TODAY’S CERAMIC SOLUTIONS

One of the most common questions our technicians get these days relates to what type of ceramic material best fits the indication presented. Of course, there are many factors that play into the answer: required esthetics vs. strength, location in the mouth, single unit vs. bridge, requested shade, and more. However, with today’s material options, every indication can be treated with an all-ceramic restoration of some type, and the many advantages that come with them. Strength, esthetics, cost, fit, and product warranties are just a few of the reasons why over 60% of all crowns produced in our laboratory are now all-ceramic (just three years ago that number was 28%). When considering your ceramic options, today's materials generally fall into three categories: Zirconia, Lithium-Disilicate, and Nano-Ceramics.

ZIRCONIA

The single most popular restorative material we use in the fixed department at D&S today is Zirconia. Whether it's in the form of a porcelain veneered crown such as Lava, or a monolithic full-contour crown such as ZR and ZR Plus, this material accounts for over 50% of the crowns we produce. Nationwide, dental laboratories are stating that this is also their fastest growing restorative material. However, unlike Lithium-Disilicate (E.max), most labs are able to brand their own Zirconia crowns, which results in some confusion. Make sure to ask your laboratory what type of Zirconia they are using in your restorations because they are not all the same. Since Zirconia is a man-made material, there can be significant differences in strength and esthetics between material types. There can even be differences between batches from the same supplier if a “generic” supplier is used. At D&S, we only use the best, most trustworthy suppliers, with FDA approvals in place, who are willing to stand by and warranty every block of material we get. That’s why we use Lava Plus Zirconia from 3M Espe for all of our Lava Crown substructures and ZR Plus full-contour restorations, and Jensen HT from Jensen Dental for our ZR Crowns. The material in your restoration is disclosed to you on each invoice we send out.

The flexibility offered by this material allows for its use in almost any scenario. Lava Crowns are fully veneered with porcelain for optimum esthetics, while ZR & ZR Plus are monolithic for maximum strength and fracture resistance even with limited clearance. In addition, we can produce anything in between: cut-back and add minimal porcelain for translucency, facial veneer or bruxers or shade matching, or a Zirconia occlusal where limited clearance is available but esthetics are still important. We can even produce a multi-unit bridge with a combination of all these finishes! At the same time, our staining process allows for much more accurate shade and color matches than previous generations of full-contour Zirconia, and full penetration through the material eliminates unsightly “white spots” during adjustment.

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Not only is D&S Dental Laboratory on the cutting edge of the dental industry, but we are keeping pace with, if not excelling faster than, the burgeoning technology propelling it behind the scenes. Most recently, D&S added an exciting and efficient mobile application to our arsenal of user-friendly customer services. Considering the popularity of tablets and smart phones, we wanted to make our information and services more accessible. Our new mobile app allows our doctors to access important resources any time, any place, and we believe our clients will find the user-friendly interface extremely dynamic and helpful.

The D&S Dental Lab app is available for free download on both the iTunes App Store for iPhone and Google Play for Android. The application’s ease of access is only exceeded by its ease of use, making D&S information and services readily available. The home page offers eight different options to begin exploring: Products, Services, Rx Forms, Crown Selector, Information on Educational Seminars, Resources, Contact Information and Requests.

The digital Rx Form and the Crown Selector functions dramatically simplify the case ordering process. The app allows doctors to choose the appropriate Rx Form for each case, and with just a few taps of the finger, be on their way to a completed prescription. Additionally, doctors may attach photographs, choose a convenient time and date for the case to be returned, and instantly receive ready-to-use shipping labels for their cases. The Crown Selector functions by posing a series of questions in order to immediately prescribe the appropriate all-ceramic restorative indication. Given the multitude of product and material options available for today’s fixed restorations, it can be confusing to determine which product/material is best suited for the indication presented. At D&S, we fabricate thousands of fixed restorations each month, and over 60% of those are now all-ceramic. Our technicians can recommend the appropriate material for any indication you may have based on our experience and unbiased opinion of the results we see. However, with the Crown Selector function available on the lab app, you have the answers right at your fingertips. The app asks the same questions that the technicians would ask to narrow down the appropriate products, and additional information about each product is available at the touch of the screen. You can also immediately prescribe the product once selected.

This new app allows our laboratory to expand our ability to act as a valuable resource and partner in your practice by making information more readily available. To find the free mobile application, search “D&S Dental Lab” in your app store.

For more information, visit www.dnsdental.com or call 800-236-3859 today.
There are very few negatives with today’s Zirconia materials, but one question that does come up relates to cementing the restoration. In most situations with a retentive prep, Resin Modified Glass Ionomer cement will provide more than enough bond strength. However, in situations with non-retentive preps, limited preps, or veneers, bonding becomes necessary, which will make removing that restoration in the future much more difficult. Finally, whether cementing or bonding, make sure to clean the inside of the restoration after try-in to eliminate phospholipids from the patient’s saliva, which keep the cement from adequately bonding to the restoration itself. 3M Espe suggests cleaning the inside of the crown with alcohol after try-in will be sufficient. However, do not use phosphoric acid.

**LITHIUM-DISILICATE**

Unlike Zirconia, there is only one supplier of Lithium-Disilicate in today’s material market, which comes in the form of IPS e.max. The e.max restoration has been a very popular crown choice for the past several years because of its translucency and overall esthetics. E.max is an excellent option for anterior single-unit or short-span bridge restorations, or veneers. In the case of an anterior e.max restoration, some porcelain is applied for maximum translucency while posterior e.max are monolithic, pressed crowns. However, given its relatively low strength compared to Zirconia, e.max is generally less attractive as a posterior option. In addition, while our ZR and ZR Plus monolithic Zirconia crowns can be used with limited occlusal clearance as thin as .5mm, a full 1.5mm of clearance is a necessity for e.max to reduce the likelihood of a fracture.

When cementing an e.max crown, the same steps should be taken as with Zirconia. In addition, the manufacturer recommends etching with ceramic etching gel to roughen the material and increase bond strength.

**NANO-CERAMIC**

Nano-Ceramics are the newest category to the all-ceramic lineup. The most widely known and popular material today is 3M’s Lava Ultimate. Lava Ultimate, which is the material milled for the D&S Ultimate Crown, is comprised of Zirconia and resin. This material is very easy to work with and can be added-to chair side with flowable composite. Currently, Ultimate can only be used for single crowns, veneers, and inlays/onlays, and there are limitations on shades. However, due to its composition, Lava Ultimate is an extremely resilient material with overall strength comparable to Lithium Disilicate. Because of its resiliency, Ultimate is recommended as an option for implant restorations. Ultimate is also a monolithic crown with no veneering material, which means no porcelain fractures. Much like e.max, the lab needs at least 1.5mm of occlusal clearance for proper thickness. As long as 1.5mm is provided, 3M Espe stands behind the longevity of the restoration with a 10-year warranty. Ultimate restorations must be bonded, and 3M Espe recommends Scotchbond Universal in conjunction with RelyX Ultimate Adhesive.

In the near future we will see more options with new materials and variations of the materials currently in use. Your laboratory should be a resource to help you keep up with the changes. At D&S, our technicians make thousands of these restorations each month, and they can offer unbiased information based on what they see. The next time you have a question about materials, please call our laboratory, visit our website (www.dnsdental.com) for resource material, OR download our new lab app, which will put all of our resource material right at your fingertips!
Originating in Virginia and spreading throughout the United States, more than 60 Mission of Mercy dental programs have been conducted since 2000 to provide free dental care to local residents who otherwise would be unable to receive treatment. This year will mark the 5th Mission of Mercy (MOM) event hosted in Wisconsin by the WDA and the WDA Foundation, and D&S Dental Laboratory is proud to again serve as the co-lead lab for this year’s event.

Last year’s event, which was held in Madison, provided over $1.75 million in free dental care to 3,595 patients. An impressive 1,810 volunteers helped conduct procedures including 1,200+ cleanings, 2,500+ fillings, 2,800+ extractions, 80 root canals, and 153 new partial dentures.

This summer, the MOM will come to Lake Geneva, Wisconsin, June 28–29. Once again, the emphasis will be on basic dental care, such as fillings, extractions, cleanings, and limited lab work. Approximately $1 million in free care is expected to be delivered to 2,000 patients over the two-day event. However, the success of the MOM in achieving the treatment goals is dependent on the generous support of volunteers and donors.

Over 1,000 volunteer dentists, hygienists, assistants, lab technicians, and lay persons from across Wisconsin are needed to pull off this ambitious event. In addition to time donations, the WDA also needs financial support to help cover the costs to hold this years MOM. Costs include things like equipment and facility rent, supplies, pharmaceuticals, and food costs. Tax deductible financial donations and in-kind contributions can be made through the WDA Foundation.

Our laboratory is very proud to take on the role as the co-lead laboratory again this year and oversee production of removable prosthesis. Last year’s Mission was a tremendous and very rewarding experience for all of us who saw the results of our work. However, like all areas of the MOM, we are dependent on the generosity of skilled volunteer technicians from around the state of Wisconsin.

For more details on this year’s Mission of Mercy, to register as a volunteer, or to make a tax-deductible donation, visit www.wda.org. Or contact Lani Becker at the WDA office at 866-431-9625.