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3M™ RelyX™ Universal Resin Cement

Collection of scientific facts

Contents

Introduction

3M™ RelyX™ Universal Resin Cement and 3M™ Scotchbond™ Universal Plus Adhesive together create a comprehensive universal resin cementation system that supports virtually all dual-cure indications. This streamlined two-component solution reduces the number of products required, minimizing the risk of procedural errors and promoting standardization for greater cost-effectiveness.

RelyX Universal Resin Cement comes in an innovative automix syringe and is available in four fluorescent shades. It provides reliable self-adhesion to dentin, enamel, zirconia and metals, which allows to solve most cases without any adhesive or primer. Combining it with Scotchbond Universal Plus Adhesive enhances adhesion across all substrates to cover indications requiring maximum bond strength and for bonding to glass ceramics. Scotchbond Universal Plus Adhesive functions as a self-etch, selective-etch, and total-etch adhesive, and serves as a universal primer for all restorative materials.

Since their introduction in 2020, RelyX Universal Resin Cement and Scotchbond Universal Plus Adhesive have garnered widespread attention from researchers globally. To date, over 90 publications—including peer-reviewed articles and conference abstracts—have investigated the performance of RelyX Universal Resin Cement. This curated compilation highlights selected studies encompassing the full spectrum of scientific evidence, from fundamental physical properties to clinical outcomes. As expected for a luting cement system, the majority of research has focused on adhesion, particularly to dentin, which remains one of the most challenging substrates in restorative dentistry.

For further information on usage of the Solventum products mentioned in this document please refer to the instructions for use: https://eifu.solventum.com/

Enjoy reading!

Number of applications and material waste

Cowen M., Powers J.M.; DENTAL ADVISOR Biomaterials Research Center, Ann Arbor, USA

Number of Automix Applications and Mixing Efficiency, Dental Advisor, Biomaterials Research Report, Number 134 – June 23, 2020

Description

This study determined the number of applications for different auto-mix resin cements and measured the amount of cement and plastic waste per application.

Key outcomes

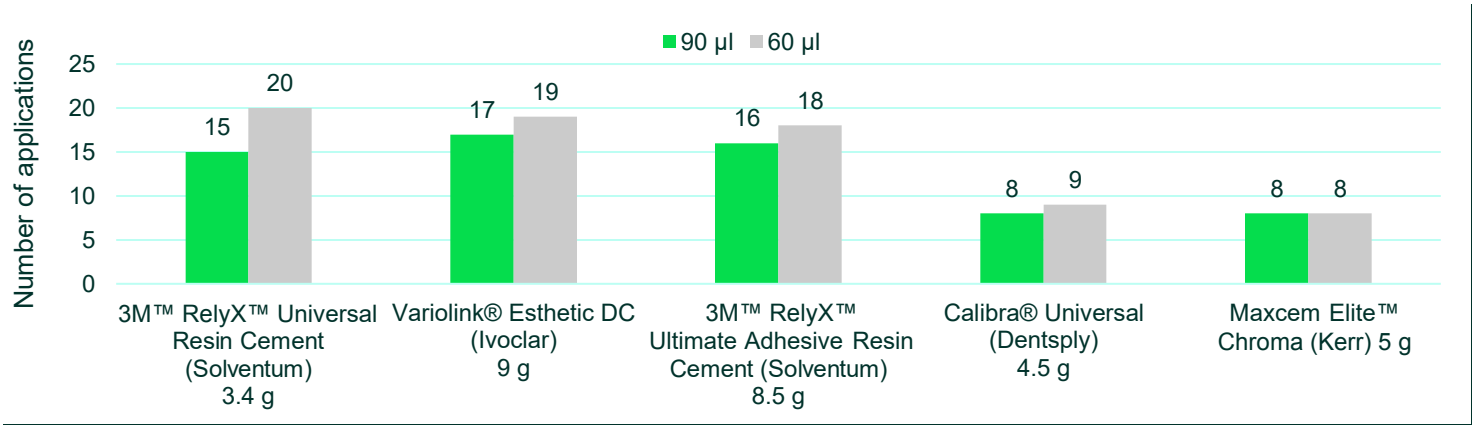


Figure 1: Number of applications per automix syringe for 90 µl application volume (median clinical application size) and 60 µl application volume (small veneer/ short crown application size)

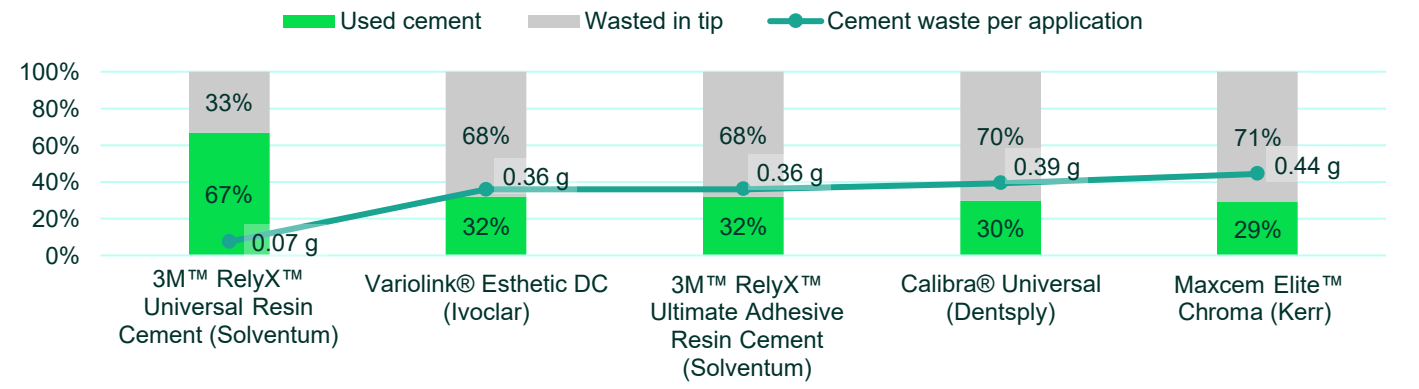


Figure 2: Amount of cement used vs. wasted in auto-mix tip.

Solventum summary

RelyX Universal Resin Cement produces 80% less cement waste and 50% less plastic waste per application compared to common automix systems. Overall, the RelyX Universal Resin Cement utilized around 67% of the packaged cement, while the next closest systems used 32%.

Degree of conversion

Zorzin J., Hoffmann E., Hadzieva Z., Lohbauer U., Boccaccini A., Belli R.; University Hospital Erlangen, Erlangen, Germany

Universal Self-Adhesive Cements - Degree of Conversion and Contact Angle; J Dent Res Vol 103 (Spec Iss B): 0145

Description

Discs of three different resin cements were prepared and either self-cured or dual-cured (with additional light-cure). The contact angle and degree of conversion were measured after 24 hours and after 60 days of storage in artificial saliva at 37°.

Key outcomes

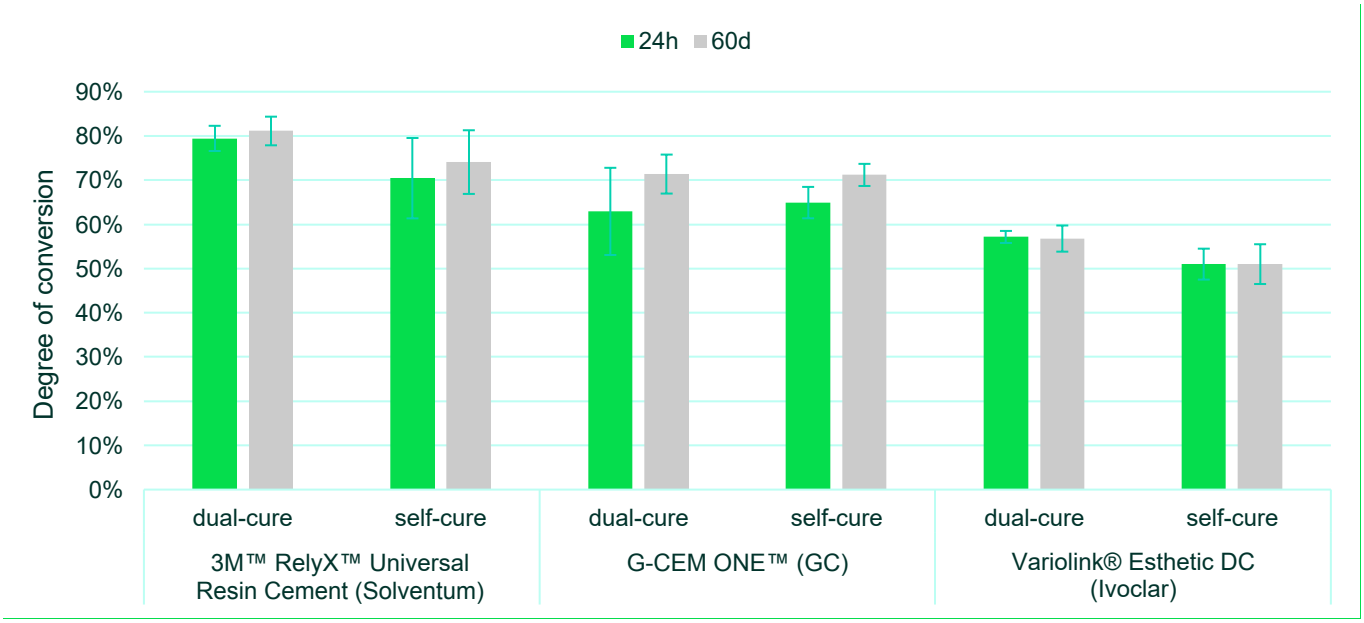


Figure 3: Degree of conversion measured by FTIR-ATR spectrometry after 24 hours and 60 days of storage in artificial saliva at 37°.

Solventum summary

The initiator systems of RelyX Universal Resin Cement enabled effective polymerization in both curing modes.

Mechanical stability in water

Chomyn C., Raia G., Mecher E., Salex M., Hoffmann H., Hecht R.; Solventum, Seefeld, Germany

Water Storage Effect on Mechanical Stability of Self-Adhesive/Universal Resin Cements; J Dent Res Vol 103 (Spec Iss B): 0025

Description

Resistance to water degradation of 3M™ RelyX™ Universal Resin Cement and 3M™ RelyX™ Unicem 2 Self-Adhesive Resin Cement was determined by flexural strength testing after 24 hours, 3-, 6- and 9-months storage in deionized water at 36°C. Both self-cure and dual-cure (with additional light-cure) modes were investigated.

Key outcomes

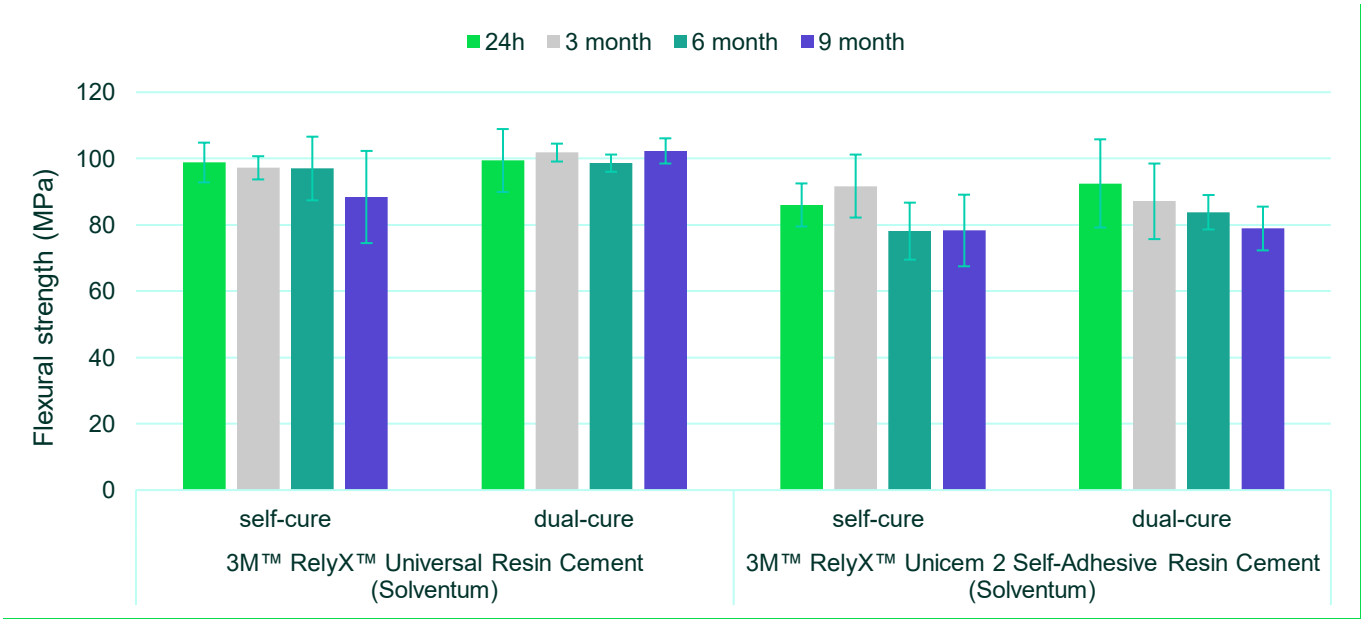


Figure 4: Mean 3-point flexural strength measured in accordance with ISO 4049: 2019.

Solventum summary

No statistically significant change in flexural strength was observed, both cements showed high mechanical stability during water storage.

Self-adhesive shear bond strength to dentin

Afutu R., Abreu M., Kugel G.; Tufts University School of Dental Medicine, Boston, United States

Shear Bond Strength and Artificial Aging of Self-adhesive Resin Cements; J Dent Res Vol 98 (Spec Iss A): 3629

Description

This study determined the shear bond strength of ten different self-adhesive resin cements to bovine dentin. Both self-cure and dual-cure (with additional light cure) modes were investigated before and after aging.

Key outcomes

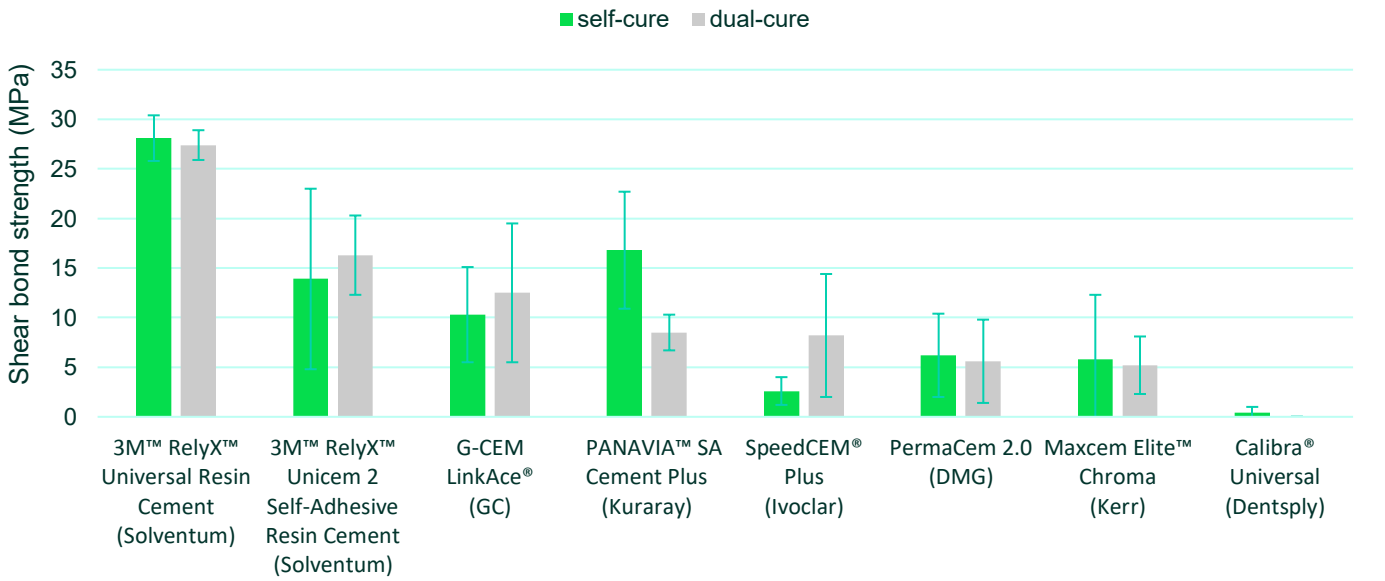


Figure 5: Shear bond strength to dentin after artificial aging by thermocycling.

Solventum summary

RelyX Universal Resin Cement (test name EXP) showed superior self-adhesive bond strength to dentin compared to the other cements tested. Bond strength of RelyX Universal Resin Cement was independent of the curing mode.

Self-adhesive tensile bond strength to dentin

Sabrosa C. [1,2,3], Geber K. [1]; [1] Clínica Odontológica Dr Sabrosa, Rio de Janeiro, Brazil; [2] Centro de Investigação Interdisciplinar Egas Moniz, Caparica, Portugal; [3] University of the State of Rio de Janeiro, Rio de Janeiro, Brazil

Tensile Bond Strength of a Novel Self-Adhesive-Resin Cement to Dentin; J Dent Res Vol 98 (Spec Iss A): 0381

Description

This study determined the tensile bond strength of seven different self-adhesive resin cements to bovine dentin. Both self-cure and dual-cure (with additional light cure) modes were investigated.

Key outcomes

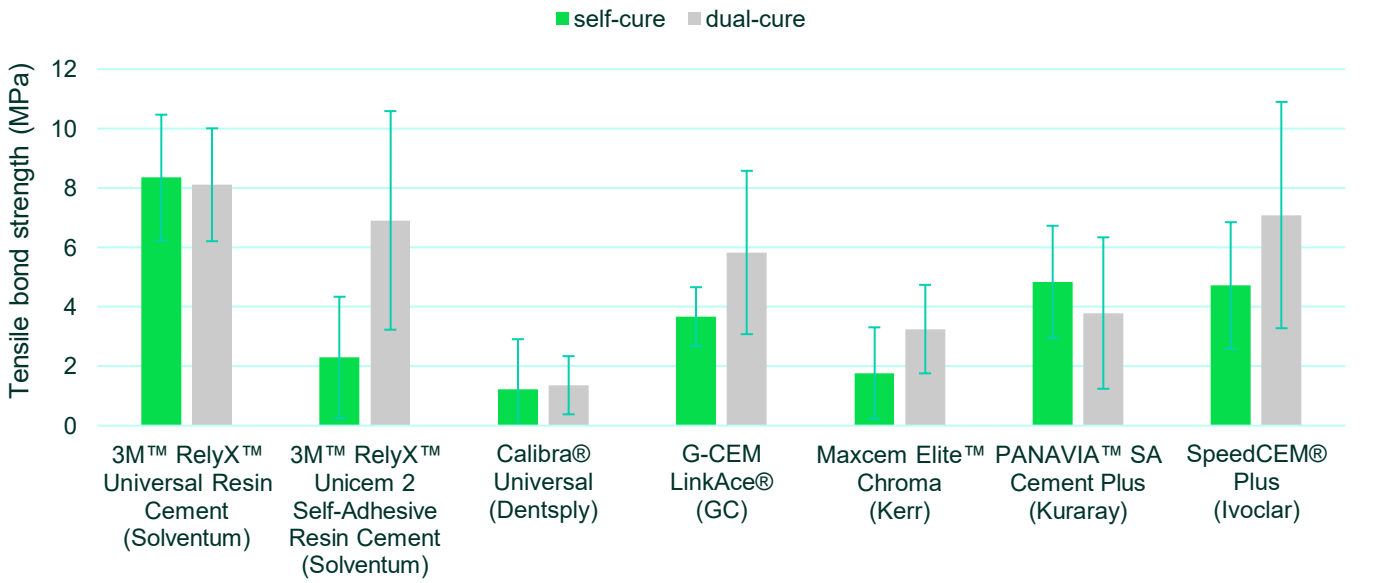


Figure 6: Tensile bond strength to dentin after 24h storage at 36°C and 100% relative humidity.

Solventum summary

RelyX Universal Resin Cement (test name experimental 3M) delivered consistently high self-adhesive tensile bond strength to dentin independent of the curing mode.

Fiber post adhesion to root dentin

Josic U.[1,2], Mazzitelli C.[1], Maravic T.[1], Comba A.[3], Mayer-Santos E.[4], Florenzano F.[1], Breschi L.[1], Mazzoni A.[1]; [1]University of Bologna, Bologna, Italy; [2]University of Belgrade, Belgrade, Serbia; [3]University of Turin, Turin, Italy; [4]University of São Paulo, São Paulo, Brazil.

Evaluation of Fiber Post Adhesion to Root Dentin Achieved with Different Composite Cements: 1-year In Vitro Results. J Adhes Dent. 2022 Mar 24;24(1):95-104.

Description

This study evaluated the push-out bond strength and interfacial nano leakage of fiber posts cemented with different resin cements and polymerization protocols. Posts were placed in endodontically treated extracted premolars. Half of the roots were sliced after 24 h, and coronal and apical push-out bond strength was determined. The other half was tested after 12 months aging in artificial saliva.

Key outcomes

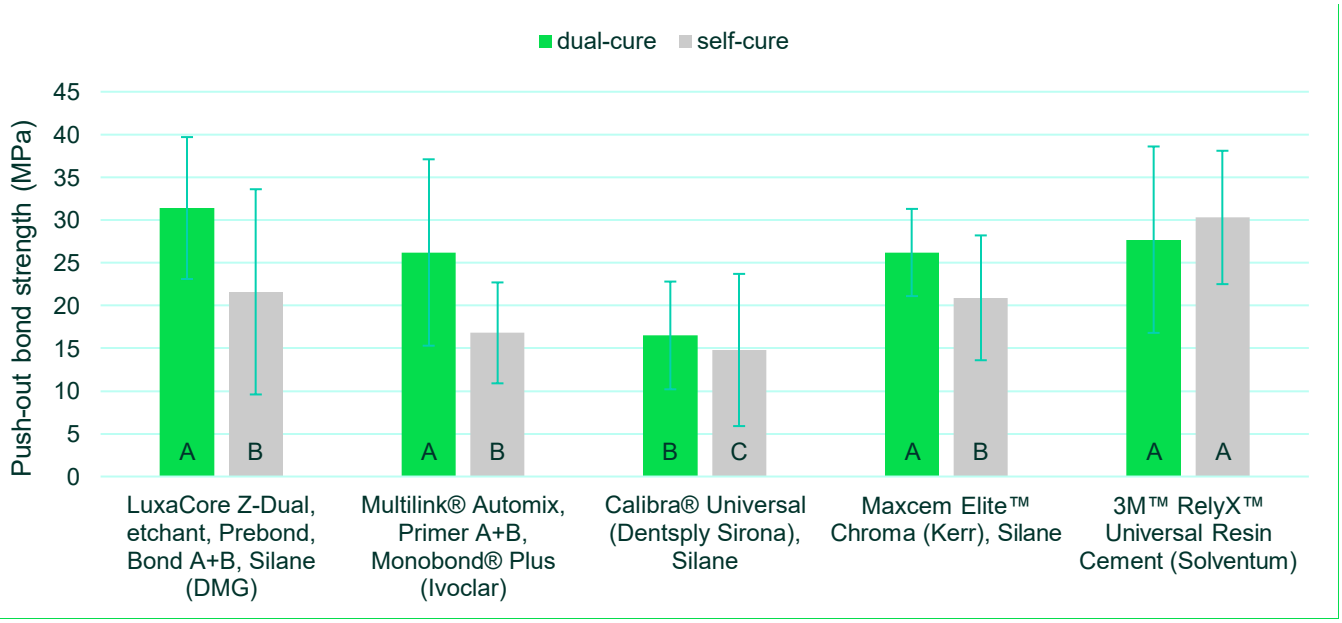


Figure 7: Push-out bond strength of fiber posts to apical root dentin after 1 year storage.

Solventum summary

3M™ RelyX™ Universal Resin Cement used in self-adhesive mode achieved bond strength values comparable to the multi-step and multi-component adhesive systems tested. For fiber posts RelyX Universal Resin Cement delivers high bond strength while saving etching, priming and bonding steps.

Shrinkage stress

Hoffmann H., Chomyn C., Mecher E., Raia G., Hecht R., Munoz A.; Solventum, Seefeld, Germany

Shrinkage Related Stress of Dual-Cure Post Cementation Materials; J Dent Res Vol 104 (Spec Iss B): 0925

Description

Wide, irregular shapes of the coronal part of root canals can lead to thicker cement layers around endodontic posts. Thicker cement layers induce a higher shrinkage stress challenging the bonding interfaces. This investigation evaluates the differences in volumetric shrinkage and shrinkage stress of 3M™ RelyX™ Universal Resin Cement compared to a dual-cure core build-up and post cementation composite.

Key outcomes

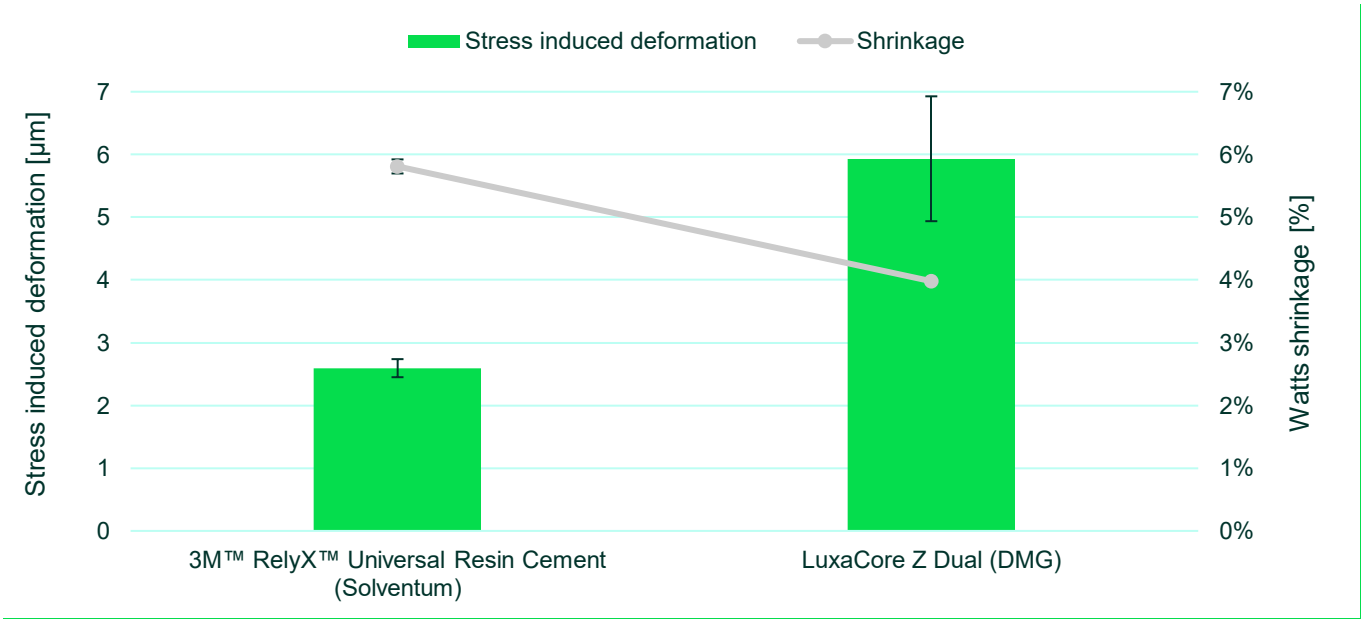


Figure 8: Stress induced deformation (left axis) and Watts shrinkage (right axis).

Solventum summary

3M™ RelyX™ Universal Resin Cement produced a significantly lower polymerization stress induced deformation than LuxaCore Z Dual despite having a higher volumetric shrinkage. This test confirmed that the polymerization induced stress is multifactorial and not solely determined by shrinkage. The established clinical history of the materials investigated suggests that the shrinkage induced stress levels observed in this test are not critical.

Influence of retraction paste on bond strength to dentin

Hoffmann H., Mecher E., Hecht R., Chomyn C., Raia G., Salex M.; Solventum, Seefeld, Germany

Impact of Retraction Paste on Universal Resin Cement Bond Strength; J Dent Res Vol 103 (Spec Iss B): 0411

Description

Blood contamination can compromise the bond strength of resin cement. Aluminum chloride ($AlCl_3$)-based retraction pastes, such as 3M™ Astringent Retraction Paste (ARP), are effective hemostatic agents but may also affect dentin bonding if accidental contamination occurs. This study evaluated the impact of ARP on the bond strength of RelyX™ Universal Resin Cement to dentin, both in self-adhesive mode and when used in combination with 3M™ Scotchbond™ Universal Plus Adhesive. ARP was applied for 2min and rinsed off with water spray for 10sec. Untreated samples served as control.

Key outcomes

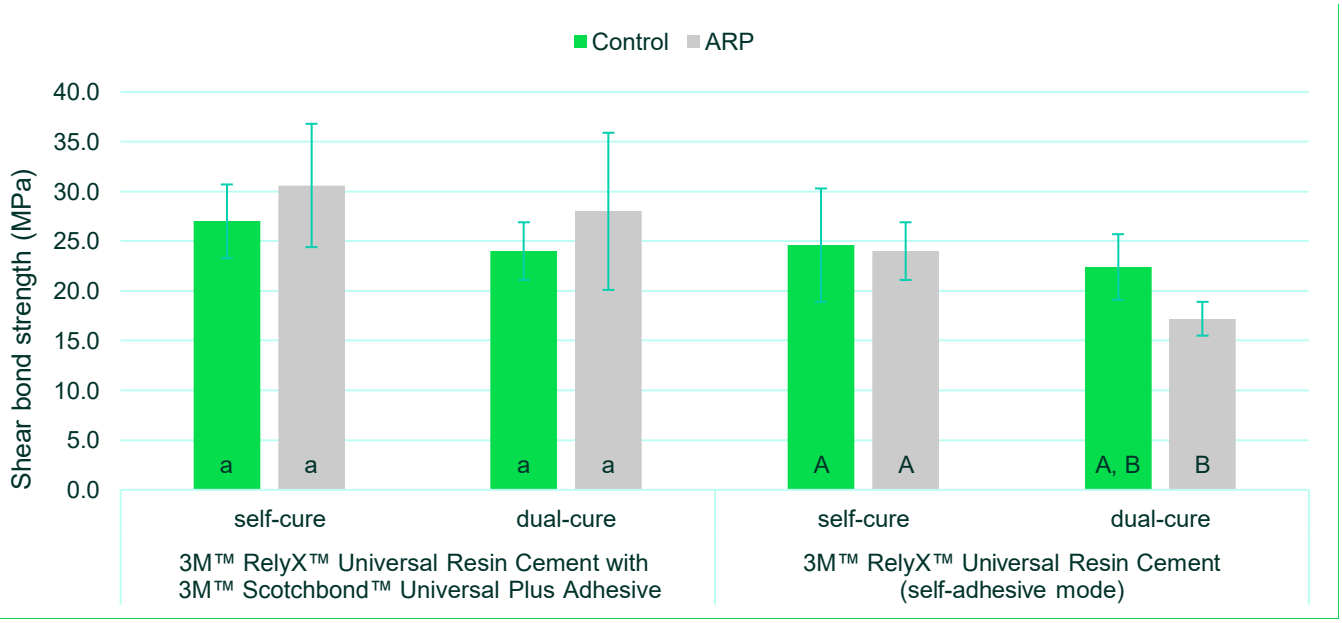


Figure 9: Shear bond strength to bovine dentin after 24 h storage at 36°C and 100% relative humidity.

Solventum summary

In this test 3M™ Astringent Retraction Paste showed no significant influence on the bond strength of RelyX Universal Resin Cement to dentin.

Shear fatigue bond strength to dentin

Takamizawa T.[1], Latta MA.[2], Barkmeier WW.[2], Ishii R.[1], Shibasaki S.[1], Kasahara Y.[1], Suzuki S.[1], Miyazaki M.[1]; [1]Nihon University, Tokyo, Japan; [2]Creighton University School of Dentistry, Omaha, USA

Universal adhesive application and curing mode affect shear bond strength and shear fatigue bond strength of self-adhesive resin luting cements to dentin. Dent Mater. 2025 Jul 8:S0109-5641(25)00701-8.

Description

This study determined the shear bond strength and the shear fatigue bond strength to human dentin for two universal and one adhesive resin cement. For the shear bond strength testing specimens were loaded to failure. For the shear fatigue test a subcritical load was applied (20 Hz sine wave) and the stress that produces 50 % failure at 50,000 cycles was determined. Both self-cure and dual-cure (with additional light cure) modes were investigated.

Key outcomes

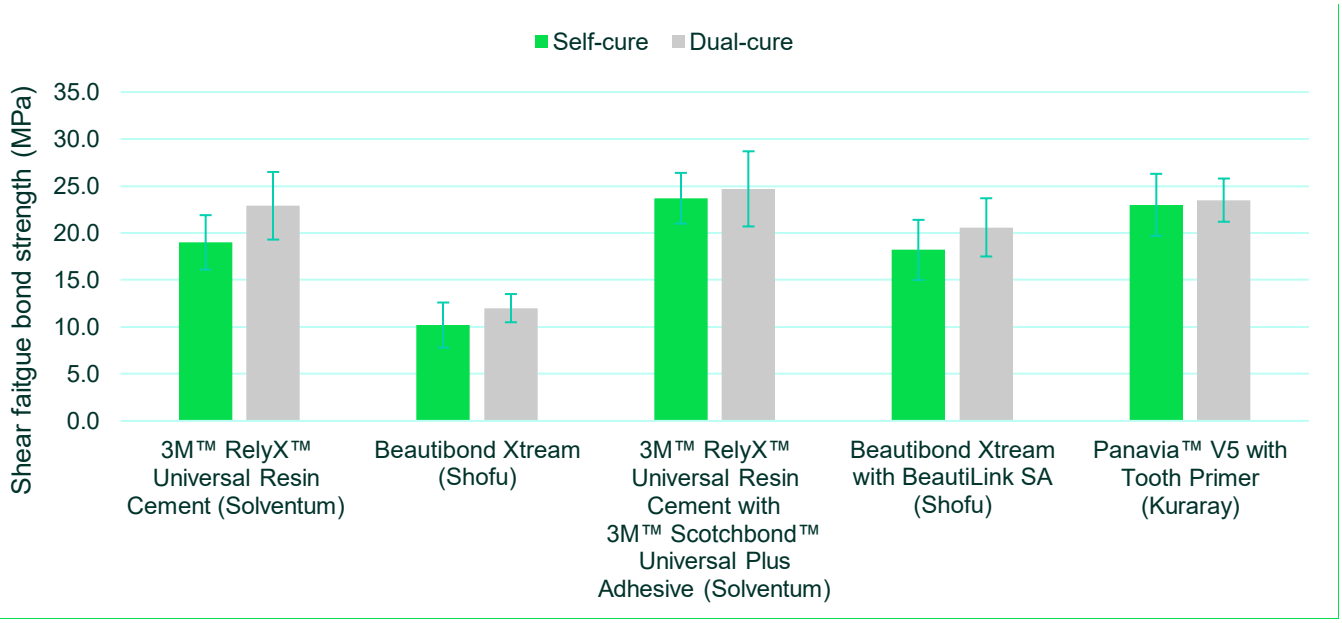


Figure 10: Shear fatigue bond strength to human dentin after 24h storage at 37°C and 100% relative humidity.

Solventum summary

RelyX Universal Resin Cement delivered higher self-adhesion to dentin compared to the other universal resin cement tested. In combination with Scotchbond Universal Plus Adhesive bond strength of RelyX Universal Resin Cement was comparable to the adhesive resin cement tested.

Bond strength to unetched and etched enamel and dentin

Watanabe S.[1], Takamizawa T.[1], Hayashi K.[1], Aoki R.[1], Barkmeier WW.[2], Latta MA.[2], Watanabe H.[3], Miyazaki M.[1]; [1]Nihon University, Tokyo, Japan; [2]Creighton University, Omaha, USA.; [3]Oregon Health & Science University, Portland, USA.

Comparing Various Resin Luting Cement Systems in Different Etching Modes Through Bond Durability and Morphological Features. Oper Dent. 2024 Mar 1;49(2):231-244.

Description

This study determined the dual-cure shear bond strength to bovine enamel and dentin with and without etching and before and after aging for several adhesive/ universal resin cements.

Key outcomes

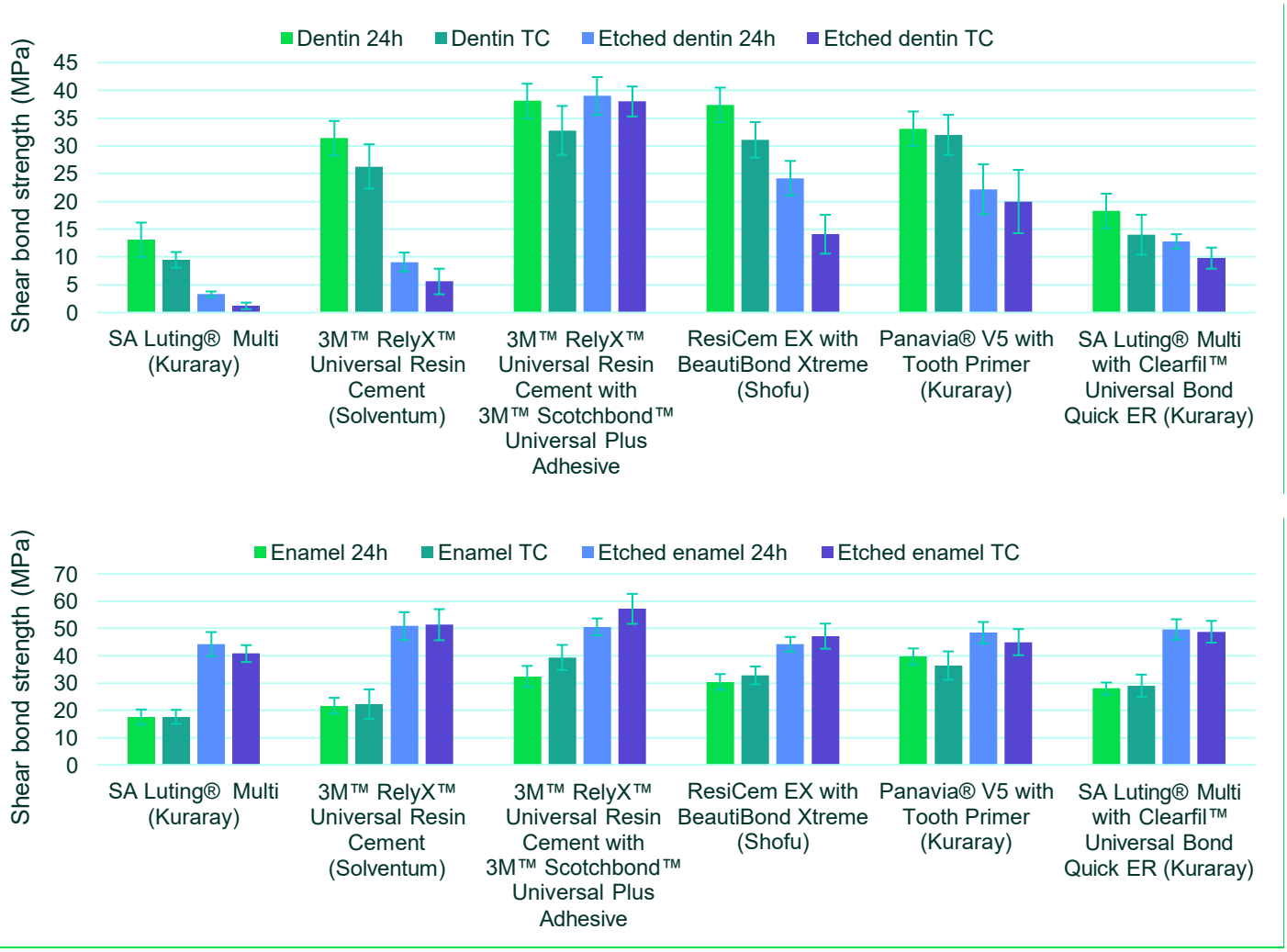


Figure 11: Dual-cure shear bond strength to dentin (top) and enamel tested after 24 hours storage (37°C, 100% relative humidity) and after artificial aging by thermocycling (10,000 cycles, 5-55°C).

Solventum summary

3M™ RelyX™ Universal Resin Cement delivered more than 2x higher bond strength to dentin compared to the other self-adhesive cement tested. Etching of dentin deteriorated bond strength of self-adhesive cements.

Usage together with Scotchbond Universal Plus Adhesive further increased the bond strength to dentin, additional etching of the dentin had no effect when using the self-etching adhesive. RelyX Universal Resin Cement with Scotchbond Universal Plus Adhesive achieved the highest bond strength values to etched dentin among the cements tested.

Using Scotchbond Universal Plus Adhesive with RelyX Universal Resin Cement increased bond strength to enamel by approximately a factor of two compared to the self-adhesive mode. Etching significantly improved bond strength to enamel. After aging Scotchbond Universal Plus Adhesive/RelyX Universal Resin Cement system achieved the highest bond strength values to etched enamel.

These results confirm the recommendations in the RelyX Universal Resin Cement instructions for use:

- High self-adhesion to dentin allows solving crown & bridge cases without adhesive
- Dentin may be etched solely when Scotchbond Universal Plus Adhesive is used subsequently; do not etch the dentin for the self-adhesive use of RelyX Universal Resin Cement.
- Enamel etching and application of Scotchbond Universal Plus Adhesive are recommended to maximize bond strength for inlays/onlays, tabletops, veneers and adhesive bridges.

Adhesive shear bond strength to enamel and dentin

Claussen K., Ludsteck M., Hader S., Hecht R.; 3M Deutschland GmbH, Seefeld, Germany

Shear Bond Strength and Ease of Use of Adhesive Resin Cements; J Dent Res Vol 99 (Spec Iss A): 2785

Description

This study determined the shear bond strength to bovine enamel and dentin for three adhesive resin cements in dual-cure mode (with additional light cure of the cement) before and after aging.

Key outcomes

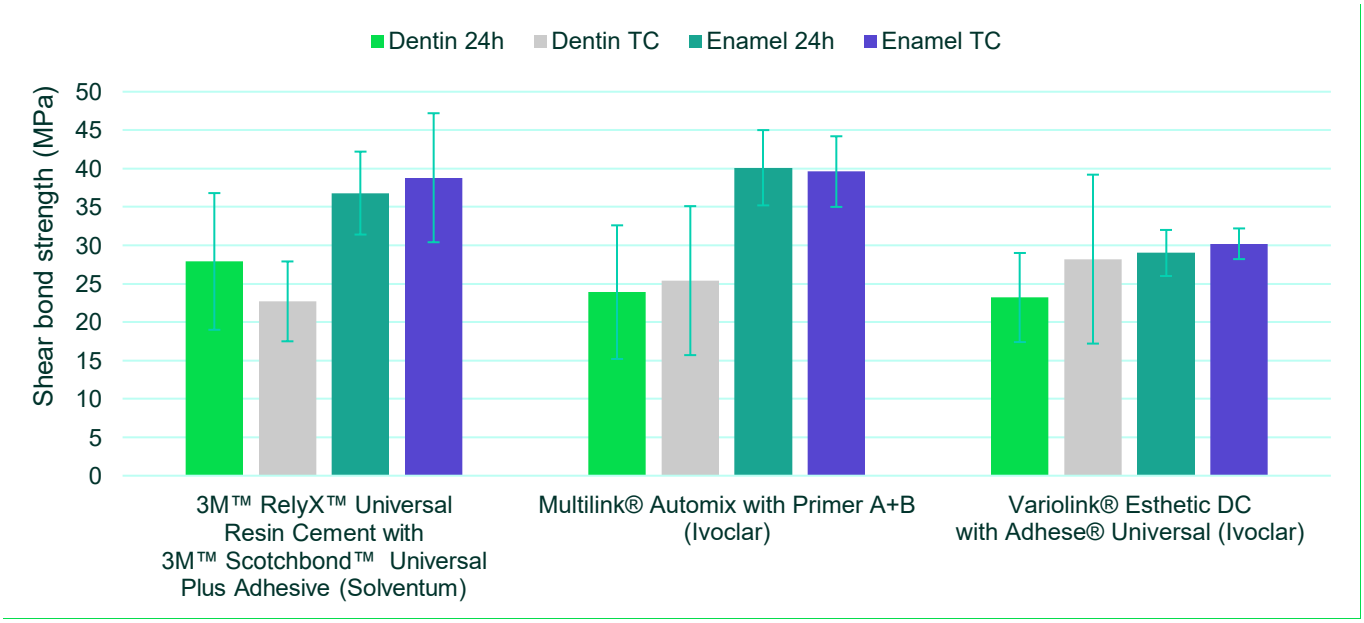


Figure 12: Dual-cure shear bond strength to dentin and enamel tested after 24 hours storage (36°C, 100% relative humidity) and after artificial aging by thermocycling (5000 cycles, 5-55°C).

Solventum summary

The combination of 3M™ RelyX™ Universal Resin Cement and 3M™ Scotchbond™ Universal Plus Adhesive (test codes EXP-C/A) provides strong adhesion to both dentin and enamel, while streamlining the procedure by eliminating the need for separate primer mixing and adhesive light-curing steps.

Shear bond strength to dentin with contact cured vs. light cured adhesive

Chomyn C., Hoffmann H., Mecher E., Raia G., Hecht R., Cabrera E.; Solventum, Seefeld, Germany

Cement Bond Strength with Contact Cured vs. Light Cured Adhesive; J Dent Res Vol 104 (Spec Iss B): 1482

Description

This study investigated the influence of different curing protocols on the shear bond strength of 3M™ RelyX™ Universal Resin Cement to etched dentin when used in combination with 3M™ Scotchbond™ Universal Plus Adhesive. The adhesive was applied according to IFU, and either light cured or contact-cured by the cement. For the cement self-cure and dual cure (with additional light cure) modes were investigated which resulted in four different curing protocols.

Key outcomes

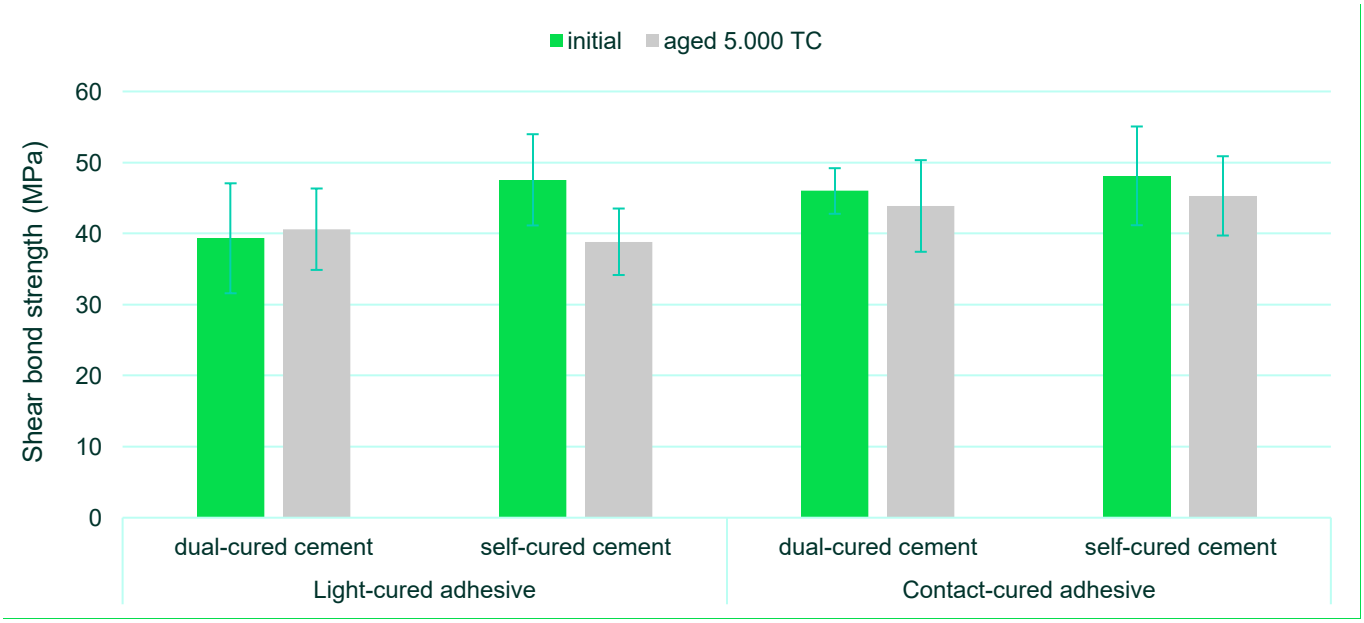


Figure 13: Shear bond strength to etched bovine dentin tested after 24 hours storage (36°C, 100% relative humidity) and after artificial aging by thermocycling (5000 cycles, 5-55°C).

Solventum summary

RelyX™ Universal Resin Cement and Scotchbond™ Universal Plus Adhesive system provides reliable bonding performance regardless of the curing protocol. RelyX Universal Resin Cement is capable of effectively contact-curing the adhesive, even through the relatively thick hybrid layer formed on etched dentin.

Shear bond strength to dentin, enamel, glass-ceramic and zirconia

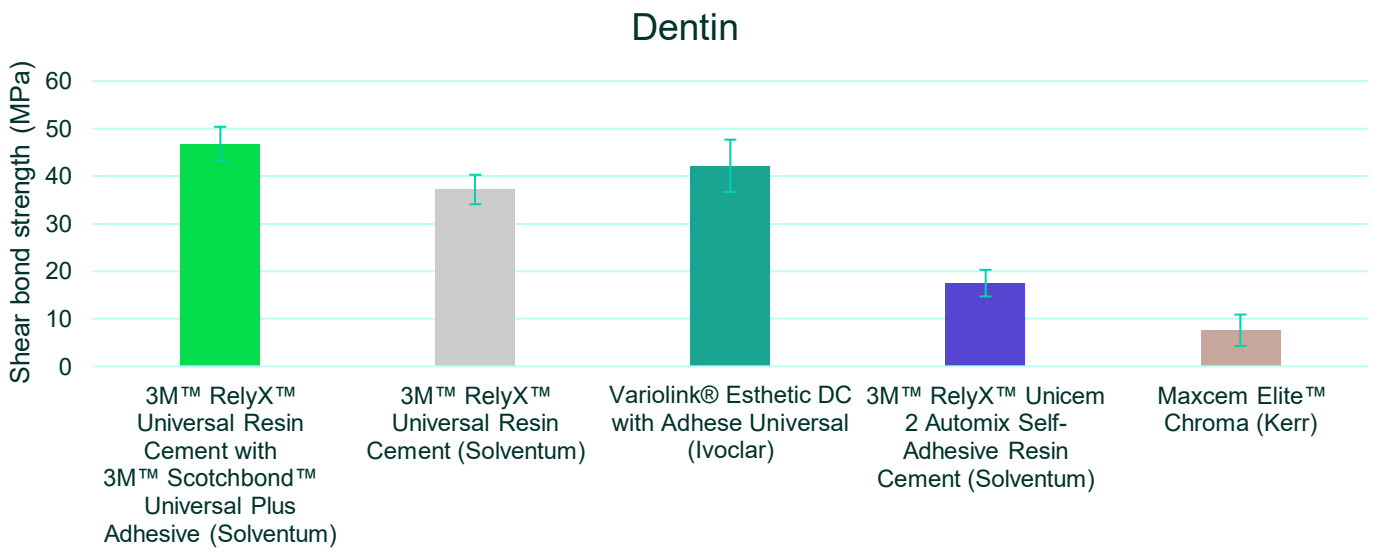
Cowen M., Powers J.M.; DENTAL ADVISOR Biomaterials Research Center, Ann Arbor, USA

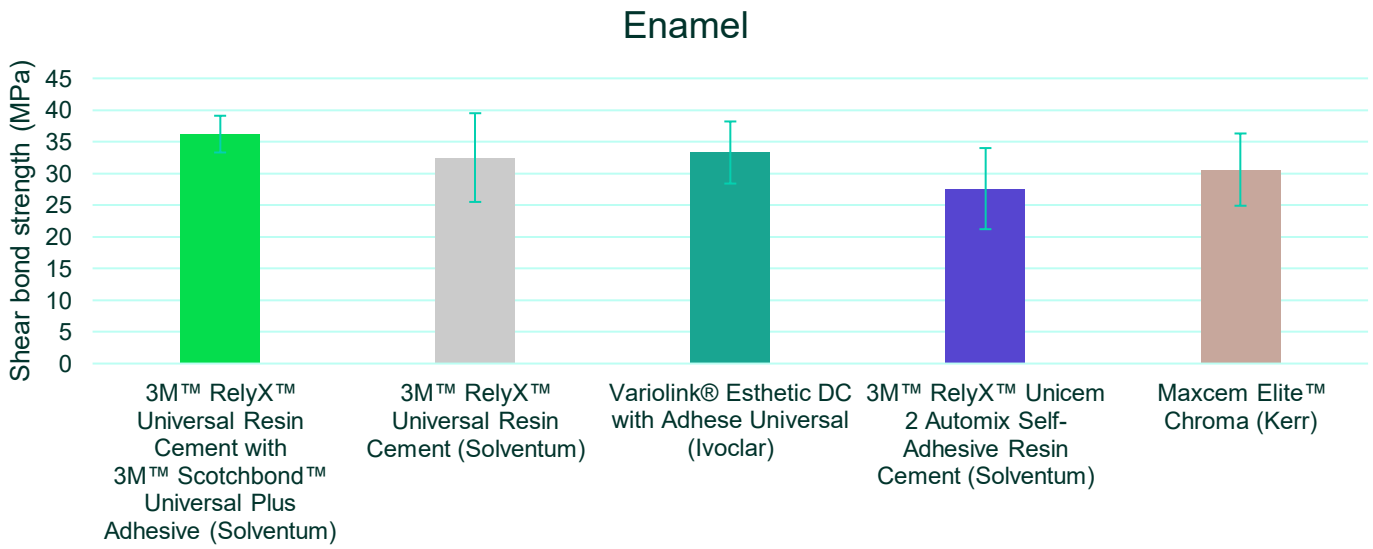
Resin Cement Bond Strength to Multiple Substrates, Dental Advisor, Biomaterials Research Report, Number 133 – July 10, 2020

Description

This study determined the self-cure shear bond strength of self-adhesive, adhesive and universal resin cement to human enamel and dentin, HF etched glass-ceramic and sandblasted zirconia.

Key outcomes





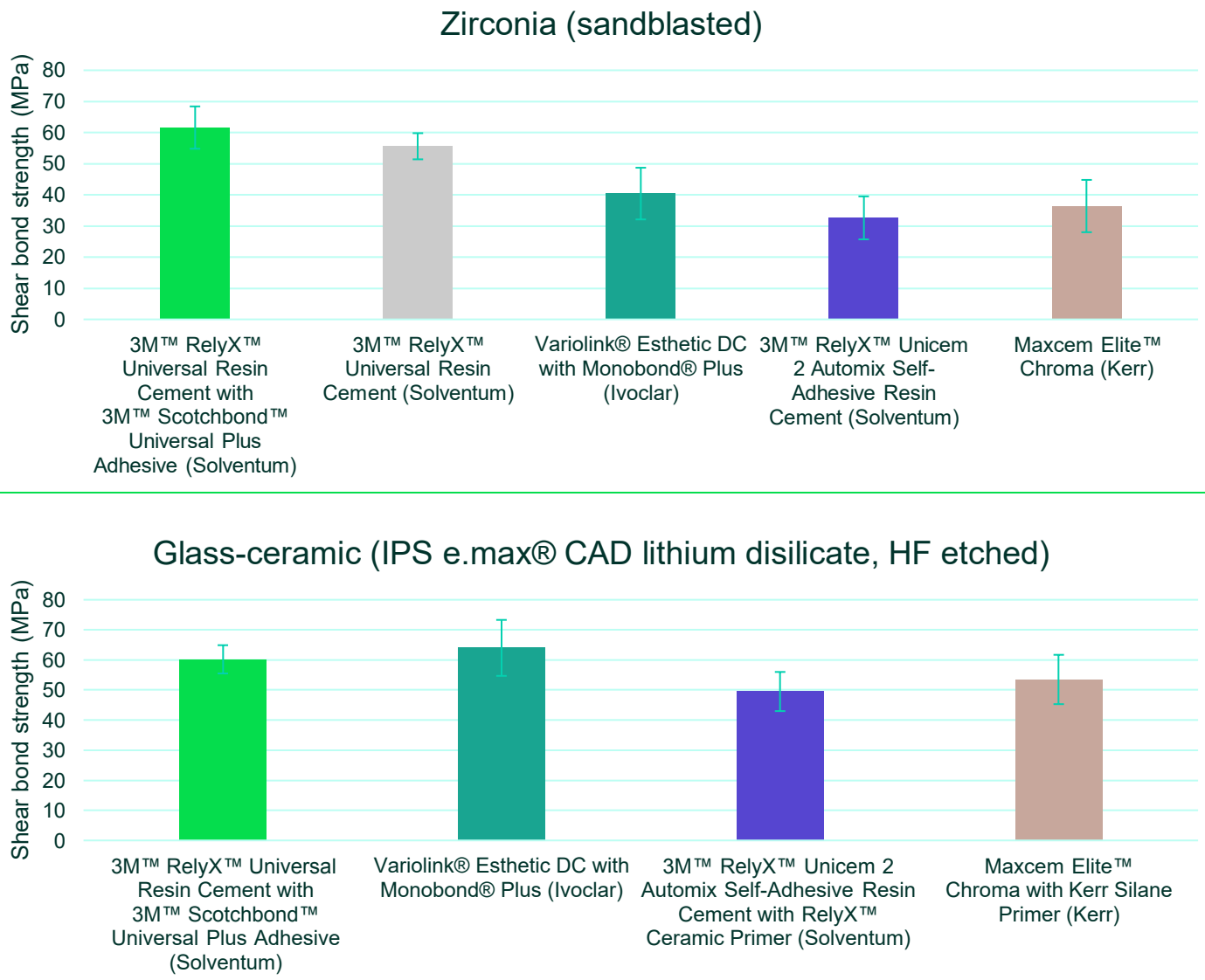


Figure 14: Self-cure shear bond strength tested after 24 hour storage in deionized water at 37°C.

Solventum summary

3M™ RelyX™ Universal Resin Cement showed higher self-adhesive bond strength to dentin and zirconia compared to the other self-adhesive resin cements reaching or surpassing the level of the adhesive resin cement tested. Combination with 3M™ Scotchbond™ Universal Plus Adhesive further increased bond strength to dentin, enamel and zirconia.

On glass-ceramic RelyX Universal Resin Cement used with Scotchbond Universal Plus Adhesive as the silane primer achieved bond strength values equivalent to the adhesive resin cement tested with a dedicated restoration primer.

Self-cure bond strength to glass ceramic

Murakami S., Hirano K., Fusejima F.; GC Corporation, Japan

Bonding Durability of Resin Cement to Lithium Disilicate Glass Ceramics, Dental Materials Vol 38 Supp 1 2022, Page e31

Description

Self-cure shear bond strength of three resin cements to lithium disilicate glass ceramic was determined. The glass ceramic was pretreated either with sandpaper or HF etched according to IFU. Two cements were used with their appropriate system primer/adhesive, one as self-adhesive cement.

Key outcomes

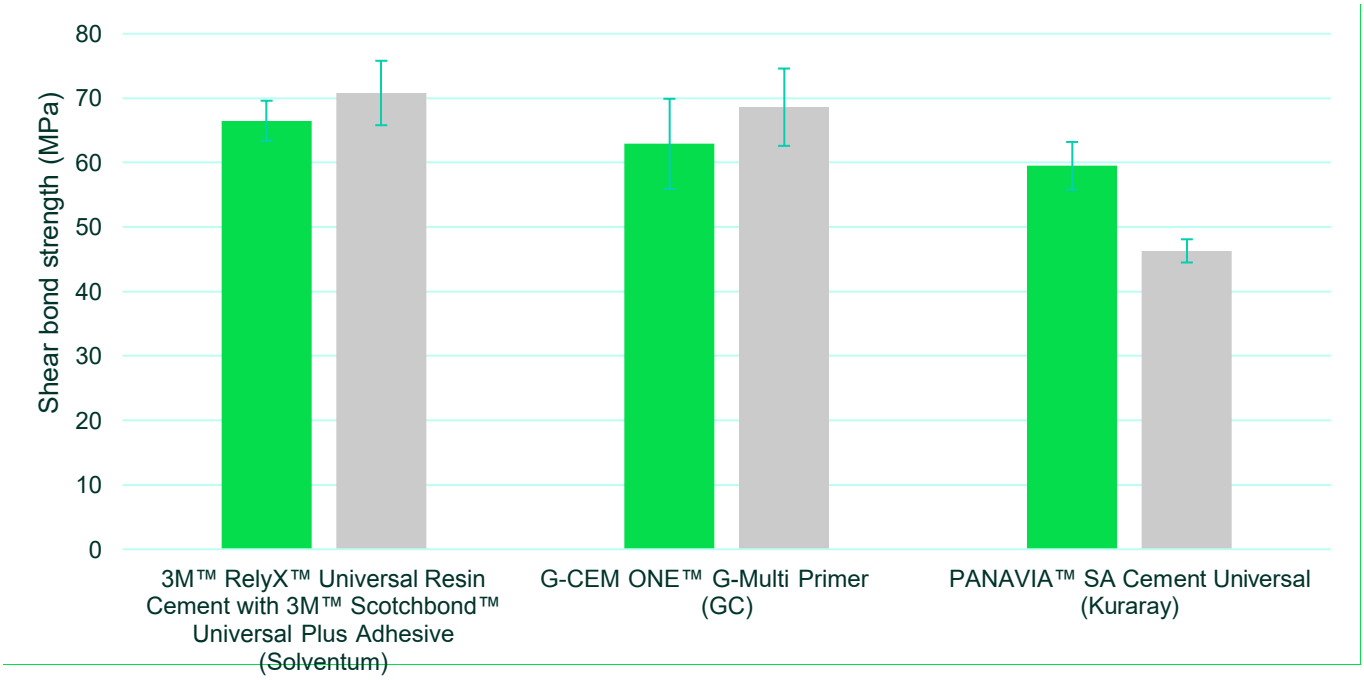


Figure 15: Self-cure shear bond strength to HF etched Initial LiSi Block (GC) after 24h storage (36°C, distilled water) and after aging by thermocycling (5000 cycles, 5-55°C).

Solventum summary

3M™ RelyX™ Universal Resin Cement with 3M™ Scotchbond™ Universal Plus Adhesive deliver high bond strength to HF etched Initial LiSi Block. Bond strength after aging by thermocycling was higher than for the self-adhesive cement with built-in silane primer.

Bond strength to zirconia

Sabrosa C.[1,2,3], Geber K.[1], Vandeweghe S.[3]; [1]Clínica Odontológica Dr Sabrosa, Rio de Janeiro, Brazil; [2]Centro de Investigação Interdisciplinar Egas Moniz, Caparica, Portugal; [3]Ghent University, Ghent, Belgium

Shear Bond Strength of a Novel Resin Cement to Zirconia; J Dent Res Vol 99 (Spec Iss A): 1838

Description

The shear bond strength of self-adhesive, adhesive, and universal resin cements to sandblasted zirconia was evaluated under both self-curing and dual-curing (with additional light cure) conditions.

Key outcomes

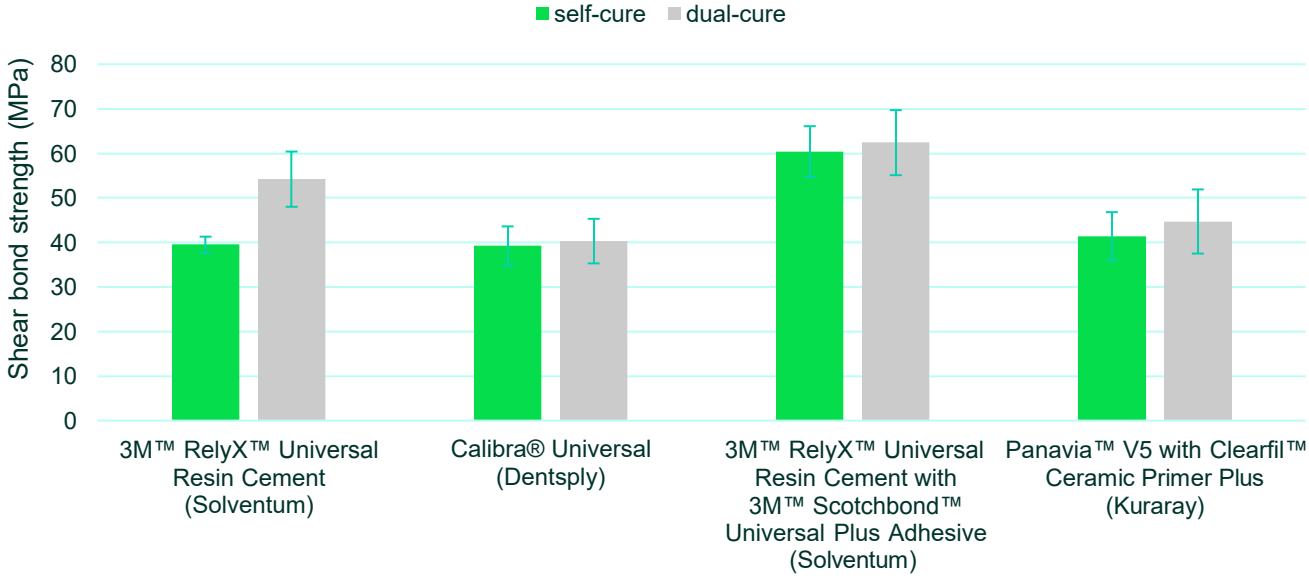


Figure 16: Shear bond strength to sandblasted zirconia tested after 24h storage at 36°C and 100% relative humidity.

Solventum summary

3M™ RelyX™ Universal Resin Cement (test name experimental cement) used as a self-adhesive resin cement delivers bond strength values to zirconia comparable to the other cements tested. In combination with 3M™ Scotchbond™ Universal Plus Adhesive (test name Experimental Adhesive) the bond strength was significantly higher than for the other cements tested.

Shear bond strength to saliva contaminated zirconia

Thalacker C., Loll H., Grupp M., Mayr H., Mecher E., Cabrera E.; Solventum, Seefeld, Germany

Different Cleaning Methods for Adhesion to Saliva Contaminated Zirconia; J Dent Res Vol 104 (Spec Iss B): 2543

Description

This study evaluated the shear bond strength of 3M™ RelyX™ Universal Resin Cement to zirconia contaminated with saliva, both in self-adhesive mode and following the application of 3M™ Scotchbond™ Universal Plus Adhesive as a primer. Additionally, the self-adhesive bond strength was assessed after cleaning the saliva contamination using three different cleaning agents.

Key outcomes

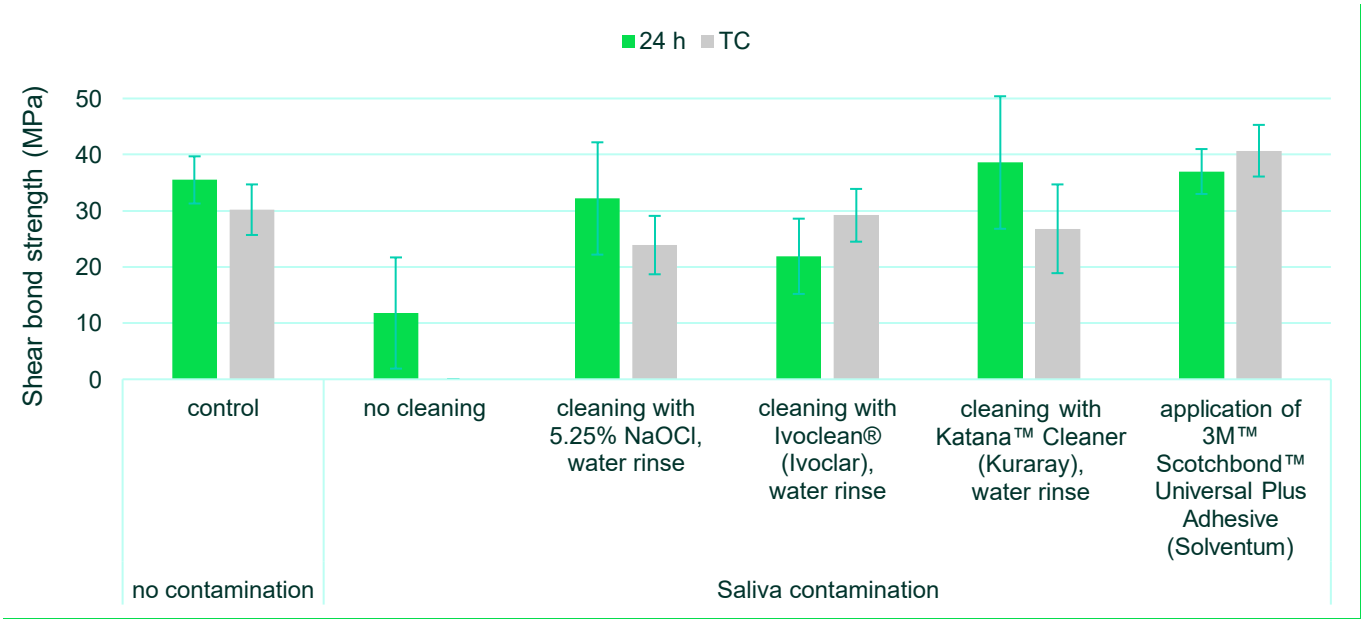


Figure 17: Self-cure shear bond strength of 3M™ RelyX™ Universal Resin Cement to sandblasted zirconia after 24h storage (36°C, 100% relative humidity) and after artificial aging by thermocycling (5000 cycles, 5-55°C).

Solventum summary

Saliva contamination deteriorates the self-adhesive bond strength to zirconia. The cleaning agents tested restored the self-adhesive bond strength to values above 20MPa. The adhesive bond strength was less affected by saliva contamination, indicating that scrubbing with Scotchbond Universal Plus Adhesive has a certain cleaning effect.

This study underlines the importance of cleaning off saliva contaminations to achieve a high bond strength to zirconia. Ideally, sandblasting of zirconia restorations should be performed after the final try-in. This approach ensures a fresh, uncontaminated bonding surface immediately prior to cementation, thereby eliminating the risk of contamination and making additional cleaning agents obsolete.

Zirconia crown retention

Lawson N., Huang C., Kwon S., Farheen F., Burgess J.; University of Alabama at Birmingham, United States

Retention of zirconia copings luted with self-adhesive resin cements; J Dent Res Vol 98 (Spec Iss A): 1321

Description

The retention strength of zirconia crowns cemented to extracted human pre-molars was determined. Teeth received standardized preparations; zirconia crowns were pre-treated by sandblasting and cemented with 6 different self-adhesive resin cements (N=10). Crown removal force was measured after ageing by thermocycling.

Key outcomes

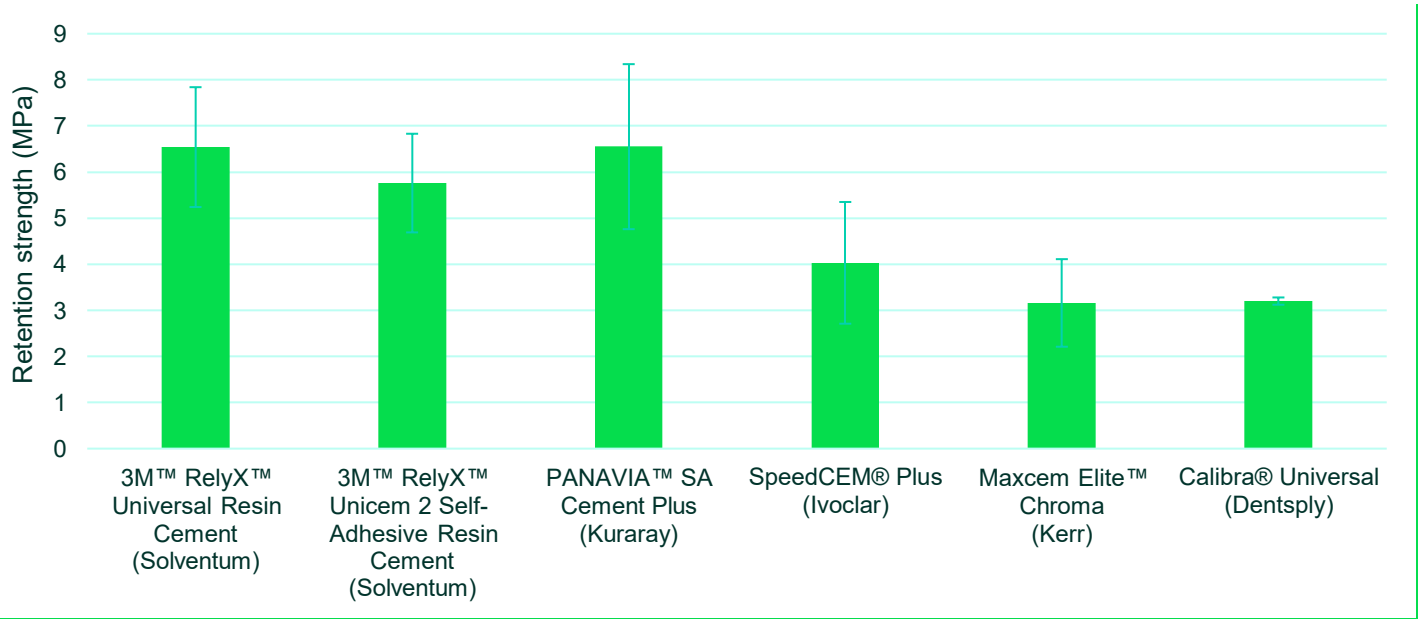


Figure 18: Retention strength of zirconia crowns cemented on human pre-molars with standardized preparations. Measured after 24 hours humid storage at 37°C followed by artificial aging by thermocycling (10,000 cycles, 5–50°C).

Solventum summary

RelyX Universal Resin Cement (test name EXP) used as a self-adhesive cement without primer showed zirconia crown retention strength equivalent to the other two self-adhesive resin cements that performed best in this test.

Bond strength to metals

Raia G., Hecht R., Salex M., Chomyn C., Mecher E.; 3M Deutschland GmbH, Seefeld, Germany

Bond Strength of Various Resin Cements to Metals; Raia G.; J Dent Res Vol 102 (Spec Iss C): 0267

Description

Self-cure shear bond strength of various resin cements to titanium, gold alloy and CoCr alloy was determined. Metal surfaces were pre-treated by sandblasting with 50 µm alumina and when applicable with the appropriate system primers/adhesives.

Key outcomes

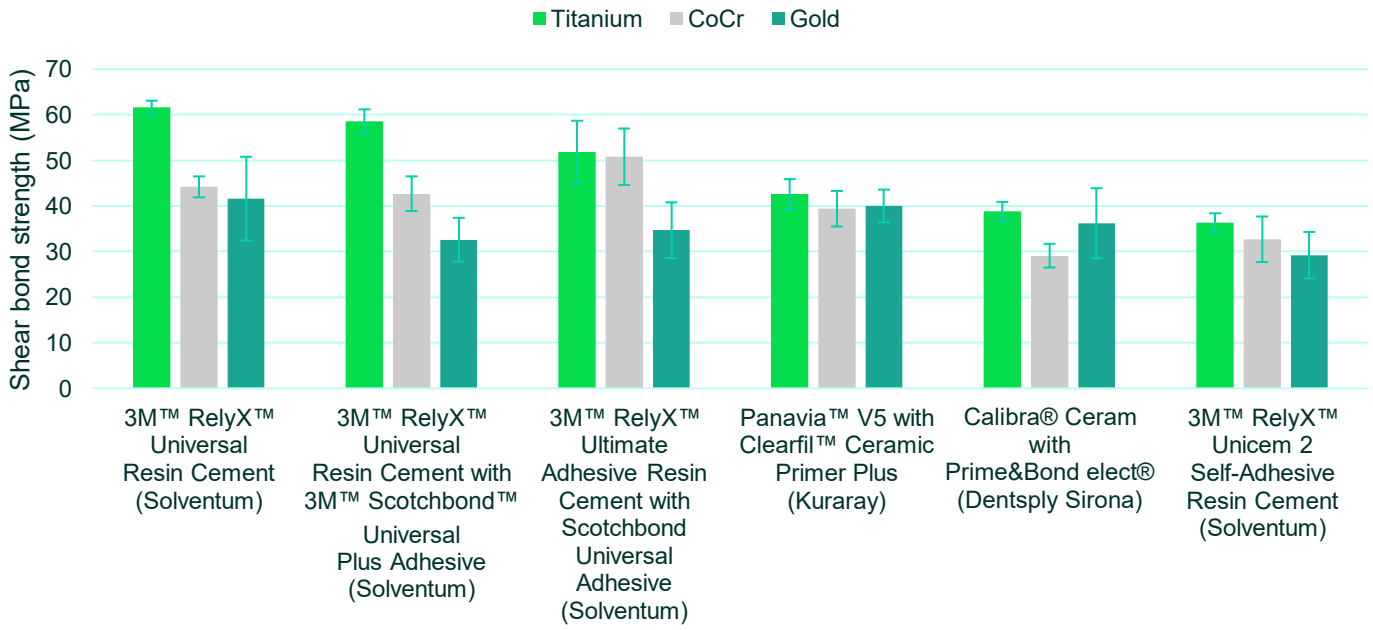


Figure 19: Self-cure shear bond strength tested after 24h storage at 36°C and 100% relative humidity.

Solventum summary

In general, all resin cements achieved high bond strength at and above 30 MPa to the metals tested. RelyX Universal Resin Cement delivered high adhesion performance with and without adhesive primer on all metals and achieved significantly higher values on Titanium compared to the other resin cements tested.

Retention of zirconia on Ti-base abutments

Sabrosa C.[1], Gerber K.[2]; [1]State University of Rio de Janeiro Dental School, Rio de Janeiro, Brazil; [2]Private Practice, Rio de Janeiro, Brazil

Effect of resin cement type and autoclaving on the retention of zirconia on Ti-base abutments, *Journal of prosthodontics*, 10.1111/jopr.70029

Description

The influence of the resin cement and of autoclaving on the retention of zirconia to Ti-base abutments was assessed in a push-out test. Bonding surface of both the titanium abutments and the zirconia buildups were sandblasted. Zirconia buildups were cemented to titanium-base abutments using 3M™ RelyX™ Universal Resin Cement as a self-adhesive resin cement and with 3M™ Scotchbond™ Universal Plus Adhesive as a primer. In addition, two adhesive resin cements were tested.

Key outcomes

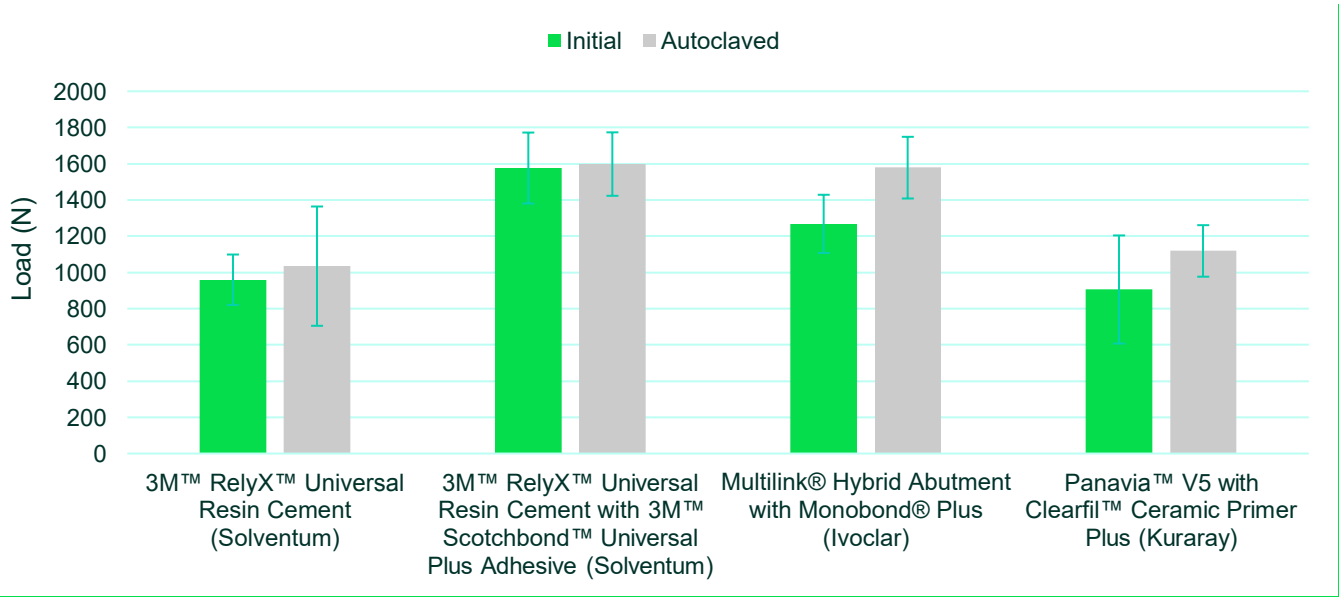


Figure 20: Push-out load tested after 24h storage at room temperature and after autoclaving.

Solventum summary

RelyX Universal Resin Cement used with Scotchbond Universal Plus Adhesive showed the highest initial retention values. Autoclaving did not have a significant influence on the push-out load. The push-out load of RelyX Universal Resin Cement used as self-adhesive cement was similar to Panavia™ V5 with primer.

Clinicians feedback in a non-interventional trial

Salex M., Hader S., Mecher E., Waldrop T., Ruetzel A.; 3M Deutschland GmbH, Seefeld, Germany

First Feedback on a New Universal Resin Cement – a Noninterventional Study; J Dent Res Vol 100 (Spec Iss A): 0922

Description

200 dentists from Europe and US received 3M™ RelyX™ Universal Resin Cement and 3M™ Scotchbond™ Universal Plus Adhesive for use in their clinical routine. After a trial period of 6-8 weeks feedback was collected via a web-based survey. 123 participants completed the questionnaire, they reported 3,806 restorations, 62% placed in adhesive mode, 38% in self-adhesive mode.

Key outcomes

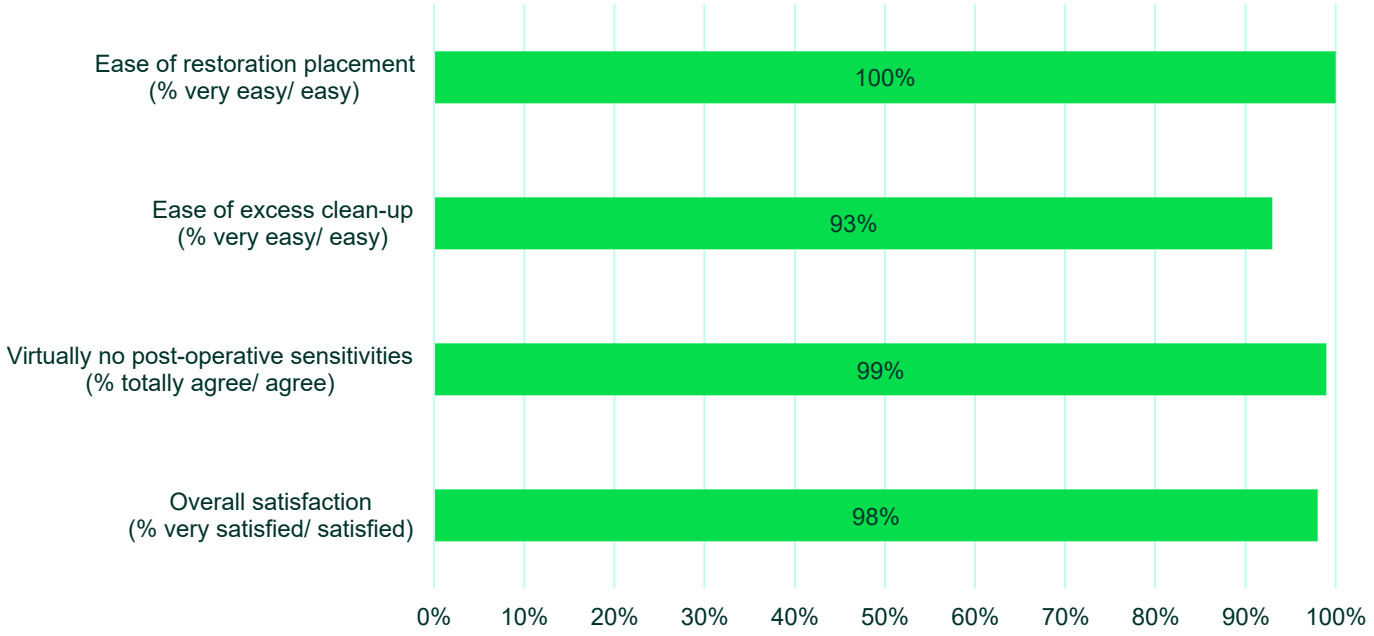


Figure 21: Selected responses from the survey. Questions were based on a 5-level even-point scale, numbers reflect top 2 ratings.

Solventum summary

Satisfaction with 3M™ RelyX™ Universal Resin Cement with 3M™ Scotchbond™ Universal Plus Adhesive was rated very high and better than current preferred resin cements.

Practice-based evaluation

Sands P.[1], Crisp R.[2], Thompson O.[3], Burke T.[1]; [1]School of Dentistry, University of Birmingham, UK; [2]PREP Panel Ltd. Beaconsfield, UK; [3]General Dental Practitioner, Coleraine, UK.

A Practice-based Evaluation of a Novel Resin Luting Material and Dentine Bonding Agent; Dental Update 2025 48:1, 34-40

Description

Eleven members of the PREP panel, a UK-based group of practice-based researchers, were randomly selected to evaluate 3M™ RelyX™ Universal Resin Cement and 3M™ Scotchbond™ Universal Plus Adhesive for use in their daily practice. After a trial period of 10 weeks feedback was collected via a survey. 10 participants completed the questionnaire, they reported 217 restorations, 64% placed in adhesive mode, 36% in self-adhesive mode.

Key outcomes

None of the evaluators reported any postoperative sensitivity

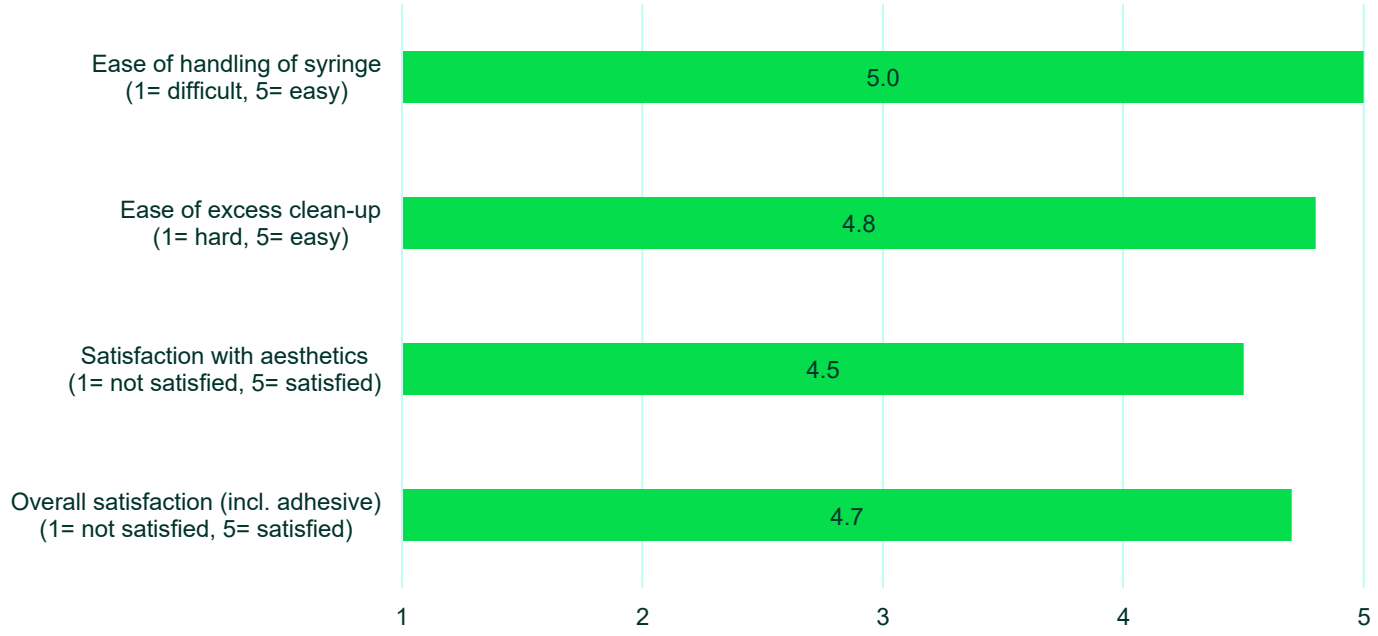


Figure 22: Selected responses from the survey. Questions were based on a 5-level even-point scale, numbers reflect average ratings.

Solventum summary

The results from the questionnaire indicated strong acceptance of the ease of use of the materials. 3M™ RelyX™ Universal Resin Cement syringe was found to reduce waste, the cement was of ideal viscosity, and the design of the mixing tips and easier clean up were particularly noteworthy. The investigators also appreciated that the same cement could cover adhesive and self-adhesive indications.

Clinical evaluation report

The Dental Advisor, Ann Arbor, USA.

Clinical evaluation 3M™ RelyX™ Universal Resin Cement, The Dental Advisor

Description

Twelve US based clinical evaluators placed 425 restorations with 3M™ RelyX™ Universal Resin Cement, in both adhesive- and self-adhesive mode. For restorations requiring a bonding agent, 3M™ Scotchbond™ Universal Plus Adhesive was used. Feedback was collected with a survey.

Key outcomes

The RelyX™ Universal Resin Cement / Scotchbond Universal Plus Adhesive universal cementation system received a 99% evaluator rating, 100% noted they would recommend to a colleague.

Figure 23: Average rating of key attributes of RelyX Universal Resin Cement on a five-point scale (1= poor, 2= fair, 3= good, 4= very good, 5= excellent).

Solventum summary

Handling of RelyX Universal Resin Cement / Scotchbond Universal Plus Adhesive universal cementation system was rated very favorable by the Dental Advisor clinical evaluators.

Economic and efficiency impact – 1 year follow-up

The Dental Advisor, Ann Arbor, USA.

Economic and efficiency impact survey, The Dental Advisor

Description

A 1-year follow-up was conducted with 30 US based clinical evaluators of 3M™ Scotchbond™ Universal Plus Adhesive and 3M™ RelyX™ Universal Resin Cement to determine the economic and efficiency impacts of integrating these materials into their dental practices.

Key outcomes

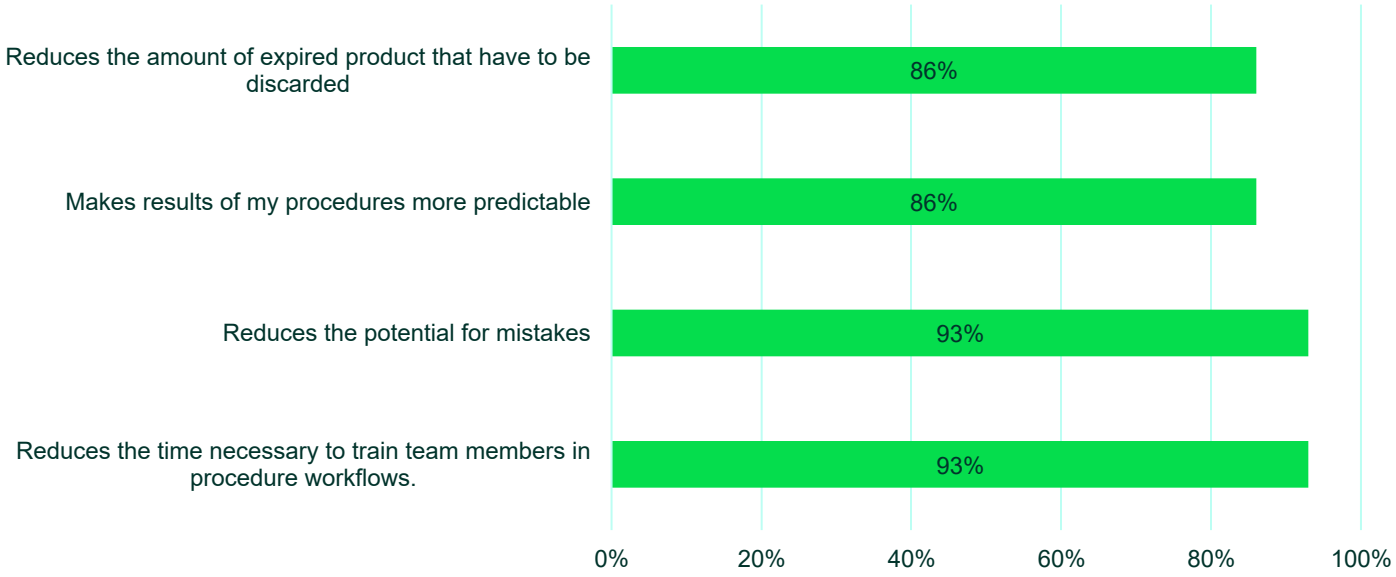


Figure 24: Selected responses from the survey. Numbers indicate percentage of agreement.

Solventum summary

RelyX Universal Resin Cement and Scotchbond Universal Plus Adhesive, both individually and as a combined solution, improved practice efficiency by reducing mistakes, simplifying team training and streamlining workflows.

2-year retrospective clinical evaluation report

The Dental Advisor, Ann Arbor, USA.

2-year retrospective report 3M™ RelyX™ Universal Resin Cement with 3M™ Scotchbond™ Universal Plus Adhesive, The Dental Advisor

Description

During a 24-month period, 636 restorations were cemented with 3M™ RelyX™ Universal Resin Cement, in both adhesive- and self-adhesive mode. For restorations requiring a bonding agent, 3M™ Scotchbond™ Universal Plus Adhesive was used. The restorations included mostly crowns (anterior and posterior) and veneers, followed by implant crowns, bridges, and a few fiber posts. The vast majority were lithium disilicate glass ceramic and zirconia restorations. 452 restorations were one- to two- years old and available for recall.

Key outcomes

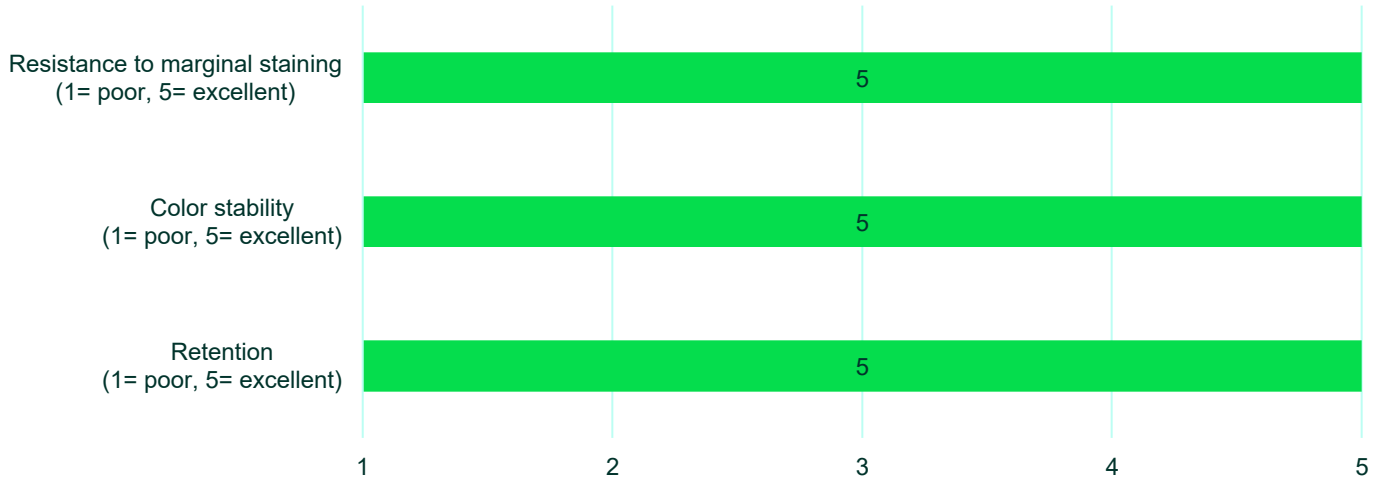


Figure 25: Average ratings of retention, color stability and resistance to marginal staining.

Retention was excellent. All restorations remained intact, with no debonds occurring over the two-year period. Color stability rated excellent as well. Initial shades remained stable, and restorations looked very natural. No shade shift or greying of restorations over time were reported. Resistance to marginal staining was rated excellent. All restorations were observed to have smooth margins with no visible stain, indicating no marginal leakage at the tooth/restorative interface.

Solventum summary

The RelyX™ Universal Resin Cement with Scotchbond Universal Plus Adhesive as a universal cementation system received a 100% clinical performance rating from the Dental Advisor clinical evaluators.

3-year prospective clinical study

Güth J.-F., Keul C., Liebermann A., Schubert O.; Ludwig-Maximilian-University, Munich, Germany.

Clinical Performance of 3M™ Lava™ Esthetic Fluorescent Full-Contour Zirconia bridges seated with 3M™ RelyX™ Universal Resin Cement; 3-year Study Report

Description

The purpose of this prospective clinical trial was to assess the survival-rate of posterior monolithic 3-unit bridges made from 3M™ Lava™ Esthetic Fluorescent Full-Contour Zirconia seated with 3M™ RelyX™ Universal Resin Cement in a self-adhesive protocol. The primary objective of the study was to evaluate the survival rate of the restorations. The secondary objective was to evaluate the restoration quality per modified FDI criteria. Additionally, operator and patient satisfaction were determined via questionnaires.

Key outcomes

100%	0	0	0
Survival rate	**fractures, chipping**	**secondary caries**	**loss of retention**

21 of 22 patients were examined at the 3-year follow-up. Survival was 100%. No device deficiencies were reported. No fractures, chipping, secondary caries or loss of retention were observed. All FDI criteria were rated clinically acceptable.

Three not serious adverse events occurred requiring treatment (endo, occlusal adjustment, filling). After treatment patients were without symptoms and the FDPs remained in service.

Patients rated esthetics, speaking, chewing and wear comfort as “very good”. Overall patient satisfaction was rated “very satisfied”. 14 patients reported no hypersensitivity at all, four patients reported minor hypersensitivity for a limited period. Four patients reported moderate hypersensitivity, however no subject complaints were reported. Considering that the treatments were replacements due to secondary caries or marginal insufficiency, and that cementation occurred on rather invasive pre-existing preparations, these findings were assessed to be in a regular range.

Both operators rated satisfaction with the cementation of the bridge as “very satisfied”. Especially the ease of excess cleanup was seen as significantly enhanced versus previous products.

Solventum summary

This study confirms that RelyX™ Universal Resin Cement is a viable solution for cementation of zirconia bridges in the simple self-adhesive protocol, i.e., without any zirconia primer or tooth adhesive.