

OptiBond All•In•One Technical Bulletin



PRODUCT DESCRIPTION

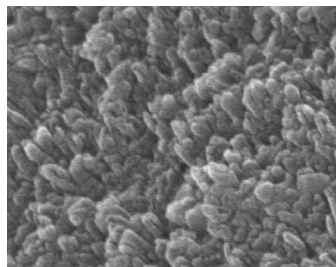
OptiBond® All•In•One is a single-component, light-cure, self-etch adhesive that combines all the ingredients needed for etching, priming and bonding into a single bottle, eliminating the need for separate steps in the bonding process. With no mixing required, this product has significantly simplified the restorative procedure, becoming more consistent and much less technique-sensitive. OptiBond All•In•One can be used for the bonding of both direct and indirect restorations. Delivery options come in the 50-pack Unidose®, 100-pack Unidose and Bottle Kit.

FEATURES & BENEFITS

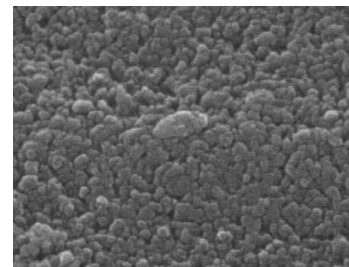
Features	Benefits
7th-generation adhesive	Single component – greatly simplifies the restorative procedure
Nano-etching	Provides high mechanical retention
Direct and indirect restorations	Excellent adhesion to enamel, dentin, porcelain and advanced ceramics – even indirect metal-based restorations <i>only</i> when used with Maxcem™ resin cement
Nanofilled, fluoride releasing	High bond strength, minimized microleakage and sensitivity, prevention of secondary caries
Ternary solvent system	Water, acetone and ethanol provide effective enamel etching, enhanced material stability and uniform adhesive layer

UNIVERSAL APPLICATIONS

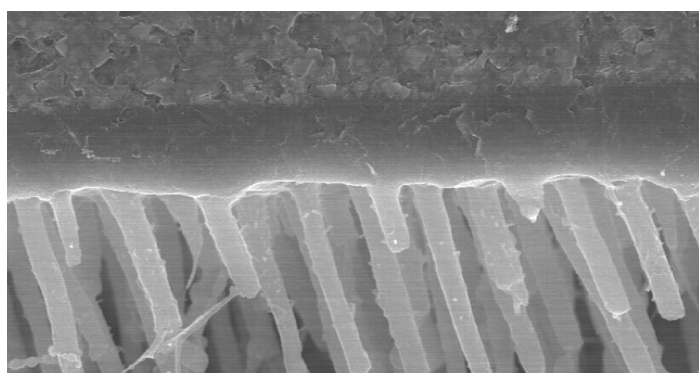
Tremendous flexibility enables OptiBond All•In•One to work for all indications, both direct and indirect. Key to this product's uniqueness is the *ternary solvent system*, which is comprised of three solvents – water, acetone and ethanol – providing superior bonding as a result of more effective enamel etching. Adhesive performance does not degrade over time, therefore material shelf-life stability is enhanced. A homogeneous adhesive layer maintains a uniform composition



OptiBond All•In•One Adhesive – Magnification 50,000x



Competitive 7th-Generation Adhesive – Magnification 50,000x



This SEM photograph shows the composite, adhesive, and dentin bonding interfaces. Excellent monomer penetration into dentinal tubules shows well-defined resin tags.

as solvents are removed during air drying. This reduces the chance for phase separation and bubble (void) formation known to occur in other brands.

Direct Restorations

Using Kerr's well-proven GPDM (glycerol phosphate dimethacrylate) adhesive monomer and filled adhesive technologies coupled with OptiBond All•In•One's unique ternary solvent system provides excellent adhesion to all dental substrates, including dentin, enamel, metal alloys (both precious and nonprecious), porcelain and advanced ceramic system such as zirconium oxide (e.g., Lava).

Indirect Restorations

Low film thickness (~5 microns) makes OptiBond All•In•One well-suited for indirect restorations since it will not interfere with final seating.

- Most light-cure or dual-cure resin cements (e.g. Maxcem™, NX3 Nexus® Third Generation) can be used with OptiBond All•In•One adhesive to cement indirect restorations as long as there is good light accessibility.
- Indirect bond strengths to a variety of dental substrates are excellent.

Shear Bond Strengths (SBS) of Single-Component Self-Etch Adhesives to Human Dentin and Uncut Bovine Enamel (MPa)

	Dentin	Uncut Enamel
OptiBond® All•In•One	35.0	28.2
Clearfil® S3 Bond	30.4	21.7
G-Bond™	10.3	23.0
iBond™	20.2	11.3
Xeno® IV	32.2	21.6

Study conducted by Dr. James Dunn of Loma Linda University: Direct bonding using light-cure Herculite XRV composite resin. Trademarks are property of their respective owners.

Shear Bond Strengths (SBS) of OptiBond All•In•One to Various Dental Substrates (MPa)

Dentin	Enamel	Porcelain	Zirconia (Lava)	Gold	Rexillum Composite
36.5	25.9	29.6	29.7	28.5	34.2

Internal testing data. Direct bonding using light-cure Herculite XRV composite resin.

- Maxcem and NX3 Dual-Cure, both in self-cure mode or dual-cure mode, are the only cements recommended for use with OptiBond All•In•One for indirect situations where there is little to no light accessibility. No dual-cure activation is needed for the adhesive

Maxcem, NX3, and OptiBond All-In-One

Chemistry incompatibilities between acidic adhesives and resin cements in dark-cure mode are well-documented in scientific research. Acidity levels of self-etch, single-component bonding agents are much higher than their total-etch predecessors. The redox initiator system in most resin cements is comprised of a BPO catalyst and a tertiary amine activator. Upon curing of the adhesive, there is an oxygen-inhibited layer on the surface. When the resin cement comes in contact with the adhesive in a self-cure or dark-cure mode, uncured acidic monomers within the oxygen-inhibited layer of the adhesive can neutralize the tertiary amine, adversely affecting the self-cure mechanism of the resin cement. The end result is poor adhesion at the adhesive/cement interface. In addition, phase separation occurs because most resin cements are rather hydrophobic and self-etch adhesives are rather hydrophilic, further compromising the adhesion. There is, however, a solution to this problem. When OptiBond All•In•One is paired with Maxcem or NX3, this incompatibility becomes nonexistent, resulting in greatly enhanced bond strengths for indirect self-cure indications. A proprietary redox initiator system is the reason behind

Maxcem and NX3's unique features, making them acid-tolerant and enabling them to self-cure efficiently in the presence of acidic monomers. Because they are compatible with OptiBond All•In•One, Maxcem and NX3 are the only solutions for situations where there is little to no light penetration.

Indirect Shear Bond Strengths (MPa) of OptiBond All•In•One to Various Dental Substrates Using NX3 Cement*

Dentin	Enamel	Porcelain (VMK 95)	VitaBlocs® Mark II (Cerec)	Gold	Rexillum
32.6	26.7	27.2	29.3	23.1	25.2

Internal testing data.
*OptiBond All•In•One adhesive was light-cured. NX3 cement was self-cured.

MATERIAL COMPOSITION

- **Monomers**
 - Glycerol phosphate dimethacrylate (GPDM) – self-etching adhesive monomer
 - Co-monomers including mono- and di-functional methacrylate monomers
- **Solvents** – water, acetone and ethanol
- **Photo-initiator** – camphorquinone (CQ)-based photo-initiator system
- **Fillers** – three nano-sized fillers
- **Fluoride-releasing fillers** – sodium hexafluorosilicate and ytterbium fluoride

KEY DIFFERENTIATORS

- **No additional components required** – Ready right out of the bottle or Unidose device, no mixing necessary
- **Bond strength** – Unique nano-etching delivers high mechanical retention for long-term bond durability
- **Ternary Solvent System** – Provides enhanced shelf-life stability, nano-etching ability, and a homogeneous adhesive layer
- **Universal use** – Excellent adhesion to enamel, dentin, porcelain and ceramics – even indirect metal-based restorations when used with NX3 and Maxcem – no separate dual-cure activator required
- **Minimized post-op sensitivity** – Proven filled adhesive technology greatly reduces microleakage and postoperative sensitivity concerns
- **Releases fluoride** – Not all 7th-generation self-etch bonding agents have this capability
- **Unidose device** – Free-standing delivery device for ease-of-use
- **Independent bonding data** – Available on kerrdental.com
- **OptiBond name** – The most trusted name in bonding



SYBRON DENTAL SPECIALTIES

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