UPDATED INFORMATION!

Cerinate® Porcelain and Ultra-Bond® Dual-Cure Luting Agent Research Reference Guide

1. Ibsen, R.L., Weinberg, S., "A Conservative and Painless Approach to Anterior and Posterior Aesthetic Restorative Dentistry", Dentistry Today, July 2006.

   By revitalizing the unattractive porcelain-metal crown on tooth No. 8 and placing conservative LUMINEERS® and a Hugger Bridge, the patient received the smile he always wanted. With no injections and very minimal tooth modification, this former dentist-phobic patient was amazed at how pain-free and easy the entire procedure was. He said that his faith in the dental profession had been renewed. The final result was a pleased patient whose smile had been restored in a minimally invasive manner.

2. The Dental Advisor., "LUMINEERS® BY CERINATE®", Volume 23, Number 3, April 2006.

   THE DENTAL ADVISOR ★★★★★ Editors' Choice

   One hundred fifty-six Cerinate porcelain restorations were placed in 35 patients. These included 34 anterior crowns and 122 veneers. The veneers were placed by both the minimal preparation technique and by conventional techniques. Restorations were rated for a period of up to 30 months and on a 1 to 5 rating scale. Clinical consultants awarded the best rating of 5 stars (excellent). Comments from the consultants included "A perfect solution for peg laterals," "Combination cases of crowns and veneers look fantastic," and "Beautiful esthetics".

3. Weinberg, S., "What We Do for the Ones We Love", DentalTown, 7(4):72, April, 2006.

   The concept of a natural tendency to prefer conservative treatment procedures for loved ones is asserted. A clinical case history is described in which a dentist treats his son with LUMINEERS because natural tooth structure is preserved. The dentist and the son expected the cosmetic result to be a compromise, but were elated because the cosmetic results were truly excellent. Before and after pictures of the patient are provided to illustrate the highly successful results.

4. Ciancio, S.G.(Editor), "Evidence-Based Veneers: LUMINEERS", Biological Therapies in Dentistry, 21(2):5, April/May, 2006.

   A review of studies on porcelain veneers is provided. The results of the studies summarized are very supportive of the LUMINEERS concept, which is based on minimal preparation, or no preparation, of the teeth.

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5. CRA Newsletter. Volume 30, Issue 3, March, 2006. "Upper Anterior Veneers - State of the Art (Part 2)".

   Cementation techniques are described for various types of tooth preparations for veneers ranging from preparations all on enamel to preparations with more than 50% dentin. Ultra-Bond® Plus was rated "excellent" (the highest rating) for color match, was found to have no color change at one week, had the highest flowability (56mm) and was among the lowest in film thickness.

6. Shuman, I.E., "Simplified Restorative Correction of the Dentition Using Contact Lens-Thin Porcelain Veneers" Dentistry Today, 25(1):88, January, 2006.

   The advantages of the conservative Cerinate LUMINEERS approach to porcelain veneers is presented. Among the advantages are preservation of natural tooth structure, no need for anesthesia, no need for temporaries, virtually no possibility for postoperative sequalae, and impressive results with a procedure that is simple and expedient. Three clinical case reports are presented: one to treat excessive wear from bruxism, one to treat misaligned teeth and tetracycline stains, and one to treat misaligned teeth and fluorosis. Details of the treatment procedures are presented. All three cases required only minimal recontouring of the teeth and the results were completely successful.

7. Magne, P., Belser, U., "Novel porcelain laminate preparation approach driven by a diagnostic mock-up", Private Dentistry, 10(9):69, November, 2005.

   The complexities and time consuming nature of preparing teeth for porcelain veneers are presented. The advantages of a technique with no tooth preparation or only minimal tooth preparation are inherent in the text of this article.

8. Cattell, M.J., Chadwick, T.C., Knowles, J.C., Clarke, R.L., Samarawickrama, D.Y.D., "The nucleation and crystallization of fine grained leucite glass-ceramics for dental applications", Dental Materials [Article in Press].

   The effects of substrate particle size and heat treatment on the nucleation and growth of leucite crystals in an aluminous silicate glass ceramic are presented. Crystal size, distribution, and volume fraction of the leucite crystals are the dependent variables that were measured. The research elucidated a methodology to produce a high volume fraction of uniformly distributed ultra fine leucite crystals in a glass ceramic. This technology is important for optimizing the properties of dental porcelain.

9. Shuman, I.E., "Simplified Try-In and Cementation of LUMINEERS Veneers", Dental Products Report, 39(10):134, October, 2005.

   A clinical case report is described with emphasis on the detailed step-by-step procedures for try-in and final cementation of LUMINEERS porcelain veneers

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using Ultra-Bond® Plus resin. Figures are provided to show the principle steps of the procedure along with the "before" condition of the patient, and the very impressive "after" results.

10. Christensen, G. J., "Ask Dr. Christensen", Dental Economics, 95(9):144, September, 2005.

    Treatment options are discussed for a teenager with some discoloration and pitting of the enamel of the maxillary anterior teeth. Deeply cut tooth preparations for porcelain veneers are not recommended especially because of the likelihood of causing pulpal sensitivity or pulpal necrosis in a young person. Suggested alternatives are bleaching with micro abrasion, composite resin veneers, or porcelain veneers with minimal tooth preparation or no tooth preparation as recommended in accordance with the Den-Mat® LUMINEERS concept.

11. Christensen, G. J., "Ask Dr. Christensen", Dental Economics, 95(8):82, August, 2005.

    The merits of minimal tooth preparation or no tooth preparation for porcelain veneers in comparison to deep preparation into dentin are discussed. Among the advantages are the avoidance of tooth sensitivity and the avoidance of debonding of the veneers, as well as no need for anesthesia and no need for temporaries. Accordingly, the procedure is easier, faster, and better for both the patient and the dentist.

12. The Dental Advisor. "Clinical Evaluations," Volume 22, Number 4, May 2005.

THE DENTAL ADVISOR
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Editors' Choice

    Clinical consultants gave LUMINEERS BY CERINATE a 5-plus award as well as Editor's Choice for ninety-five restorations that were placed and evaluated at insertion in 25 patients. Comments include, "100% of restorations received from the laboratory were rated very good to excellent;" "All restorations fabricated exhibited excellent esthetics."

13. Strassler, H.E. and Ibsen, R.L., "Improving Smiles Without Removing Sensitive Tooth Structure," Contemporary Esthetics and Restorative Practice, March 2005.

    This article reviews the author's case study of 30 patients with a total of 167 LUMINEERS BY CERINATE for almost 20 years. The evolution of porcelain veneers is discussed, from those requiring traditional extensive prepping to today's non-prep LUMINEERS, made possible with patented Cerinate Porcelain. Step-by-step LUMINEERS Placement is explained in detail and several case examples are shown. Results of the authors' study at 20 years are discussed.

14. Strassler, H.E., "Long Term Clinical Evaluation of Cerinate Porcelain Veneers," (abstract #432) University of Maryland Dental School, presented at the International Association for Dental Research (IADR) general session, Baltimore, March 2005.

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	Alpha	Bravo	Charlie	Delta
Color	143	14	—	—
Marginal Adaptation	128	12	3	14
Marginal Discoloration	133	22	2	—

The purpose of this study was to evaluate the clinical performance and durability of anterior etched porcelain LUMINEERS BY CERINATE. The study population consisted of 30 patients with discolored or malpositioned teeth. A total of 167 Cerinate LUMINEERS, Den-Mat Corporation, were placed with Ultra-Bond. The patients were recalled for collection of long-term data at periods of 140 months up to 240 months, or 20 years, with a mean of 182.4 months, or 15.2 years. Modified U.S.P.H.S. criteria were used to evaluate color, cavosurface marginal adaptation, and marginal discoloration. The data at the last recall are as follows:

There was 100% retention of the LUMINEERS over the period of the study. Over the duration of the study, of the patients that were able to be recalled, 94% of the restorations were clinically successful, 157 of 167, with only 10 LUMINEERS needing replacement. Replacement was usually due to chipping or cracking on stress-bearing surfaces. In some cases, the LUMINEERS were replaced not due to the severity of the fracture, but because the study protocol called for the LUMINEERS to be replaced if any fracture occurred.

Results indicate that the Cerinate LUMINEERS cemented with Ultra-Bond were highly successful over the period of the study.

15. Shuman, I.E., "Aesthetic Treatment With a Pressed Ceramic Veneer Material", Dentistry Today, 23(11):80, November, 2004.

    The advantages of the conservative Cerinate LUMINEERS approach to porcelain veneers is presented. Among the advantages are preservation of natural tooth structure, no need for anesthesia, no need for temporaries, virtually no possibility for postoperative sequalae and impressive results with a procedure that is simple and expedient. Three clinical cases illustrating details of the treatment procedure are also presented. All three cases required only minimal recontouring of the teeth and the results were completely successful.

16. Vastardis, P.D., "A Smile Transformation with LUMINEERS BY CERINATE", DentalTown, 2004.

    The advantages of conservative approaches to cosmetic surgery are discussed. The LUMINEERS concept for porcelain veneers is mentioned as an example of favorable cosmetic procedures. A clinical case history is presented in which LUMINEERS and Ultra-Bond are used in conjunction with minimal tooth preparation. The importance of a good diagnostic workup prior to treatment

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planning is emphasized. Digital photography and a matrix to create a mock-up of the planned treatment results are employed as part of the case presentation to the patient. The case is completed without anesthesia and without temporaries. The results are a dramatic improvement in the patient's smile.

17. Strassler, H.E. and Serio, C.L., "Conservative Treatment of the Worn Dentition With Adhesive Composite Resin," Dentistry Today, August 2004.

    Dr. Strassler discusses treatment of a patient diagnosed with anterior tooth wear through the enamel into the dentin. The restorative treatment plan called for the placement of direct-bonded composite resin to restore the worn incisal edges and cusp tips. In the past, the use of composite resin to restore worn anterior teeth was not successful. Dr. Strassler's technique for preparing the teeth is discussed in detail. Following preparation, Den-Mat's Tenure® Uni-Bond® is placed into the preparations, agitated for 20 seconds, air-thinned and dried, and then light-cured for 10 seconds with the Allegro LED curing light. The attributes of the Allegro are discussed in detail. Virtuoso® Universal was then placed into the incisal preparations, shaped and light cured. Finishing and polishing were performed and the restored incisal edges made the teeth more wear-resistant and created a more aesthetic appearance.

18. Shuman, I.E., "Aesthetic Correction of a Damaged Occlusion Using Varied Preparation Designs and Pressed Ceramic Restorations," Dentistry Today, March 2004.

    The article presents a case report in which minimally invasive treatment methodology and a laboratory-fabricated, indirect restorative material (Cerinate Porcelain Crowns and LUMINEERS) were used to restore failing restorations, PFM crowns with exposed metal margins, and severe enamel wear with fracturing and dentinal exposure. Dr. Shuman gives an in-depth explanation of each appointment, along with laboratory communication tips. Den-Mat products are used for everything, from fabricating temporary crowns to cementing the LUMINEERS and permanent crowns, to final finish. He reiterates that while there are a myriad of restorative choices available, use of a "proper restorative material that provides the required aesthetics, strength, and reliability in high-stress occlusal situations, the rewards are many."

19. Strassler, H.E., "Repairing Porcelain-Metal Restorations", A Continuing Education Journal, 84:18, 2003.

    Many patients, especially older patients, have porcelain fused to metal fixed prosthetics in which the porcelain has become worn or fractured, but the prosthesis is in otherwise good condition. Replacement of the prosthetics is usually a relatively high cost procedure, and frequently disruptive to the teeth and surrounding tissues. Fortunately, modern technology provides the possibility of successful porcelain repairs by allowing bonding of composite resin materials to porcelain and to

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underlying metal superstructures if exposed. A clinical case report is described in which a Den-Mat micro etcher was used both on metal and porcelain, followed by Den-Mat GoldLink® and Cerinate Prime® on the metal and porcelain respectively. Den-Mat TetraPaque® was also used as an opaquer on the metal. Den-Mat Virtuoso® Sculptable was applied as the restorative composite resin. The opposing occlusion was modified slightly to avoid excessive occlusal stresses on the repaired area. The repair can be expected to provide good service for many years.

20. The Dental Advisor. "Clinical Evaluations," Volume 20, Number 10, December 2003.

THE DENTAL ADVISOR ++++½

Clinical consultants awarded Ultra-Bond Plus a 4 1/2-PLUS rating after completing over 226 cementations. The consultants highly rated the overall ease of use and convenience of the system, especially the ease of mixing and dispensing using the auto-mixing tips. They commented, "Good viscosity of cement makes restoration seating easy." And, they rated the final esthetics of the restorations very good.

21. Malcmacher, L., "Back to the Future With Porcelain Veneers," Dentistry Today, 22(11):70, November 2003.

Dr. Malcmacher reviews the history and evolution of porcelain veneers from a conservative alternative treatment to porcelain crowns to today's standard of aggressive tooth reduction to compensate for the limitations of the porcelains used by most laboratory technicians. Dr. Malcmacher explains the minimal- or no-preparation technique. He presents a case report using Cerinate Porcelain Veneers, chosen for their high strength and ability to be made very thin and translucent. Dr. Malcmacher concludes that porcelain veneers are not difficult to do when the right porcelain is used and when it's a conservative treatment, eliminating the need for temporaries and postoperative sensitivity issues. "Porcelain veneers have a higher rate of acceptance and satisfaction, especially when little or no tooth structure has to be removed."

22. Strassler, H.E. and Cloutier, P.C., "A New Fiber Post for Esthetic Dentistry," Compendium, October 2003.

This case study shows the use of a fiber-reinforced post to strengthen the maxillary left central incisor, along with the placement of Cerinate all-ceramic crowns to improve the appearance of the maxillary teeth. Cerinate, a fired feldspathic porcelain, was chosen for its masquing ability, since the patient's teeth were tetracycline stained. The etched porcelain crowns and LUMINEERS were treated with Cerinate Prime®* and a resin adhesive, Tenure S*. Tenure MP* was applied to the crown preparation, and Ultra-Bond Quik®* was used to cement the crown in place with a 20-second LED light cure. The author stresses the need for practitioners to understand the chemistry and instructions of the dental materials to make the best choice for each clinical situation. *Den-Mat Corporation.

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23. Ibsen, R.L., "Cuspid-and anterior-guided occlusion achieved with Cerinate Porcelain withstands test of time," DentalTown, August 2003.

This article reviews a case of Cerinate Porcelain LUMINEERS placed 14 years ago on a patient with significant wear of his enamel, showing exposed dentin and cupping in the incisally-eroded areas. Minimal reduction of tooth structure was performed only to create clearance between the mandibular and maxillary teeth. The placement of Cerinate LUMINEERS created anterior disclusion to compliment cuspid-guided disclusion. Fourteen years later, the Cerinate Porcelain LUMINEERS have performed well. Wear of the natural tooth structure has been stopped and the teeth were ultimately strengthened.

24. Yu, X., "Successfully Placing Porcelain Veneers To Save Porcelain-Fused-to-Metal Bridges and Crowns," Contemporary Esthetics and Restorative Practice, May 2003.

This article discusses the technique of using Cerinate LUMINEERS to bond fractured porcelain-fused-to-metal, PFM, porcelain surfaces. A step-by-step procedure describes the placement process. The superior flexural strength of Cerinate LUMINEERS allowed the LUMINEERS to be made esthetically thinner and acceptable over the PFM restoration.

25. CRA Newsletter, Volume 27, Issue 5, May 2003.

This study focused on materials used for metal-free, 3-unit prostheses. One of the materials in the evaluation was Cerinate Pressable porcelain. It received a CRA excellent rating in the "Esthetic Potential" category.

26. Ouellet, D., "Using Rembrandt Veneers in my Daily Practice", DentalTown, May 2003.

This article describes two case studies where Cerinate LUMINEERS (Rembrandt) are used with little to no tooth preparation. Both cases were examples of when it is necessary or not necessary to modify (prepare) teeth—standard veneer replacement and cuspid-guided occlusion with bonded porcelain. The end result showed a dramatic improvement in proportion and tooth positioning in Case 1. After an 11-year recall, the LUMINEERS in Case 2 showed no debonding and complete patient satisfaction.

27. Malcmacher, L., "No-Preparation Porcelain Veneers," Dentistry Today, April 2003.

This article discusses the benefits of porcelain LUMINEERS that do not require the removal of sensitive tooth structure and produce no post-operative sensitivity. The three case reports used Cerinate Porcelain LUMINEERS and all required no tooth reduction. Each case report used LUMINEERS for different restoration purposes: Case 1–Esthetic smile improvement (linguoverted with discolored restorations), Case 2—Instant orthodontics, and Case 3—esthetic smile improvement (bruxism).

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28. Ibsen, R.L., "Higher strength veneers offer more restorative options for dentists and their patients", DentalTown, 4(4):32, April, 2003.

A clinical case is reported whereby Cerinate porcelain veneers are elected as a treatment alternative to the use of full crowns or adult orthodontics. The high strength of Cerinate porcelain and the use of Ultra-Bond as the bonding resin make it possible to use a conservative technique with minimal recontouring of the teeth. The advantages of the technique include conservation of tooth structure, no need for anesthesia, no need for temporaries and a completely successful result that is obtained simply and expediently.

29. Ibsen, R., "Conservative Treatment Provides Outstanding Long-Term Results," DentalTown, March 2003.

This case study is about the use of Cerinate Porcelain LUMINEERS and a resin labial bridge/splint. The patient had idiopathic periodontosis with mobile teeth. The purpose for the treatment choice was a functional, esthetic restoration that would prolong tooth structure. After a 13-year recall, functionality had been maintained with an optimistic prognosis for the patient's teeth.

30. Sapp, Jr., B., Sapp, H.T. M., "The Evolution of the Esthetic Veneer: A 20-Year Case Study," Contemporary Esthetics and Restorative Practice, Vol. 6, No. 12, December 2002.

The study reviewed an initial veneer placement of LUMINEERS BY CERINATE with Ultra-Bond in 1985 and then evaluated the LUMINEERS after 17 years when they were replaced due to esthetic wear. The 17-year old case showed no evidence of microleakage, no evidence of gingival recession and no cracks or fractures.

31. Ibsen, R., "Bonding Cerinate Veneers to Existing PFM Crowns," DentalTown, October 2002.

This case report discussed techniques and products used for bonding Cerinate porcelain LUMINEERS to three cosmetically-compromised PFM crowns. The case report also discussed post placement, periodontal health and oral hygiene maintenance—tasks made easier because the veneer margins did not extend subgingivally.

32. "Porcelain Veneers: Yesterday, Today, and Tomorrow", Contemporary Esthetics and Restorative Practice, 84, January, 2002.

A brief history of the development of modern porcelain veneer technology is presented. The unique strength of Cerinate porcelain is the basis for the conservative concept of veneers with little or no tooth preparation. Also, the ability to bond veneers over existing metal, ceramic, or composite resin substrates is

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mentioned. A clinical case is described to demonstrate the technique for veneers with no preparation of the teeth. Ultra-Bond is used as the resin cement for the veneers. Very successful results are obtained with a completely straight forward and easy-to-perform technique.

33. "Less-Preparation Cerinate Porcelain Veneers for Worn Dentition Restorations," Tech-Specs From the Manufacturer, Contemporary Esthetics and Restorative Practice, August 2001.

    This article demonstrates how Cerinate Porcelain LUMINEERS can be used to restore worn dentition in a patient with extreme dental phobia; anesthetic and tooth preparation were not an option. A full-arch (1st Impression, Den-Mat) was taken. No temporaries were required. The LUMINEERS were fabricated with Cerinate porcelain, a feldspathic porcelain with a strength approaching that of aluminum oxide-reinforced porcelains. The completed post-operative view shows the polychromatic appearance, which is a result of the thinness of the Cerinate LUMINEERS. The exceptional strength of Cerinate porcelain, bonded with the Tenure/Ultra-Bond combination produces durable and reliable esthetic restorations with an established success record.

34. Cattell, M.J., Chadwick, T.C., Knowles, J.C., Clarke, R.L., Lynch, E., "Flexural Strength Optimization of a Leucite Reinforced Glass Ceramic," St. Bartholomew's and the Royal London School of Medicine and Dentistry, April 2000.

    The purpose of this study was to process a ceramic material with a fine leucite particle size using hot pressing techniques, to increase the flexural strength, reliability, and ease of use. Cerinate Pressable Porcelain exhibited significantly higher biaxial flexural strength than Empress® Pressable Porcelain. It was concluded that Cerinate can be pressed in different press furnaces without compromising its superior strength.

35. Nash, R.W., "A 6-Year Follow-up on Cerinate Porcelain Veneers", Compendium, 19(7): 664, July 1998

    The step-by-step procedure is presented for treating a patient with Cerinate porcelain veneers using a minimal tooth preparation technique and bonding with Ultra-Bond resin. In addition to images of the step-by-step treatment procedure, images of before treatment, immediately post treatment, and at a six-year follow-up are presented. The six-year follow-up results are completely favorable with excellent gingival health and no change in the shade or the condition of the veneers.

36. Ibsen, R.L., Yu, X., "Revitalizing PFM Restorations With Porcelain Veneers", Dentistry Today, 16(4):116, April, 1997.

    Two clinical cases are presented in which Cerinate porcelain veneers are bonded over existing porcelain fused to metal fixed prosthetics that had deteriorated in

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appearance over time. Also, Cerinate veneers are bonded to some of the neighboring natural teeth to enhance overall appearance. There is no preparation of the teeth for either of the cases. Details of the technique with step-by-step images are given. Also, the advantages of the approach to treatment are discussed. The advantages include conservation of tooth structure, no need for anesthesia, no need for temporaries, and a completely successful result that is obtained simply and expediently.

37. Cattell, M.J., Clarke, R.L., Lynch, J.R., "The Transverse Strength, Reliability, and Microstructural Features of Four Dental Ceramics - Part I," Journal of Dentistry, Vol. 25, No. 5 1997: 399-407.

    The demand for more esthetic dentistry and concerns about biocompatibility of restorative materials have led to a revival of all ceramic restorations—with Cerinate taking the lead. The results of this study showed Cerinate porcelain to have a mean strength of 118.2 MPa (±8.7), with a highly significant result of P>0.05. Cerinate porcelain exhibited a uniform distribution of fine 1µm leucite crystals using secondary electron imaging. The conclusion proves Cerinate was the strongest and the most reliable of materials in contrast to Empress, Corum®, and Alpha®, possibly due to the fine crystal size.

38. Cattell, M.J., Clarke, R.L. Lynch, J.R., "The Biaxial Flexural Strength and Reliability of Four Dental Ceramics - Part II," Journal of Dentistry, Vol. 25, No. 5, 1997: 409-414.

    No statistical differences of Weilbull mean strengths existed between Empress, Cerinate, Corum, and Alpha ceramics; yet Cerinate continued to have the highest m-value (P>0.01) and good dependability.

39. Ibsen, R.L., Ouellet, D., "Restoring Worn Dentition," Journal of Esthetic Dentistry, Vol. 4, 1992: 96-101.

    V-shaped Cerinate porcelain crowns were bonded with Ultra-Bond to halt severe tooth wear and restore normal occlusal relations.

40. Putter, H., Huberman, A., Scherer, W., "Diastema Closure: A Case Report," Journal of Esthetic Dentistry, Vol. 4, 1992: 9-11.

    Two modalities of treatment, with orthodontics and porcelain veneer placement with Ultra-Bond, were combined to achieve an excellent esthetic effect and eliminated a long-lasting cosmetic problem.

41. Nash, R.W., "Minimal Preparation as an Option with Porcelain Veneers," Dentistry Today, Vol. 11, September 1992.

    A technique in minimal preparation to preserve tooth structure achieved quality aesthetic results using Ultra-Bond with Cerinate porcelain LUMINEERS.

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42. Strassler, H.E., "Achieving Predictable Crown and Bridge Repair," General Practitioner, May 1992: 71-74.

The use of Ultra-Bond to affect repairs for worn acrylic facings without having to replace an entire bridge is presented.

43. Putter, H., Ibsen, R.L., "Simultaneous Placement of Multiple Porcelain Veneers," Journal of Esthetic Dentistry, Vol. 2, 1990: 67-69.

Alternative techniques to cementing porcelain LUMINEERS with Ultra-Bond is presented. The technique demonstrated that multiple porcelain LUMINEERS can be cemented simultaneously with Ultra-Bond.

44. Strassler, H.E., Weiner, S., "The Esthetic Repair of Metal Margins on Metal-Ceramic Crowns Using Etched Porcelain Cervical Shields", Esthetic Dentistry Update, 1(1):2, April 1990

The difficulties of successfully repairing the fractured porcelain of porcelain fused to metal fixed prostheses is described. When fractured porcelain involves the gingival margin of a crown, then the repair may involve bonding to porcelain, and metal, and root dentin. The merits of Den-Mat products for bonding to these surfaces are explained. A clinical case report is presented in which a Cerinate porcelain "shield" (a partial veneer) is bonded over the facial surface of a tooth root and a crown with fractured porcelain at the gingival. The procedure is simple to perform and the results are excellent.

45. Wassenaar, P., "The New Porcelains - Are They Any Better?" Australian Prosthodontic Journal, Supplemental Vol. 4, 1990.

Cerinate proves that it is as strong as aluminous-oxide reinforced porcelain, and furthermore, it is a highly esthetic material. The study credits leucite for its high expansion coefficient.

46. "Battle of the Bonds," course hosted by Northwestern University School of Dentistry 1990.

Tenure/Ultra-Bond showed the highest bond strength, a system that produced 98% retention rate. Additionally, Tenure/Ultra-Bond produced the lowest standard deviation for 36 specimens.

47. Jordan, R.E, Suzuki, M., Boksman, L., "Clinical Evaluation of Porcelain Laminate Veneers: A Four-Year Recall Report", Journal of Esthetic Dentistry, 1(4):126, July/August, 1989.

Seventy-two Cerinate porcelain veneers in 24 adolescent and young adult patients are evaluated over a period of 4 years. The teeth were bleached and prepared with a

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conservative chamfer technique. The veneers were cemented with Ultra-Bond resin cement. The veneers received 100% alpha ratings (the most favorable ratings) for color stability, abrasive wear resistance, surface texture, gingival response, postoperative sensitivity, and secondary caries. The authors concluded that: "All parameters considered, the Cerinate porcelain veneers performed excellently over the 4-year recall period."

48. Ibsen, R.L., Yu, X.Y., "Establishing Cuspid-Guided Occlusion with Bonded Porcelain," Journal of Esthetic Dentistry, Vol. 1, 1989.

    Step-by-step procedures for Cerinate porcelain restorations bonded with Ultra-Bond showing a new method for cuspid-guided occlusion is presented.

49. Jordan, R.E., Suzuki, M., "The Porcelain Inlay Technique for Posterior Restorations," Journal of Esthetic Dentistry, Vol. 1, 1989: 41-44.

    A method for restoring a stable posterior occlusion using the porcelain inlay technique is discussed. Restorations were bonded using Ultra-Bond.

50. Minato, K.S., Strassler, H.E., "Posterior Etched Porcelain Inlays and Onlays: Treatment Planning and Technique," Hawaii Dental Journal, Vol. 19, 1988: 8-13.

    The use of etched porcelain for posterior inlays and onlays requires correct treatment planning, preparation design, and technique using Ultra-Bond to achieve clinical success.

51. Feder, B.A., "Combining Etched Porcelain Inlays and Onlays with Composite Resins to Restore Posterior Teeth," General Dentistry, Nov-Dec. 1988: 478-481.

    A technique description and a case report involving the combined use of etched porcelain inlays and onlays bonded with composite resins in restoring posterior teeth is presented. Ultra-Bond is used as the luting agent to permit complete polymerization.

52. Nathanson, D., Hassan, F., "Effect of Etched Porcelain Thickness on Resin-Porcelain Bond Strength," Boston University School of Graduate Dentistry 1987.

    The purpose of this study was to determine how porcelain thickness effects resin photocuring and resin to porcelain bond strength. The results indicated that Ultra-Bond and Marathon® with Infinite Cure had significantly higher ($p<.001$) bond strengths than all other groups.

53. Minato, K.S., "Esthetic Porcelain Veneers," Hawaii Dental Journal, Vol. 17, 1986: 1-5.

    This article presented a step-by-step guide for the preparation, impression, and cementation of porcelain LUMINEERS. The article discussed the use of Ultra-Bond as the cementing medium.

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54. Hsu, C.S., Stange, I., Nathanson, D., "Shear Bond Strength of Resin to Etched Porcelain," Oral Presentation International Association of Dental Research and American Association of Dental Research, March 1985.

This study investigates the In-Vitro shear bond strength of composite resin Ultra-Bond to porcelain using various porcelain surface treatments and bonding modalities. The results indicated that shear bond strength of resin to porcelain clearly varied as a function of the porcelain surface treatment.

55. Newman, S., "A New Version of Light Polymerized Composite Resins," Journal of the Tennessee Dental Association, Vol. 6, 1984: 36-38.

The author states that there is a definite post-light exposure curing that takes place in Ultra-Bond compared to the other materials tested.

56. Ferreira, M.R., "Intraoral Repair of Dental Porcelain," Journal of Dentistry Association of South Africa, Vol. 35, 1980: 361-364.

This article discusses methods to repair dental porcelain intraorally. The author has found that the Den-Mat Porcelain Repair Kit containing Ultra-Bond proved quite acceptable and over the repaired area showed no surface discoloration, marginal staining, or chipping of repairs were observed at recall visits.

57. Eames, W.B., Rogers, L.B., "Porcelain Repairs: Retention After One Year," Operative Dentistry, Vol. 4, 1979: 75-77.

The Den-Mat Porcelain Repair Kit containing Ultra-Bond was found to give clinically acceptable retention when tested dry, when soaked in mouth-temperature water for 24 hours for seven days and when cycled for 24 hours in temperatures ranging from 2° C to 60° C.

58. Eames, W.B., Rogers, L.B., Feller, P.R., Price, W.R. "Bonding Agents for Repairing Porcelain and Gold: An Evaluation," Operative Dentistry, Vol. 2, 1977: 118-124.

The Den-Mat Porcelain Repair System containing Ultra-Bond produced acceptable values for repairing porcelain.

59. Jordan, R.E., Suzuki, M., Boksman, L., "Clinical Evaluation of Den-Mat Porcelain As Inlay-Onlay Restorations in Posterior Teeth: Two and Four Year Recalls," Den-Mat Corporation. Unpublished data available on request.

Evaluation of Cerinate porcelain inlay/onlay restorations luted with Ultra-Bond. After all parameters of the study were considered, the Cerinate inlay/onlay restorations demonstrated overall excellent results after a period of four years.

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60. Litkowski, L.J., Swierczewski, M., Strassler, H.E., McDonald, N.J., "Marginal Microleakage of Three Porcelain Repair Systems," Den-Mat Corporation. Unpublished data available on request.

Microleakage evaluation of three porcelain repair systems for access-like preparations in porcelain. Mean leakage values were: Cerinate Ultra-Bond 32.8%, Clearfil 45.1%, and Scotchprime 63.8%. A significant difference was noted between groups.

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