.

Compatibility with Bonding Agents

Light-cured composite core materials generally bond best to tooth structure with light-cured bonding agents. Dual- or self-cured composite core materials require dual- or self-cured bonding agents. For best results, use the bonding agent that is recommended by the manufacturer. Many composite core materials available today have the option of being light- or self-cured. If placement in a non-vital root canal is necessary, the self-curing mode is preferable to ensure adequate curing.

Color

Core materials are available in a blue, gold or gray color, opaque white or an esthetic dentin color. The contrasting color is an advantage in the posterior and subgingival areas. The tooth-colored shades are ideal for use in the anterior when placing translucent all-ceramic restorations.

Fluoride Release

The amount of fluoride released from composite cores adequately sealed by a crown is very small and of questionable value.

Retention

Retention for a future crown should not depend on the bond of the core to tooth structure, but rather on the taper of the preparation. Posts or pins should be considered when little or no structural or mechanical retention is present or when little coronal portion is remaining. Margins should always end on tooth structure, preferably with a ferrule of tooth structure at least 1.5 mm in height. ■

Editors' Note: Most self-etching bonding systems (6th- and 7th-generations) are not recommended for use with core materials.

THE DENTAL ADVISOR Recommends:

Dual-cured
***ParaCore (96%), LuxaCore Automix Dual (95%),
 BUILD-IT! FR (94%), Rebilda DC (94%),
 CompCore AF Dual-Cure (91%),
 Core Paste Syringeable (90%), Fluorocore***

Light-cured
Clearfil Photo Core (94%), ENCORE SuperCure (93%)

Self-cured
Core Paste Syringeable (91%), ENCORE (91%)

Bonding Agent	Shades	Contains Fluoride	Light Curing Time	Flexural Strength	Flexural Modulus	Compressive Strength	Cost/ml	Property Rating	Clinical Rating	Overall Rating
Not Included	3	No	40 sec	Med	Med	High	\$1.80 c	89%	na	na
Not Included	2	No	20 sec	Med-High	High	High	\$8.15 s	94%	na	na
Not Included	4	Yes	40 sec	Med-High	Med	High	\$4.28 c	92%	95%	94%
Included	2	Yes	40 sec	Med	Med	Med-High	\$7.48 c	87%	92%	91%
BondLink	2	Yes	40 sec	Low-Med	Med	Med	\$5.31 c	80%	93%	90%
Not Included	2	Yes	20 sec	Med	Low-Med	Med-High	\$3.60 c	83%	na	na
Included	2	Yes	40 sec	High	Med	High	\$16.41 s	na	98%	na
Not Included	3	Yes	20 sec	Med	Med	Med-High	\$10.52 c	87%	97%	95%
Included	2	Yes	40 sec	High	Med	High	\$9.73 c	94%	96%	96%
Included	3	Yes	20 sec	Med-High	Low-Med	High	\$4.56 c	89%	96%	94%
Not Included	1	No	40 sec	Med-High	High	High	\$8.88 s	94%	na	na
Not Included	1	No	20 sec	High	High	High	\$11.93 s	100%	92%	94%
Not Included	2	No	40 sec	Med	Med-High	Med-High	\$17.17 u	90%	94%	93%
Not Included	1	No	20 sec	Med	Med-High	High	\$10.70 s	92%	na	na
Not Included	1	No	na	Med	Med-High	High	\$5.03 t	92%	na	na
Not Included	2	No	na	Med	Med	Med-High	\$6.51 s	87%	87%	87%
BondLink	2	Yes	na	Low-Med	Med-High	Med	\$5.13 c	83%	93%	91%
Not Included	2	Yes	na	Low-Med	Med-High	Med	\$5.65 t	83%	94%	91%
Not Included	1	Yes	na	Med	Med	Med-High	\$5.70 t	87%	na	na

u = unit dose, c = cartridge, s = syringe, t = tub, na = not available