UiT

NORGES ARKTISKE UNIVERSITET

Permanent sementering av fast protese til tann

Asbjørn Jokstad

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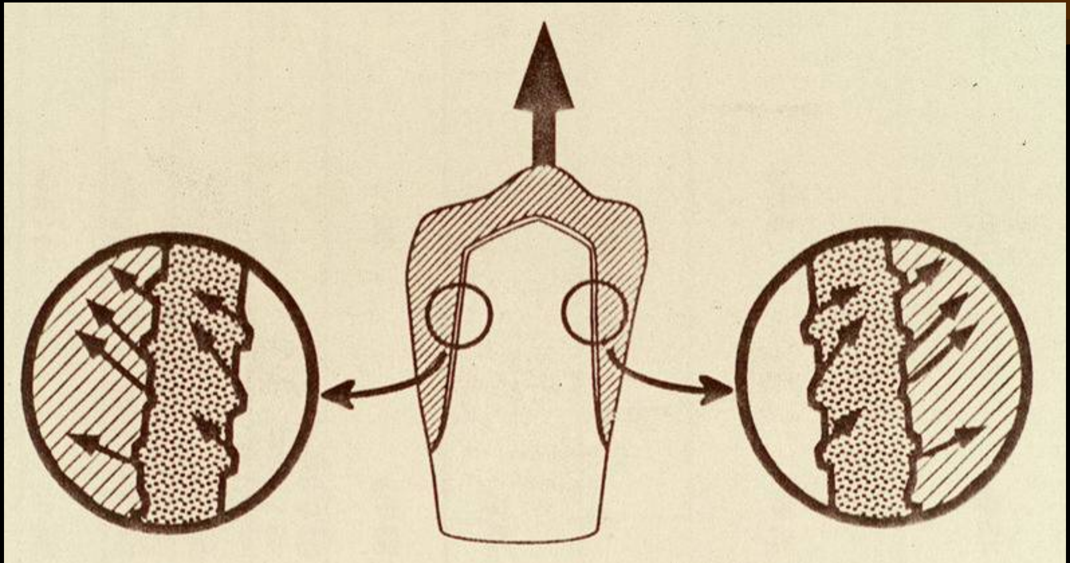
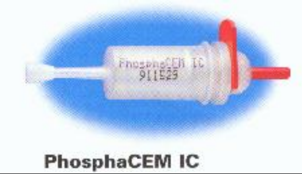
UiT Norges arktiske universitet

“Non-adhesiv” kontra “adhesiv” sement

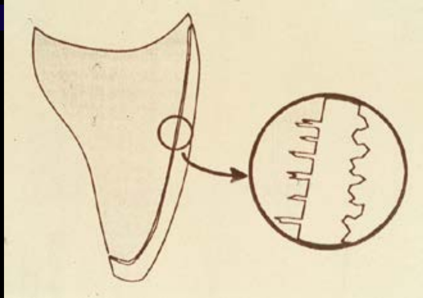


Gruppe 1: Vannbaserte sementer

Sinkfosfat	(Sink-)Polykarboxylat	Glass-ionomer
1878		1978
ZnOx + Fosforsyre →	ZnOx + Polyakryl-syre (PA)	Ca-Al-F-glass+PA



Indre flater må være klargjort mikromekanisk av tanntekniker & kjemisk av tannlege før sementering



Fra tanntekniker:

Metall	Glasskeram	Zirconia
Sandblåst	Fluss-syre	Sandblåst

Før sementering:

(Fjerne organisk materiale:)

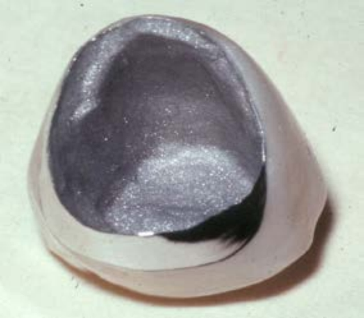
Fosforsyre	Fosforsyre	“Lut” (Ivoclean)

(Dehydrere:)

Sprit	Sprit (+Silanisering)	

Konvensjonell metal-keram, overflatebehandling før sementering

- ✓ Rengjøres innvendig med børste og pimpesten (Eventuelt renses i ultrasonisk bad)
- ✓ Vurder behov for sandblåsing (spesielt ved resementering)
- ✓ Vask med ≥70% etanol (dehydrere)



Konvensjonell keram & glass-keram, nødvendig overflatebehandling før sementering med polymersement

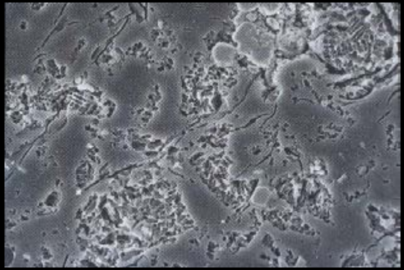
1. Overflate etset med fluss-syre (Hydrofluoric Acid, HA)

OBS!

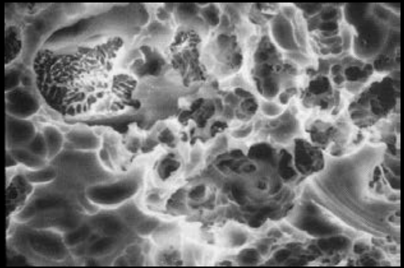
HMS risiko:

$SiO_2 + 4HF \dashrightarrow SiF_4 + 2H_2O$

Ingen etsing



Etset 15 sek (10% HA)

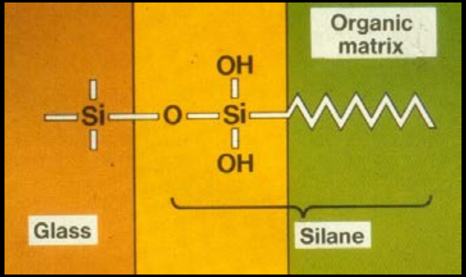


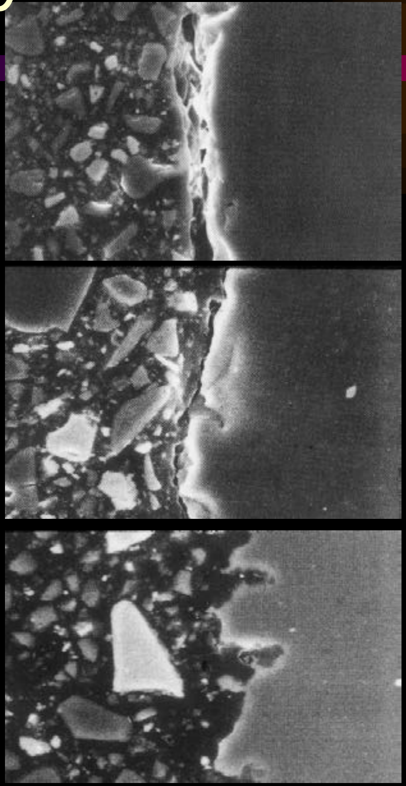
Etset 60 sek (10% HA)

Tid & konsentrasjon etter produsentens anvisninger

Konvensjonell keram, nødvendig overflatebehandling før sementering med polymer-sement

1. Etset m/ HA
2. Silanisering





Ikke ets & ingen silanisering

Ets & ingen silanisering

Ets & Silanisering

Polymer-sementer

4-META*

(Panavia)

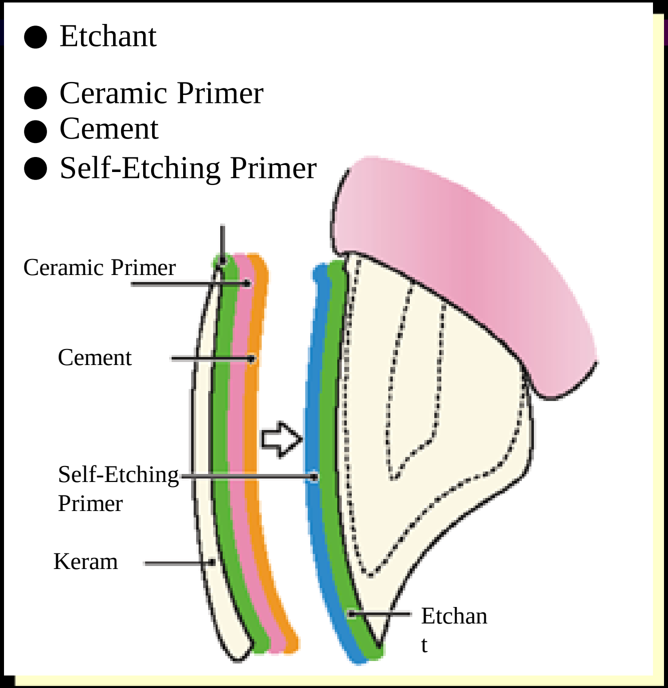
Bonding + BisGMA/UDMA

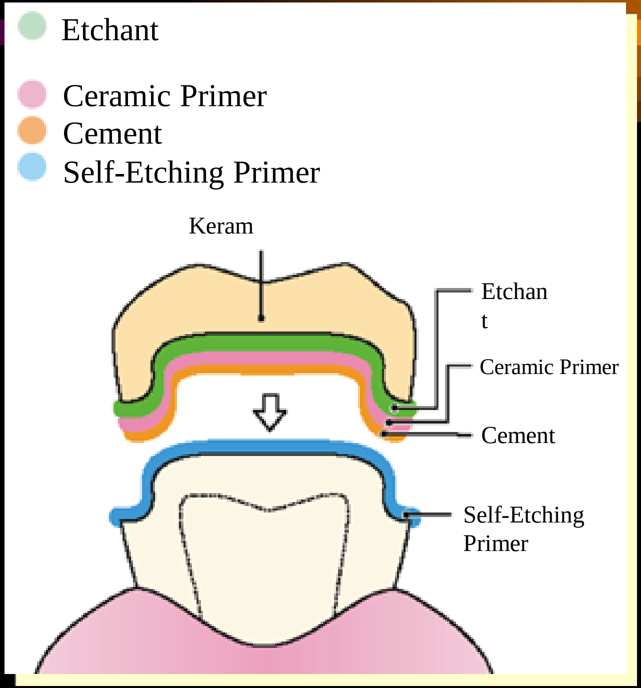
+

(Excite DCS + Variolink II (dual-cure)
eller Multilink (kjemisk herdende)

*4-methacryloxyethyltrimellitic acid anhydride

Polymer-sement, brukt til keramer

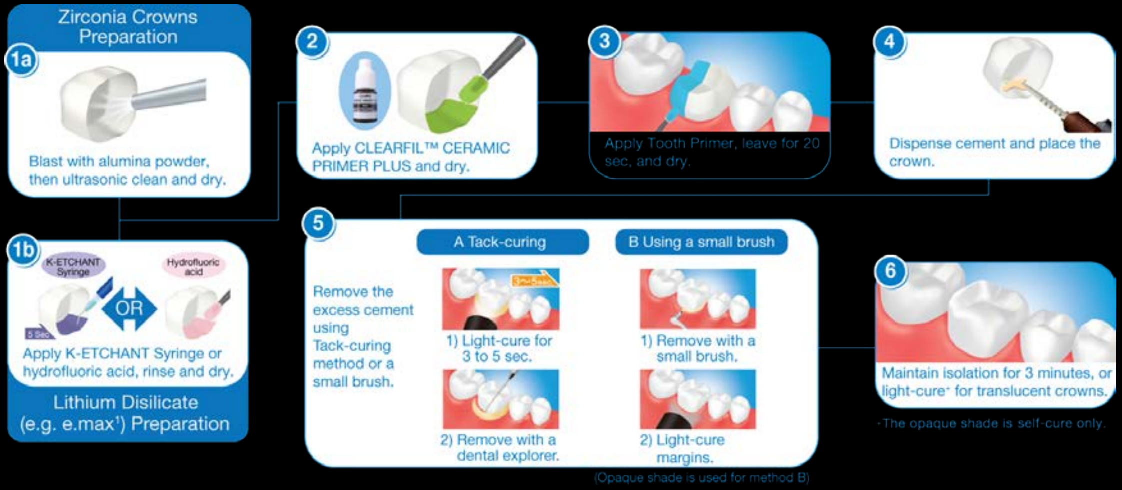




Bruksanvisning, Panavia v5

OBS! – Ikke nødvendigvis samme fremgangsmåte for:

- Panavia v5
- PANAVIA SA Cement Plus
- PANAVIA SA Cement
- Panavia F 2.0
- Panavia 21



http://katanazirconia.com/panavia-v5/

OBS – varemerke & risiko for forveksling & feil sementeringsprosedyre

Eksempelvis RelyX™

RelyX ARC Adhesive Resin Cement
RelyX ARC cement
RelyX Luting cement
RelyX Luting 2 cement
RelyX Luting Plus cement
RelyX Luting Plus Automix Cement (RMGIC)
RelyX U100, Unicem Dental Cement
RelyX U200 cement
RelyX Ultimate Adhesive Resin Cement
RelyX Unicem (Clicker / aplicap / maxicap)
RelyX Unicem 2 Self-Adhesive Resin cement
RelyX Unicem Self-Adhesive Universal Resin Cement
RelyX Veneer Cement

3M ESPE Dental Cements. Easy to choose. Easy to use.

Recommended indications*	RelyX™ Ultimate Adhesive Resin Cements	RelyX™ Unicem AND RelyX™ Unicem 2 Self-Adhesive Resin Cements	RelyX™ Veneer Cement	RelyX™ Luting Plus AND RelyX™ Luting Plus Automix Cements	Ketac™ Cem Radiopaque AND Ketac™ Cem Aplicap™/Maxicap™ Glass Ionomer Luting Cements	RelyX™ Temp NE Temporary Cement RelyX™ Temp E Temporary Cement
CAD/CAM Ceramic and Composite	●	●				
Resin Nano Ceramics	●	●				
Metal/PFMs	●	●		●	●	
Porcelain/Ceramic Inlays, Onlays and Crowns	●	●				
Veneers	●		●			
Zirconia	●	●		●		
Implants	●	●		●		
Posts	●	●				
Pediatric Crowns Metal				●	●	
Maryland Bridges Metal and Composite	●	●				
Temporary cementation of • Provisional restorations • Crowns, bridges, inlays and onlays						●

Delivery Method: Automix Syringe, Clicker™ Dispenser, Capsule, Powder/Liquid, Syringe, Paste/Paste

*For complete list of indications, please refer to product's Instructions for Use.

OBS – varemerke & risiko for forveksling & feil sementeringsprosedyre

<u>Eksempelvis Variolink</u>

Variolink Esthetic DC
Variolink Esthetic LC
Variolink Esthetic SpeedCEM
Variolink Esthetic SpeedCEM Plus

Variolink II

Variolink Veneer
Variolink II Esthetic

Variolink N
Variolink N LC

Utstyr til sementering med sinkfosfat-sement

- Sement
- Stor glassplate
- Spatel
- Pimpsten
- Pussekopp (Youngs)
- Spyttsuger
- Bomulsruller
- 3% vannstoff, 70% etanol (Tubulicid kan også brukes)
- Eventuelt blyhammer og trepinne

Klargjøring av arbeidsfelt

- ✓ Eventuelle partier med fyllings/kariesrester renbores
- ✓ Skarpe hjørner og kanter avrundes lett
- ✓ Eventuell nydannet tannsten fjernes
- ✓ Prepareringen renses med pimpsten, spyles med vannspray og vaskes med 3% vannstoff
- ✓ Feltet isoleres med bomullsruller og spyttsuger
- ✓ Eventuell blødning må bringes under kontroll
- ✓ Tørrlegging med forsiktig luftblåsing

Sinkfosfat-sement

Blandeteknikk

1. Bruk tykk glassplate
2. Platen skal være nedkjølet, <u>men ikke så kald at den dugger</u>

3. Pulveret spatuleres porsjonsvis inn i vesken til tykk fløtekonsistens

4. (Kontroll: ved å legge flat spatel ned i sementen skal det kunne trekkes opp en sementtråd på ca. 1,5 cm)

Applisering

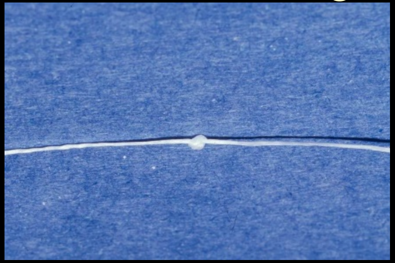
1. Appliser sementen ved å la den renne ned fra kanten uten at det oppstår luftlommer

2. Arbeidet føres på plass på pilaren(e) med et jevnt, langsomt trykk som gir sementen tid til å flyte jevnt ut
3. Når du mener kronen er på plass be pasienten kort bite sammen og spør om det kjennes riktig
4. Sementen skal stivne under et jevnt, fast trykk. Hold trykket i ca 2 min. La den videre stivning gå uten press
5. Det må ikke være tilsig av saliva under stivningsprosessen. Isoler godt med bomullsruller

Fjerning av sement-overskudd

1. Når sementen er helt herdet, fjernes overskuddet med forsiktighet
2. Vestibulært og oralt benyttes en sonde

3. Approximalt anvendes en tanntråd med knute som trekkes langs kronekanten



Kontroll

1. Sementeringsdagen kontrolleres kontakt i okklusjon og artikulasjon, og det justeres for eventuelle hevninger som følge av sementeringen
2. Benytt finkornet diamant ved justeringen og etterpoler

3. Etter en til to uker kontrolleres for eventuelle sementrester og endringer i kontaktforholdene

Sement & translusent keram

Effect of Resin Cement and Ceramic Thickness on Final Color of Laminate Veneers: An in Vitro Study

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Faculty of Dentistry, Karadeniz Technical University, Trabzon, Turkey; Faculty of Dentistry, Izmir Katip Celebi University, Izmir, Turkey

Statement of problem. Different shades of resin cements may adversely affect the final color of translucent restorations, especially thin laminates.

Purpose. The purpose of this study was to determine the effect of different types and shades of resin cement and different thicknesses and shades of IPS Empress Esthetic ceramics on the final color of laminate restorations.

Material and methods. A total of 392 disks were made with A1, A3, EO, and ET shades of IPS Empress Esthetic with 0.5-mm and 1-mm thicknesses. Two dual-polymerizable and 2 light-polymerizable resin cement systems from different manufacturers (a total of 13 shades) were selected for cementation (n=7). Similarly, with porcelain ingot shades A1 and A3, opaque and translucent shades were selected from the Rely X Veneer and Maxcem Elite cement systems. For the opaque and translucent shades of the Variolink II resin cement system, the highest and lowest (+3 and -3) and medium (0) shades of Variolink Veneer cement were included in the study. Color changes in the porcelain substructures after cementation were examined with a colorimeter, and color differences (ΔE) were calculated. The results were analyzed with Wilcoxon signed-ranks and Kruskal-Wallis tests (α=.05).

Results. The results indicated that the color of porcelain disks changed significantly after cementation (P<.001). Most of the color changes appeared after cementation with Variolink-3 Veneer in all porcelain shades. The smallest color change was obtained from Variolink II Tr in the EO shade of porcelain. The colors of the same shades of different resin cement systems were found at different coordinates in the CIE L*a*b* system. The final color difference (ΔE) of cemented veneers decreased when ceramic thickness increased.

Conclusions. The type and shade of resin cement and the thickness and shade of the ceramic all influenced the resulting optical color of laminate restorations. (J Prosthet Dent 2013;109:179-186)

Clinical Implications

The results of this study demonstrate that careful selection of resin cement is a critical factor in obtaining optimal esthetics for laminate restorations. Resin cement types and shades and porcelain thickness and shades affected delta E values.

JPD THE JOURNAL OF PROSTHETIC DENTISTRY

RESEARCH AND EDUCATION

Effect of ceramic material and resin cement systems on the color stability of laminate veneers after accelerated aging

Seong-Min Lee, DDS, MS[a] and Yu-Sung Choi, DDS, MS, PhD[b]

ABSTRACT

Statement of problem. Laminate veneers are susceptible to color change during clinical service. Studies that compare the effects of different ceramic and resin cement systems on color stability are lacking.

Purpose. The purpose of this in vitro study was to evaluate the color stability of laminate veneers after accelerated aging using different ceramic and resin cement systems.

Material and methods. Ceramic specimens (N=168; shade A1; thickness, 0.50 ±0.05 mm; diameter, 10.00 ±0.10 mm) were prepared using nanofluorapatite and lithium disilicate (high translucency [HT] to low translucency [LT]) ceramics. Light-polymerizing (LP) cements were classified by brightness (high or low). Dual-polymerizing cements were classified by composition (base-only [DB] or base-catalyst [DC]) for comparison of color stability on the basis of polymerization type. DB cement was light-polymerizing, whereas DC cement was dual-polymerizing. They were further classified by shade (transparent, white, or yellow [n=7, each]). Color difference (ΔE) values were obtained by spectrophotometric quantification of L* (lightness), a* (green-red), and b* (blue-yellow) values before and after aging. The Kruskal-Wallis, Mann-Whitney U, Wilcoxon signed rank, and Bonferroni post hoc tests were used for statistical analysis.

Results. After specimens were subjected to accelerated aging, HT ceramic specimens luted with yellow-shade DC cement exhibited the greatest color change (ΔE=2.11), whereas HT and LT ceramic specimens luted with low-brightness LP cement exhibited the least color change (ΔE=1.37). In HT ceramic specimens, which exhibited the greatest color change of the 3 ceramic types, transparent shade cement exhibited significantly lower ΔE values than the other shades with DB (P<.001) and DC cements (P=.010). High-brightness cement exhibited significantly higher ΔE values than low-brightness cement when used with NF (P=.017), HT (P<.001), and LT (P<.001) ceramics. The ΔE values of DB cement were not always lower than those of DC cement. For all specimens, the aging of laminate veneers decreased the L* values and increased the a* and b* values.

Conclusions. Ceramic and resin-cement systems affected the color stability of laminate veneers. Relative to other ceramics, HT lithium disilicate ceramics exhibited greater color changes upon aging. For HT ceramics, the use of transparent shade resin cement is recommended. The lower the brightness of resin cement, the higher the color stability of veneers. For luting of 0.5-mm-thick laminate veneers with dual-polymerizing cement, light polymerization did not yield better color stability than dual polymerization over time. (J Prosthet Dent 2018;120:99-106)

With improvements in dental ceramics and resin cements, various treatment options have become available for anterior teeth, and interest in esthetic restoration is increasing.[1] Laminate veneers provide high-quality esthetics and good clinical results.[2,3] To achieve good esthetics, color harmony between the laminate veneer and adjacent teeth is essential. Long-term color stability is essential to achieve long-term success with laminate veneers. Factors that affect their esthetics include the ceramic fabrication technique, material,[4,5] thickness of the ceramic,[6,7] shade of the resin cement, and polymerization method.[8,9] Additionally, the use of evaluation paste can predict the outcome after cementation.[10] ... and practitioners ... natural appearan... itive cementatio...

The high tr... laminate veneer...