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CLINICAL CASE REPORT

CLEARFIL™ SA CEMENT – a new self-adhesive composite resin cement

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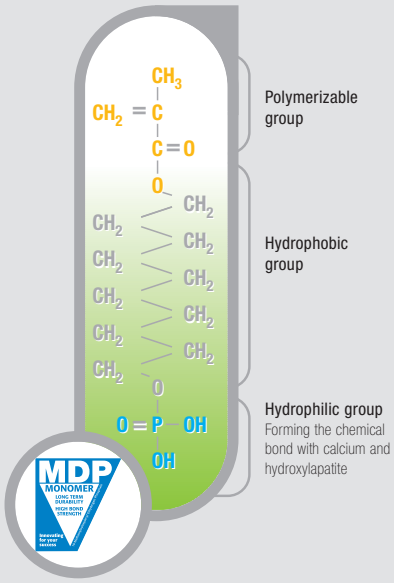
CLEARFIL™ SA CEMENT – clinical case report

Clinical case report by Dr. Katrin van Nüss, Dr. Christoph von Wenz zu Niederlahnstein, Prof. Dr. Karl-Heinz Friedl. Corresponding author: Prof. Dr. Karl-Heinz Friedl

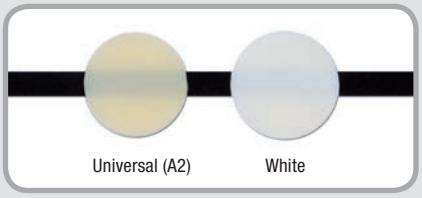
In recent years the ambition to combine the simple and quick handling of conventional cements with the good adhesion of classic composite resin cements – which is achieved with etch-and-rinse or self-etching adhesive systems – led to the development of self-adhesive composite resin cements.
A survey of current literature on these self-adhesive systems showed that no sufficient data are available from prospective clinical studies on the products that are available on the market, but both in-vitro trials as well as clinical experience in practice do suggest this to be a very promising product group (Radovic et al, J Adhes Dent 2008).

Structure of the adhesive monomer MDP



The well-known and proven monomer MDP, 10-Meth-acryloyoxydecyl dihydrogen phosphate, is used for the bond strength, which displayed very good adhesion to hard tooth substance as well as metal and zirconium oxide in a number of trials.

Kuraray Medical Inc. was able to prove this high tolerance towards moisture for the bonding on enamel and dentin.



With the introduction of CLEARFIL™ SA CEMENT, Kuraray is especially aiming to solve the problems that still exist in this product group, e. g. a uniform and high bond strength to both enamel and dentin, and easy handling and removal of excess cement.

CLEARFIL™ SA CEMENT is a self-adhesive, dual-curing composite resin cement for the cementation of indirect restorations such as crowns and bridges, but also inlays and onlays made of metal, ceramic and composite, as well as root canal posts. The material releases fluoride ions to the surrounding hard tooth substance.

CLEARFIL™ SA CEMENT is available in a ready-to-use syringe that contains both the pastes A and B in two separate chambers. By applying pressure to the plunger of the syringe, both pastes are mixed in a mixing tip and thus activated.
The self-adhesive cement is available in the color shades Universal (A2) and White. In order to facilitate the insertion of the material into the root canal (for post cementing purposes), the system also possesses a special additional tip, a so-called “Endo Tip”.

CLEARFIL™ SA CEMENT – the dual-curing cement

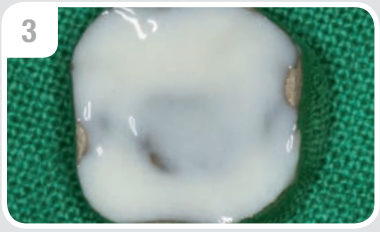
As CLEARFIL™ SA CEMENT is a dual-curing cement, thus two different ways of curing are possible. In the case of self-curing, the practitioner has to wait for approx. 3 – 5 minutes after placing the restoration before removal of excess material. However, as the material also possesses a light-curing mechanism, the initial curing process can be sped up considerably by tack-curing the excess cement for 2 – 5 seconds. This helps to clean-up the excess cement very quick and easy. In both cases, the material can be easily removed from the margins of the restoration. After cleaning up, the material should be left to cure for a further 5 minutes. The versatility and easy application of CLEARFIL™ SA CEMENT with different ceramics, but also with gold alloys shall be depicted in the following on the basis of several case documentations.

CLEARFIL™ SA CEMENT for the cementation of a metal crown

The 28 year old female patient received a gold crown on tooth 46. In this case CLEARFIL™ SA CEMENT was used in self-curing mode only.

Prepared tooth 46 after removal of temporary crown

Application of CLEARFIL™ SA CEMENT into the sandblasted partial crown



Crown just before placement

Seated and fixated crown

Removal of excess cement

Cemented crown

(Photos: Dr. von Wenz)

A recommendation

In general, before the cementation procedure, it must be noted that for fixing the temporary restorations, as well as for protecting the dental pulp, no products containing eugenol are used, as these may negatively affect the curing process of CLEARFIL™ SA CEMENT. When cleansing the prepared teeth, hydrogen peroxide should not be used, as this could lead to a poorer bond strength to the hard tooth substance. Metal restorations and oxide ceramics should be sandblasted with an aluminum oxide powder according to the manufacturer's indications in order to increase the adhesive bond strength.
Before cementation, conventional silcia-based ceramics should be etched with a suitable acid. Afterwards, a silane primer (e. g. CLEARFIL™ CERAMIC PRIMER) should be applied. Cores or cavities respectively should be clean and dry. After placing the restoration, it should be held in its final position (finger, cotton roll, etc.).

CLEARFIL™ SA CEMENT for the cementation of two crowns made of Li-disilicate

The 50 year old female patient received crowns made of Li-disilicate on teeth 36 and 37.
In this case CLEARFIL™ SA CEMENT was used in light and self-curing mode.

Prepared teeth 36 and 37 after removal of temporary crowns

Crowns 36 and 37 on the model

Crowns 36 and 37, sandblasted and silan-treated inside

Application of CLEARFIL™ SA CEMENT

Inserting crowns

Inserted and fixated crowns

Light-curing (2–5 s) of composite resin cement with polymerisation lamp

Removal of excess material with probe and scaler (I.)

Removal of excess material with probe and scaler (II.)

Cemented crowns 36 and 37 (buccal view)

Cemented crowns 36 and 37 (occlusal view)

(Photos: Dr. von Wenz)

CLEARFIL™ SA CEMENT for the cementation of a crown made of Li-disilicate

The 33 year old female patient received a crown made of Li-disilicate on the nonvital tooth 46 after removal of a 15 year old, failed full metal crown. In this case CLEARFIL™ SA CEMENT was used in light and self-curing mode.

Prepared tooth 46 after removal of temporary crown

Crown 46, sandblasted and silan-treated inside

Application of CLEARFIL™ SA CEMENT

Inserted and fixated crown

Light-curing (2–5 s) of composite resin cement with polymerisation lamp

Removal of excess material with probe and scaler (I.)

Removal of excess material with probe and scaler (II.)

Cemented crown 46

(Photos: Dr. van Nüss)

A market investigation

In the run-up to the market introduction in Germany, CLEARFIL™ SA CEMENT was tested and evaluated by 18 dentists, with 13 of the 18 colleagues having already used self-adhesive cements in their dental clinic before.

A total of 548 restorations were inserted within the frame of this trial. 75 % of the colleagues evaluated the handling of CLEARFIL™ SA CEMENT to be better than that of their previous cement and 17 % said it was the same.

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CLEARFIL™ SA CEMENT for the cementation of a zirconia crown

The 87 year old female patient received a zirconia crown on tooth 11 after core build-up. In this case CLEARFIL™ SA CEMENT was used in light- and self-curing mode.

Prepared tooth 11 after removal of temporary crown

Application of CLEARFIL™ SA CEMENT into a zirconia (sandblasted) crown

Inserted and fixated crown

Light-curing (2–5 s) of composite resin cement (labial) with polymerisation lamp

Light-curing (2–5 s) of composite resin cement (palatal) with polymerisation lamp

Removal of excess material (labial) with probe and scaler

Removal of excess material (palatal) with probe and scaler

Cemented zirconia crown (palatal view)

Cemented zirconia crown (labial view)

(Photos: Dr. von Wenz)

Your contact

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