DENTAL ADVISOR™ e-Book

NOVEMBER 2023

From Prep to Placement

Selecting the Ideal Cement

Introduction

When choosing a cement for indirect restorations, there are several key factors that must be considered to ensure a successful and long-lasting outcome:

First and foremost is the retention of the preparation. The retention of preparation is determined by factors such as height of abutment, convergence angle of preparation and anatomy of teeth.

The type of substrate being used also plays a pivotal role. Different materials, such as ceramics, metals, or composite resins, may require specific types of cements or pretreatments tailored to their individual properties. Understanding the nuances of each material is crucial to selecting the appropriate cement to create a durable and reliable bond.

Furthermore, the type of restoration being used is a key determinant. Crowns, bridges, inlays, and onlays each have distinct requirements. The cement must be compatible with the specific restoration type to ensure longevity and prevent debonding.

Additionally, the ability to isolate the treatment area is of paramount importance in cement selection. For most resin cements, any residual moisture can compromise the adhesive bond, whereas glass ionomer cements are typically more moisture-tolerant. Therefore, the chosen cement should be appropriate for the clinical environment.

The retention of the preparation, compatibility with the substrate, suitability for the restoration type, and the capacity to work in the given clinical conditions are all vital factors in the selection of cement for indirect restorations. By carefully considering these aspects, dental professionals can select the optimal cements and enhance the longevity and effectiveness of their treatments.

Cement Selection Strategy

Selecting the appropriate cement for indirect restorations hinges on a thoughtful strategy that considers the specific characteristics of the preparation. For retentive preparations, such as those with sufficient mechanical retention, Resin-Modified Glass Ionomer (RMGI) cements or self-adhesive cements are often the preferred choices. These cements offer strong adhesive properties and are well-suited for situations where additional adhesion may not be necessary.

Conversely, for non-retentive preps where mechanical retention may be limited, a different approach is required. In such cases, conventional resin cement combined with an adhesive system is recommended. This combination provides the necessary bond strength to ensure a secure connection between the restoration and the prepared tooth surface.

Nowadays, universal resin cements provide an adhesive system that provides dependable bond strength to both the tooth structures and restorations and allows bonding to multiple substrates. It can be used as a self-adhesive resin cement or conventional resin cement -an all-in-one system.

Beyond the type of cement, it's crucial to consider the specific needs of each clinical case. Factors such as the type of restoration, the condition of the substrate, and the clinical environment all play a role in the decision-making process.

Ultimately, a well-informed selection of cement ensures the longevity and stability of indirect restorations, contributing to the overall success of the dental treatment. By tailoring the choice of cement to the unique characteristics of each case, dental professionals can achieve optimal results and provide patients with durable, functional, and esthetically pleasing restorations.

How to Choose What to Use[1]

Often, there are one or more applicable cements to use in a given clinical situation. The decision tree should begin with the type of ceramic you are using, closely followed by the retentiveness of the preparation.

CERAMIC STRENGTH	PREPARATION	Resin-Modified Glass Ionomer	Self-Adhesive Resin	Adhesive Resin	Esthetic Resin (DC & LC)	Universal Resin	Bioactive
LOW (feldspathic, leucite-reinforced)	Retentive			✓	✓	✓	
	Non-retentive			✓	✓	✓	
MEDIUM (lithium disilicate)	Retentive	✓	✓	✓	✓	✓	
	Non-retentive			✓	✓	✓	
MODERATE-HIGH (highly translucent zirconia)	Retentive	✓	✓	✓	✓	✓	
	Non-retentive			✓	✓	✓	
HIGH (zirconia)	Retentive	✓	✓	✓	✓	✓	✓
	Non-retentive			✓	✓	✓	

1. DENTAL ADVISOR Vol. 40, No. 05, Cements & Universal Bonding Agents (https://www.dentaladvisor.com/issues/v-40-n-05/)

GC FujiCEM® Evolve

GC FujiCEM® Evolve represents a significant advancement in RMGI luting technology, building upon the esteemed legacy of ***GC FujiCEM® 2***. Recognized by DENTAL ADVISOR with four top awards in the RMGI Cement category and a 96% Clinical Rating,[2] it stands as a testament to its exceptional performance and quality.

One of its standout features is its superior bond strength to zirconia when compared to a leading competitor, as demonstrated in a study conducted with DENTAL ADVISOR.[3] This elevated bond strength ensures a secure and long-lasting attachment between the restoration and the tooth structure.

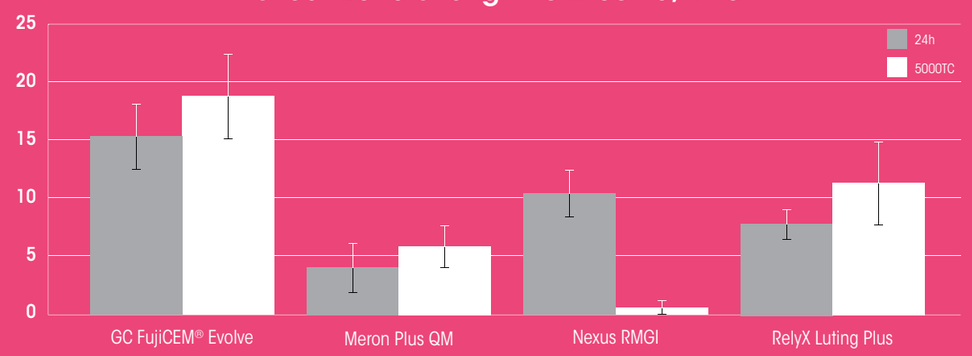
The inclusion of a tack-cure feature is a game-changer, drastically reducing cleanup time to mere seconds. This not only enhances procedural efficiency but also simplifies the post-cementation process, leading to a smoother experience for both the clinician and the patient.

High radiopacity is another invaluable feature, ensuring easy visualization during and after the cementation process. This contributes to precise placement and minimizes the likelihood of any discrepancies.

GC FujiCEM® Evolve is particularly well-suited for the cementation of zirconia and PFM restorations, showcasing its versatility and adaptability to various clinical scenarios. Additionally, its rechargeable fluoride release and moisture tolerance further solidify its status as a top-tier choice for luting applications.

GC FujiCEM® Evolve combines a host of remarkable features with tangible benefits, ranging from exceptional bond strength to time-saving innovations. This makes it a standout option in the realm of dental luting cements, setting a new standard for excellence in restorative dentistry.

Shear Bond Strength to Zirconia, MPa



Tested by DENTAL ADVISOR

96% CLINICAL RATING

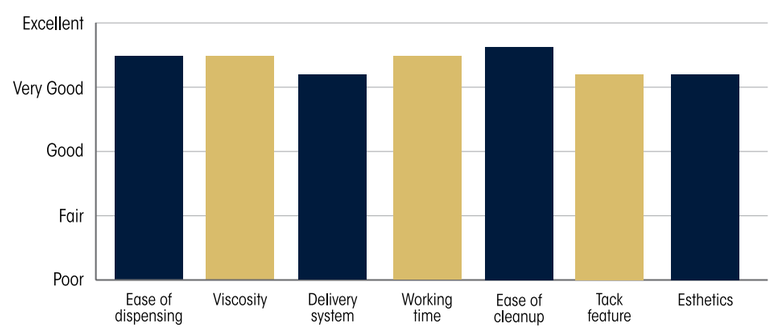
Percentage of Consultants Who Would:

94%	Recommend to a colleague
6%	Not recommend

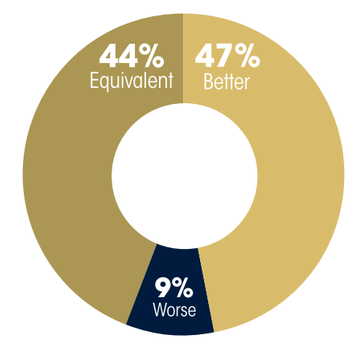
Consultants Who Would Want to Stock in Office:

33%	Yes, instead of current material
49%	Yes, in addition to current material
9%	No; however, might want for certain cases

Evaluation Summary:



Compared to Competitive Products:



2. GC FujiCEM® Evolve Clinical Evaluation (https://www.dentaladvisor.com/evaluations/fujicem-evolve/)

3. M. Cowen, G. Joshi, M. Heiss, S. Cunha, J. Powers, Comparison of Different RMGI Cements Bond Strength to Zirconia (https://iadr.abstractarchives.com/abstract/20iags-3314813/comparison-of-different-rmgi-cements-bond-strength-to-zirconia)

Tested by DENTAL ADVISOR

93% CLINICAL RATING

Consultants who would:

92% Recommend to a colleague

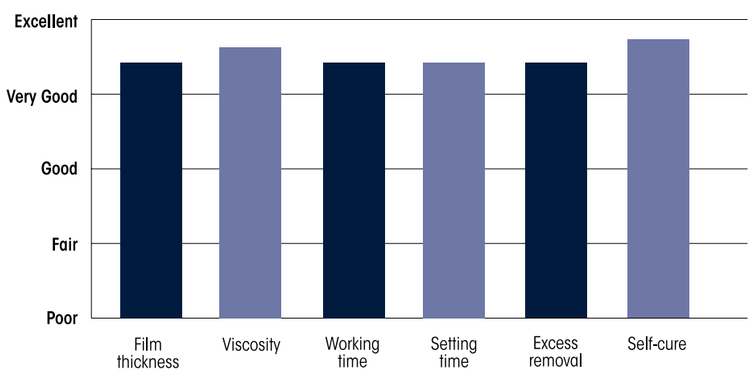
Consultants who would want to stock in office:

25% Yes, instead of current product

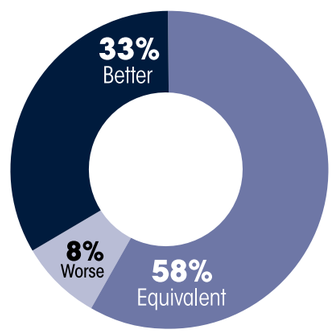
50% Yes, in addition to current product

8% I might want to order this product for certain cases

Evaluation Summary:



Compared to Competitive Products:



G-CEM ONE™

G-CEM ONE™ stands as a versatile and reliable choice in the realm of dental cements, offering a range of features and benefits that cater to various clinical scenarios. When reviewed by DENTAL ADVISOR's clinical evaluators, ***G-CEM ONE™*** received a 93% Clinical Rating[4], with evaluators praising its ease of use and optional Adhesive Enhancing Primer.

One of its standout qualities is its universal applicability. ***G-CEM ONE™*** serves as a single cement system suitable for all types of restorations and substrates. This adaptability streamlines the selection process and ensures compatibility with a wide array of clinical cases. ***G-CEM ONE™*** can be used as a stand-alone cement for retentive preparations and can also be used in combination with an adhesive for non-retentive preparations.

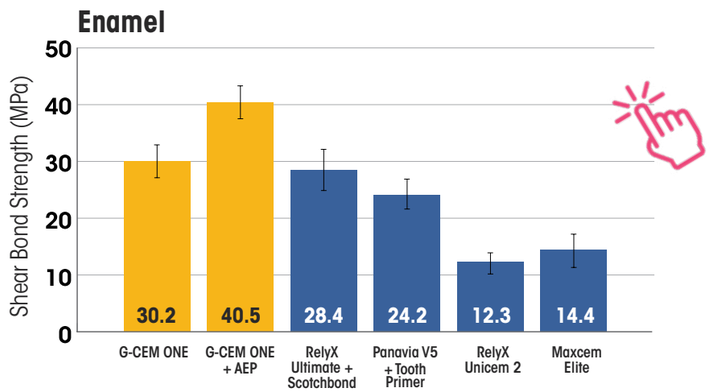
G-CEM ONE™ boasts exceptional self-curing and moisture tolerance, providing peace of mind in challenging clinical environments. Its invisible, wear-resistant margins contribute to a highly esthetic outcome. Additionally, Dentists have the flexibility to choose between using the Adhesive Enhancing Primer or ***G-Premio BOND™***, allowing for a tailored approach to adhesion based on individual clinical needs. The Touch Cure feature of the Adhesive Enhancing Primer provides enhanced bond strength, especially useful for non-retentive preparations

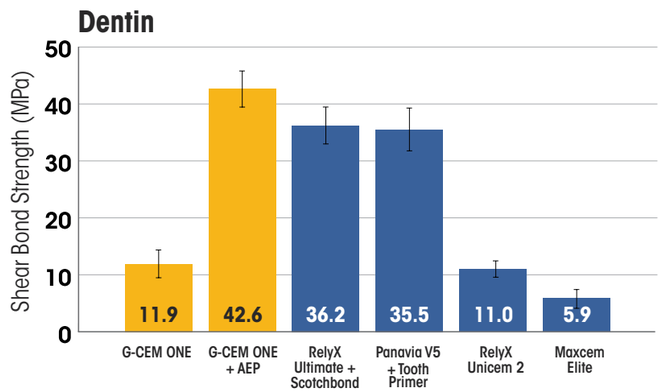
Switching to ***G-CEM ONE™*** allows for reduced inventory and a simplified workflow, streamlining the restorative process and enhancing overall efficiency in the dental practice. This cement proves to be a valuable asset for practitioners seeking a reliable, adaptable, and efficient solution for their cementation needs.

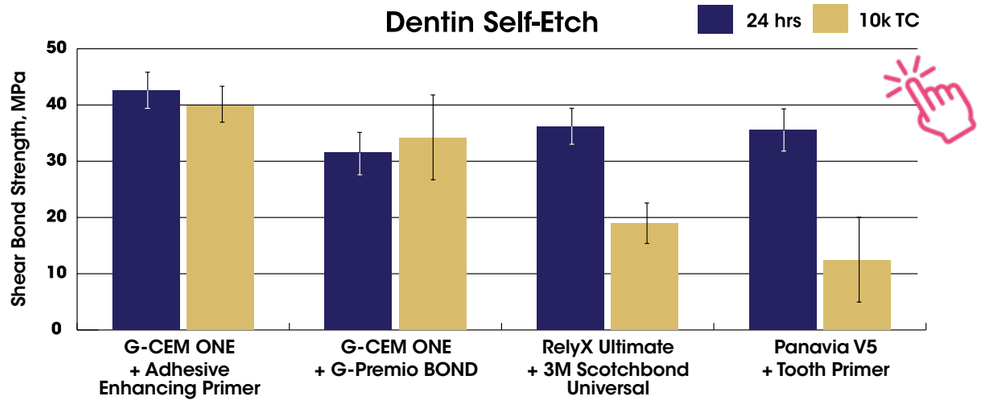
4. G-CEM ONE™ Clinical Evaluation (https://www.dentaladvisor.com/evaluations/g-cem-one/)

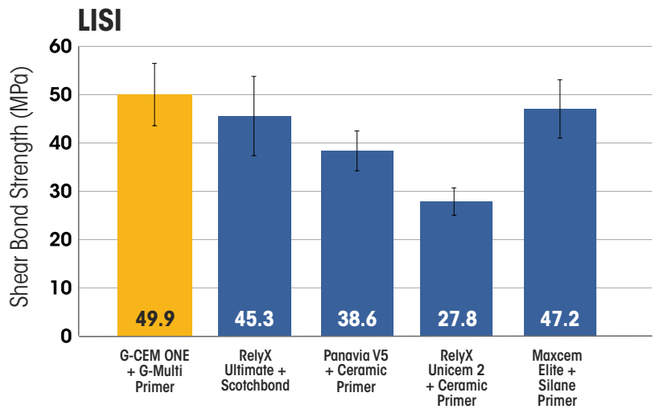
Bond Strength Testing of G-CEM ONE™

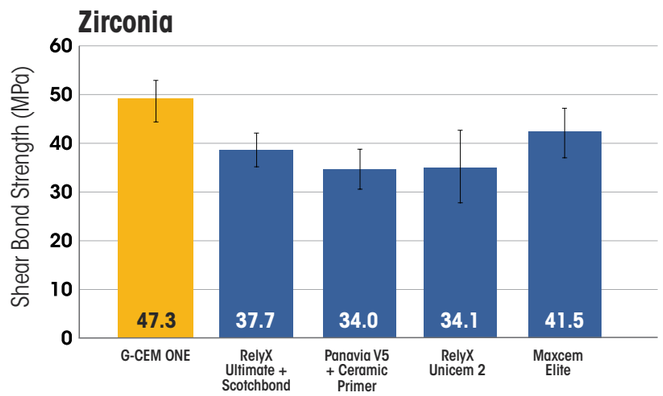
In a study by DENTAL ADVISOR, ***G-CEM ONE™*** performed as well or better than competitive materials tested in the self-adhesive mode. When the Adhesive Enhancing Primer was used, bond strength to enamel and dentin was highest among the tested groups.[5] In a later study, ***G-CEM ONE™*** with ***G-Premio BOND™*** showed no decrease in bond strength after artificial aging.[6]

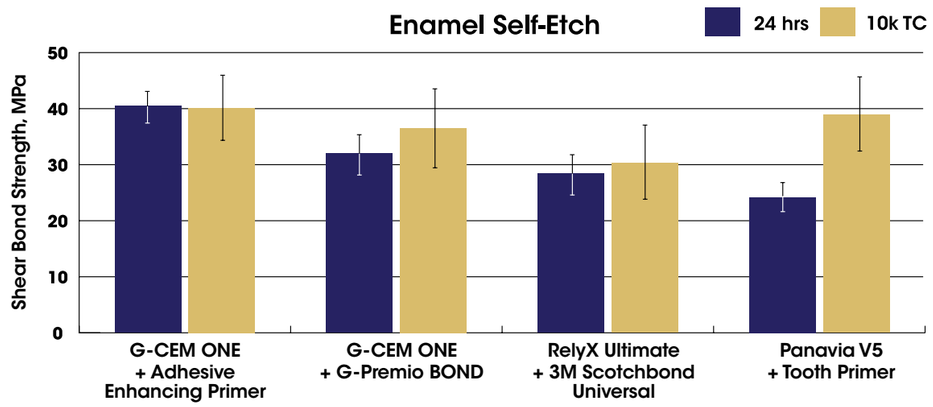












5. M. Cowen, D. Graham, J.M. Powers, Biomaterials Research Report No. 148, Bond Strength Testing of G-CEM ONE™ (https://www.dentaladvisor.com/pdf-download/?pdf_url=wp-content/uploads/2021/04/RR148-Bond-Strength-Testing-of-G-CEM-ONE.pdf)

6. Matt Cowen, B.S., John M. Powers, Ph.D., Biomaterials Research Report No. 165, Bond Strength Testing of a Universal Cement System to Teeth (https://www.dentaladvisor.com/pdf-download/?pdf_url=wp-content/uploads/2023/09/RR-165-G-CEM-ONE-G-Premio-BOND.pdf)

Conclusion

Selecting the right cement for indirect restorations is a pivotal decision in achieving successful and long-lasting dental outcomes. Factors such as retention of the preparation, substrate compatibility, restoration type, and the ability to isolate the treatment area play crucial roles in this process. For retentive preparations, Resin-Modified Glass Ionomer (RMGI) or self-adhesive cements are often preferred, while non-retentive preps benefit from conventional resin cement combined with an adhesive system.

Products like ***GC FujiCEM® Evolve*** and ***G-CEM ONE™*** exemplify the continuous innovation in dental cement technology. These cements offer an array of features and benefits, from superior bond strength to versatile application, streamlined workflow, and esthetic outcomes.

By considering these factors and leveraging the advancements in dental materials, practitioners can elevate the quality of their restorative treatments. This thoughtful approach not only ensures the longevity and stability of indirect restorations but also enhances the overall experience for both the clinician and the patient. With these considerations in mind, dental professionals are poised to achieve optimal results in their restorative procedures.

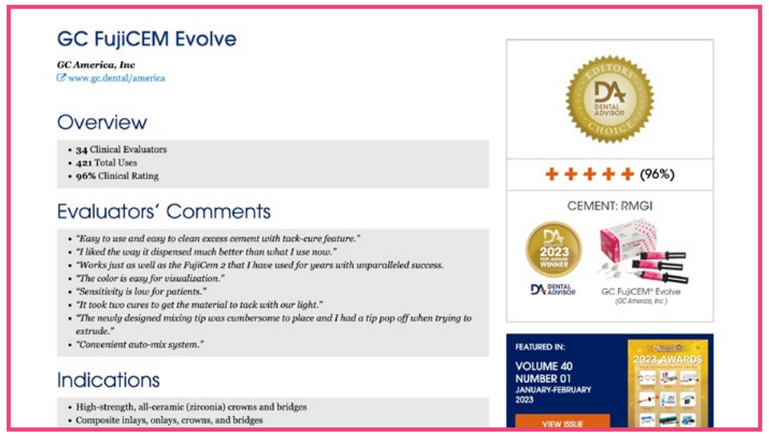
DENTAL ADVISOR™

Product insights you can trust.

LEARN MORE:

Since 1983, DENTAL ADVISOR has been a trusted expert to dental professionals worldwide with concise, accurate, and objective information. We combine clinical experience with laboratory data and report on long-term in-vivo performance of materials over time. The mission of DENTAL ADVISOR is to provide the dental profession with evidence-based and clinically relevant information on dental restorative products, infection control products and dental equipment. DENTAL ADVISOR reports objective clinical evaluations, product comparisons, comprehensive long-term clinical performance studies, and unbiased laboratory test results.

GC FUJICEM® EVOLVE CLINICAL EVALUATION



GC FujiCEM Evolve

GC America, Inc
www.gc.dental/america

Overview
- 34 Clinical Evaluators
- 421 Total Uses
- 96% Clinical Rating

Evaluators' Comments
- *"Easy to use and easy to clean excess cement with tack-cure feature."*
- *"I liked the way it dispensed much better than what I use now."*
- *"Works just as well as the FujiCem 2 that I have used for years with unparalleled success.*
- *"The color is easy for visualization."*
- *"Sensitivity is low for patients."*
- *"It took two cures to get the material to tack with our light."*
- *"The newly designed mixing tip was cumbersome to place and I had a tip pop off when trying to extrude."*
- *"Convenient auto-mix system."*

Indications
- High-strength, all-ceramic (zirconia) crowns and bridges
- Composite inlays, onlays, crowns, and bridges

EDITOR'S CHOICE

+ + + + + (96%)

CEMENT: RMGI

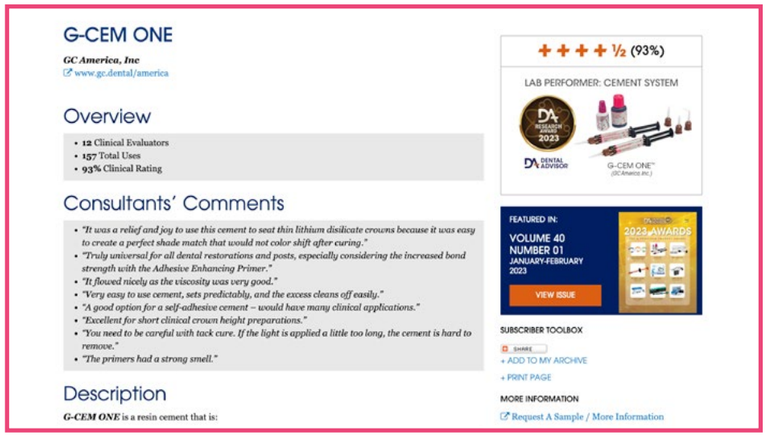
2023 RESEARCH AWARD WINNER

GC FujiCEM® Evolve (GC America, Inc.)

FEATURED IN:
VOLUME 40
NUMBER 01
JANUARY-FEBRUARY 2023
VIEW ISSUE

2023 AWARDS

G-CEM ONE™ CLINICAL EVALUATION



G-CEM ONE

GC America, Inc
www.gc.dental/america

Overview
- 12 Clinical Evaluators
- 157 Total Uses
- 93% Clinical Rating

Consultants' Comments
- *"It was a relief and joy to use this cement to seat thin lithium disilicate crowns because it was easy to create a perfect shade match that would not color shift after curing."*
- *"Truly universal for all dental restorations and posts, especially considering the increased bond strength with the Adhesive Enhancing Primer."*
- *"It flowed nicely as the viscosity was very good."*
- *"Very easy to use cement, sets predictably, and the excess cleans off easily."*
- *"A good option for a self-adhesive cement – would have many clinical applications."*
- *"Excellent for short clinical crown height preparations."*
- *"You need to be careful with tack cure. If the light is applied a little too long, the cement is hard to remove."*
- *"The primers had a strong smell."*

Description

G-CEM ONE is a resin cement that is:

+ + + + ½ (93%)

LAB PERFORMER: CEMENT SYSTEM

2023 RESEARCH AWARD

G-CEM ONE™ (GC America, Inc.)

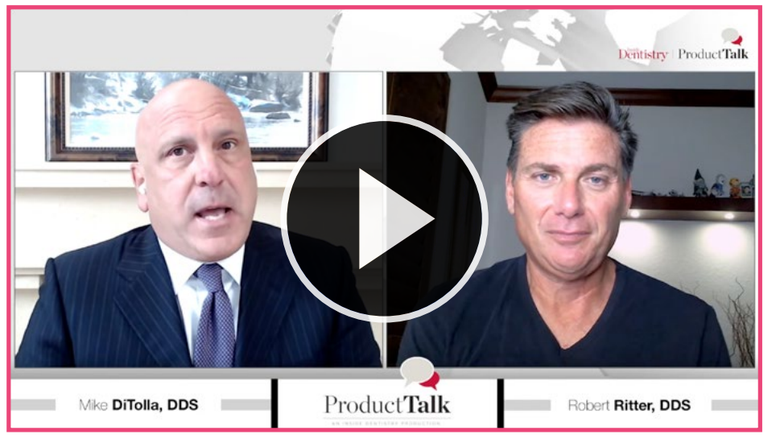
FEATURED IN:
VOLUME 40
NUMBER 01
JANUARY-FEBRUARY 2023
VIEW ISSUE

2023 AWARDS

SUBSCRIBER TOOLBOX
SHARE
+ ADD TO MY ARCHIVE
+ PRINT PAGE

MORE INFORMATION
Request A Sample / More Information

DR. ROBERT RITTER ON GC FUJICEM® EVOLVE



DR. MILES CONE SPEAKS ON G-CEM ONE™