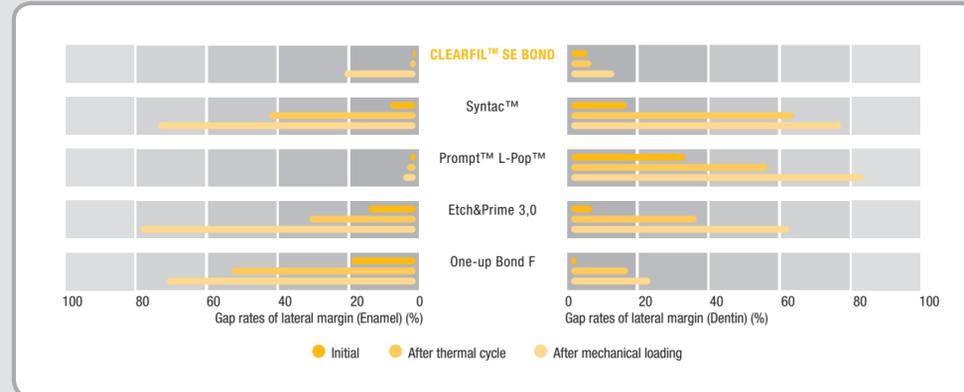


Scientific results that are truly convincing

Marginal adaptation to enamel and dentin

CLEARFIL™ SE BOND achieves an excellent as well as durable marginal adaptation to enamel and dentin.

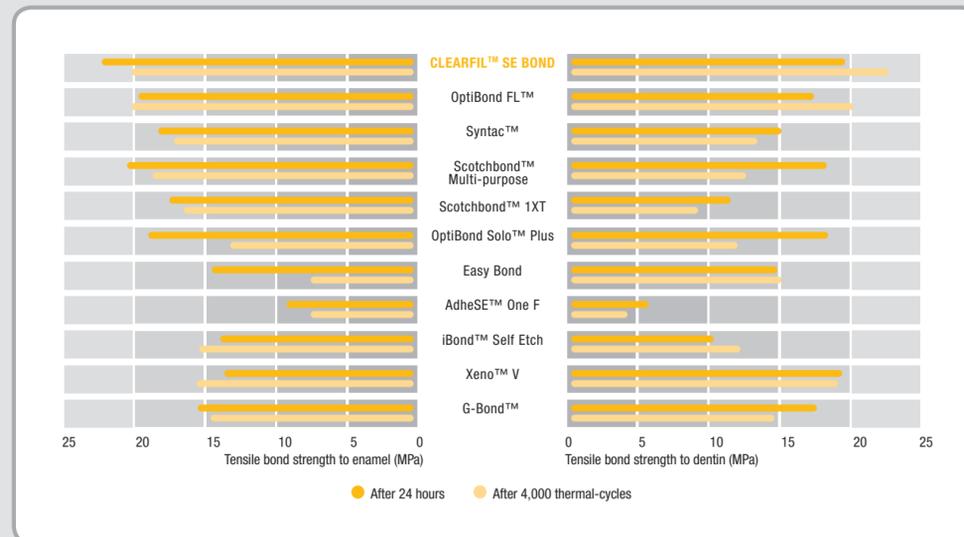


Source: K. Huber, G. C. Lier, B. Bott, and M. Hanning: Marginal adaptation of composite resin restorations using self-etching adhesives, Joint Meeting of the Continental European, Israeli, and Scandinavian (NOF) Divisions of the IADR, 2004, Abstract #59.

Tensile bond strength to enamel and dentin

CLEARFIL™ SE BOND produces a very high and durable bond strength to dentin as well as to enamel. The product's bond strength is greater than that of

1 step self-etch adhesives and, furthermore, even higher than etch&rinse systems in terms of enamel bonding.



Source: Kuraray Medical Inc.

CLEARFIL™ SE BOND – the precision bond system

Easy & precise application



A wide range of indications

CLEARFIL™ SE BOND is indicated for...

- Direct filling restorations using light-cured composite or compomer
- Cavity sealing as a pretreatment for indirect restorations
- Treatment of hypersensitive and/or exposed root surfaces
- Intraoral repairs of fractured facing crowns made of ceramic, hybrid ceramic or composite resin using light-cured composite
- Surface treatment of prosthetic appliances made of ceramic, hybrid ceramic and cured composite resin



Added value:
The Intelly Case for easy & precise dosing!

Product Range – CLEARFIL™ SE BOND



Your contact

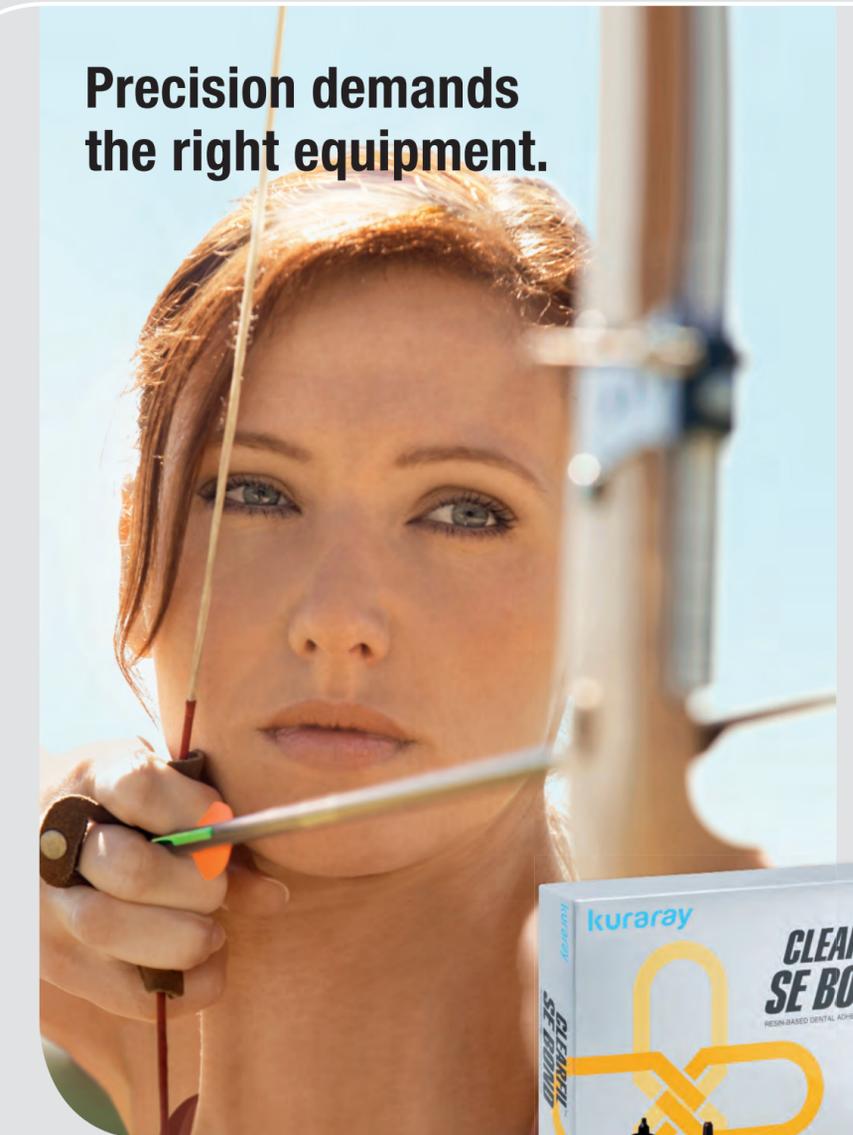
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**Precision demands
the right equipment.**



CLEARFIL™ SE BOND

The adhesive that meets your high demands – with a durable marginal sealing thanks to the exceptionally high hydrolysis resistance and with least postoperative sensitivity.

kuraray

CLEARFIL™ SE BOND – The precision bond system for a superior performance ...

CLEARFIL™ SE BOND – performance in brief

CLEARFIL™ SE BOND is Kuraray's high performance, self-etching adhesive for direct restorations – known for its outstanding marginal sealing thanks to the product's powerful hydrolysis resistance. Dentists and patients appreciate the product's least postoperative sensitivity. Amongst several universities and opinion leaders CLEARFIL™ SE BOND is deemed to be the Gold Standard.

The two-step adhesive is composed of two single liquids: the self-etching primer and the light-curing bond. Thanks to the mild-, self-etching primer with a low technique sensitivity and a high sealing ability of the bonding agent, CLEARFIL™ SE BOND enables excellent long-term performance.

Product characteristics

Advantages for dentist and patient

Hydrolysis resistance	<ul style="list-style-type: none"> ✓ Excellent long-term marginal sealing ✓ High stability and durability over time ✓ Minor risk of secondary caries
Mild etching	<ul style="list-style-type: none"> ✓ Least post-operative sensitivities ✓ Superb bond strength due to chemical bond of adhesive MDP monomer to remaining hydroxylapatite crystals around the collagen fiber network
Low technical sensitivity	<ul style="list-style-type: none"> ✓ High error tolerance ✓ Consistently good results ✓ No rinsing step: Procedure without over-wetting and -drying of exposed collagen

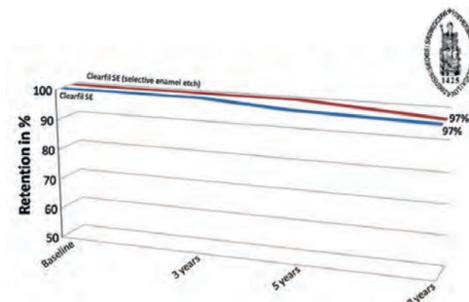
Outstanding performance of CLEARFIL™ SE BOND proven in an 8 year clinical study!

With the 8 year clinical study* published by the renowned Catholic University of Leuven, Belgium, in 2010, CLEARFIL™ SE BOND proves its excellent clinical effectiveness with and without selective acid-etching of enamel (97% retention rate in both procedures!).

Thus, CLEARFIL™ SE BOND shows first class results which are equal to or even greater than that of 3 step etch & rinse adhesives.

* Source: B. Van Meerbeek, M. Peumans, A. Poitevin, A. Mine, A. Van Ende, A. Neves, and J. De Munck: Relationship between bond-strength tests and clinical outcomes, Dental Materials 26, e100-e121, 2010.

KULeuven-based/coordinated CLINICAL RESEARCH PROGRAM to assess the clinical effectiveness of adhesives*



Graph representing the retention rate of Class-V restorations up to 8 years of clinical service for a 2-step self-etch adhesive with and without selective phosphoric acid etching of enamel [157, 165]. This study is conducted at the Catholic University of Leuven in Belgium (KULeuven). Be aware that the retention rate (in the Y-axis) starts at 50%.

Red line: with phosphoric acid etching (97% retention rate)
Blue line: without phosphoric acid etching (97% retention rate)

[157]: B. Van Meerbeek et al., Five-year clinical effectiveness of a two-step self-etching adhesive. J Adhes Dent 2007; 9:7-10.

[165]: B. Van Meerbeek et al., Eight-year clinical effectiveness of a mild two-step self-etch adhesive in cervical lesions with and without selective phosphoric-acid etching of enamel. Unpublished data, KULeuven.

Excellent long-term marginal sealing

Dentists who are looking for a bond system that does not only provide a secure handling but also offers a technology ensures a high quality, long-term marginal sealing, will now be satisfied by CLEARFIL™ SE BOND.

The reason is as simple as this. Kuraray's self-etching bond system is based on an intelligent concept: Powerful hydrolysis resistance for a durable marginal sealing.

1. Firstly, the unique adhesive MDP monomer takes care of an outstanding stable chemical bonding between adhesive and tooth structure – resistant to hydrolysis*.
2. Due to the mild etching of CLEARFIL™ SE BOND, the layer of hydroxylapatite widely remains around the

Least post-operative sensitivities

Apart from the excellent bonding result of CLEARFIL™ SE BOND, the bond system provides another important function: a precisely concerted composition of primer and bond to ensure minimal post-operative sensitivities.

Thanks to the mild etching primer of CLEARFIL™ SE BOND as well as the reliable bond strength of the bonding, the irritation by moving dentinal fluid is minimized.

Furthermore, with the application of the higher viscosity bond subsequent to the primer, the bond creates a strong and stable bond layer. This bond layer has the capability of excellently sealing dentinal tubules, hence, preventing occlusal stress by potential movement of dentinal fluid.

The result is simple: CLEARFIL™ SE BOND is the precision bonding designed for least postoperative sensitivities.

Optimized usability & low technique sensitivity

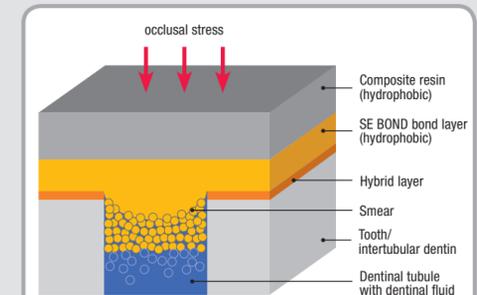
With CLEARFIL™ SE BOND, neither a separate acid-etching nor a rinsing step are necessary. Additionally, less attention to the surface moisture level has to be given: The risk of over-wetting or over-drying of the preparation is very low compared to, for example, wet bonding systems. Combined with the product's

collagen fibers, hence, protected against hydrolysis. The result is different with phosphoric acid etching: Exposed collagen fibers and the bond force between tooth and adhesive may be destroyed by hydrolysis with the exposure to water or saliva.

3. The marginal sealing is even strengthened by the bond's low water sorption of CLEARFIL™ SE BOND.

Hence, the concept performs well: A durable bond is created with an exceptionally stable, long-term marginal sealing between restorative material and tooth. The risk of secondary caries is minimized.

*Definition of hydrolysis: Hydrolysis means a) the decomposition (separation) of the chemical bonding between adhesive and tooth (enamel as well as dentin) by a reaction to water/saliva and b) the destruction of collagen fibers by enzymes.



- Durable high bond strength prevents a gap between tooth and filling to avoid the movement of dentinal fluid
 - Excellent sealing of hydroxylapatite and dentinal tubules thanks to higher viscosity bonding
 - Formation of stable bond layer buffering compressive strength
- Thus, movement of dentinal fluid, the cause for post-operative sensitivity, hardly occurs.

simplified application procedure with a low technique sensitivity, CLEARFIL™ SE BOND easily achieves the desired high bonding performance. The unique Intelly Case, a handy outer case for the primer and bond, facilitates the precise dosing and convenient storing of the product.

... thanks to Kuraray's strong adhesive technology

Watch the MDP animation on www.kuraray-dental.eu in the scientific area!

Excellent bond strength and durability

CLEARFIL™ SE BOND contains Kuraray's unique adhesive monomer MDP, an essential component of Kuraray's adhesive products such as the successful resin cement brand PANAVIA™ (www.panavia-dental.eu). Today, MDP is more than 25 years' worth of scientifically verified, outstanding bonding performance.

Hence, Kuraray's self-etching bonding systems offer an improved and innovative solution: Compared to the acid-etching of etch & rinse systems, which remove the valuable hydroxylapatite crystals of the upper layer of collagen, Kuraray's self-etching adhesives have a mild etching effect – the smear layer is dissolved and the collagen fiber matrix remains in its valuable condition containing hydroxylapatite crystals.

Penetrated first by the primer of CLEARFIL™ SE BOND, these collagen fibers, wrapped in hydroxylapatite, form an enormously effective "hybrid layer" together with the bond of CLEARFIL™ SE BOND. Within this hybrid layer, MDP chemically bonds to hydroxylapatite.

In terms of adhesion to enamel, the bond strength result of CLEARFIL™ SE BOND is excellent even though the acidity of the primer is mild. This effect is also based on Kuraray's MDP technology.

Consequently, CLEARFIL™ SE BOND not only offers a mechanical but also a strong chemical bond. As a result, CLEARFIL™ SE BOND ensures excellent bond strength and long-term durability of the restoration.



The transmission electron microscope (TEM) shows the interface image of CLEARFIL™ SE BOND.

In the dentin interface, hydroxylapatite crystals, that adhere to the adhesive monomer MDP chemically, remain in the hybrid layer thanks to mild etching. Hence, the adhesive forms the stable hybrid layer.

Source of TEM picture: Dr. B. Van Meerbeek, Catholic University of Leuven, Belgium