



DIRTY LITTLE SECRETS

CLINICAL REPORT

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**AUTHOR:
DR. MED. DENT. ALESSANDRO
DEVIGUS**

Dentist.CH AG
Gartematt 7
8180 Bülach
Switzerland

INTRO

MODERN DENTAL APPLICATORS OFTEN USE FLOCKED MICROFIBERS

Dental applicators are disposable, single use application devices intended for precision intra- & extra-oral application and removal of dental materials in a variety of different shapes/forms. Their versatility allows them to be used for different applications in combination with various types of dental material, such as adhesive bonding systems, etchant gels (e.g. phosphoric acid), primers & conditioners (e.g. hydrofluoric acid, silane), composite resin-based filling materials, cavity liners, fluoride varnish, sealants and desensitizers.



Fig. 1 Two commonly used conventional flocked-type dental applicators.

The majority of dental applicators available often use flocked-type microfibers which are either mechanically- or adhesively fixed onto the end of a plastic handle. Some plastic handles can also be individualized or bent at certain bending points to provide easier intraoral access and application of the dental material.

CLINICAL CHALLENGES

FLOCKS AND EXCESS MATERIAL

The market leading dental applicators using flocked-type microfibers are quite often not ideal for today's complex chemistries and applications - and may even potentially influence long-term clinical outcomes.

Let's take a closer look in more detail:

1. Clinical results and residue:
 - Although there are only a few scientific studies demonstrating a negative effect from residual microfibers on the clinical outcome of the final restoration, many dentists performing highly esthetic restorations using optical magnification are often dissatisfied by the appearance of residual micro-fiber flocks embedded in the final esthetic restoration.
 - This residual debris could eventually cause discoloration and impair the bond strength.
2. Excess fluid upload:
 - Flocked-type microfibers often absorb an excess amount of fluid.
 - In some cases, the excess amount of fluid uploaded can enlarge the dimensional form or shape of the applicator head; thus, reducing its intraoral access into tight-fitting or irregular-shaped clinical situations (e.g. undercuts, distal posterior cavity, class V).
3. Material waste:
 - Adhesively-fixed or glued-on flocked-type microfibers can ultimately absorb excess amounts of material deposited into the restorative site.
 - This can increase the amount of material wasted.



Fig. 2 Clinical photo showing lost fiber flocks using a conventional flocked dental applicator. Courtesy of Prof. Fabio M. Salomão DDS, MsC, PhD, Brasil.

INTRODUCING THE ZEROFLOX™ MICRO APPLICATOR



FOCUS ON FLOCK-FREE AND EFFICIENCY

The introduction of the ZerofloX micro applicator from medmix Dental (Switzerland) in our dental clinic represents notable improvements regarding the way we apply different types of dental materials for a diverse range of dental treatments.

Prior to this, we have predominantly used conventional flocked-type dental applicators which are commonly used in dental clinics, but can also pose some challenges.



Fig. 3 Clinical photo showing lost fiber flocks using a conventional flocked dental applicator. Courtesy of Prof. Fabio M. Salomão DDS, MSc, PhD, Brasil.

One prominent problem is their tendency to shed fiber flocking during application; thus frequently leaving fiber debris embedded in the final restoration which typically does not pose any relevant clinical issues other than possible esthetic defects.

With ZerofloX, this clinical challenge is a thing of the past, since this micro applicator has been specially developed to eliminate the loss of fiber flocks and increase efficiency. Thanks to its unique design, we can also apply dental materials in a more precise manner for better results to our patients.

ZerofloX is a major step forward for our practice and its contribution to improving the quality of dental care. We are delighted with the positive changes that this innovative applicator has provided for our practice.



CLINICAL CASE

EFFICIENCY AND PRECISION IN DENTISTRY

ZerofloX™ is an innovative solution that eliminates the problem of residual fiber debris remaining embedded in the final restoration. It also differs significantly from other conventional dental applicators by increasing the efficiency and control of material applied.



**Soft, pliable head
Fiber-free elastomer
bristles**

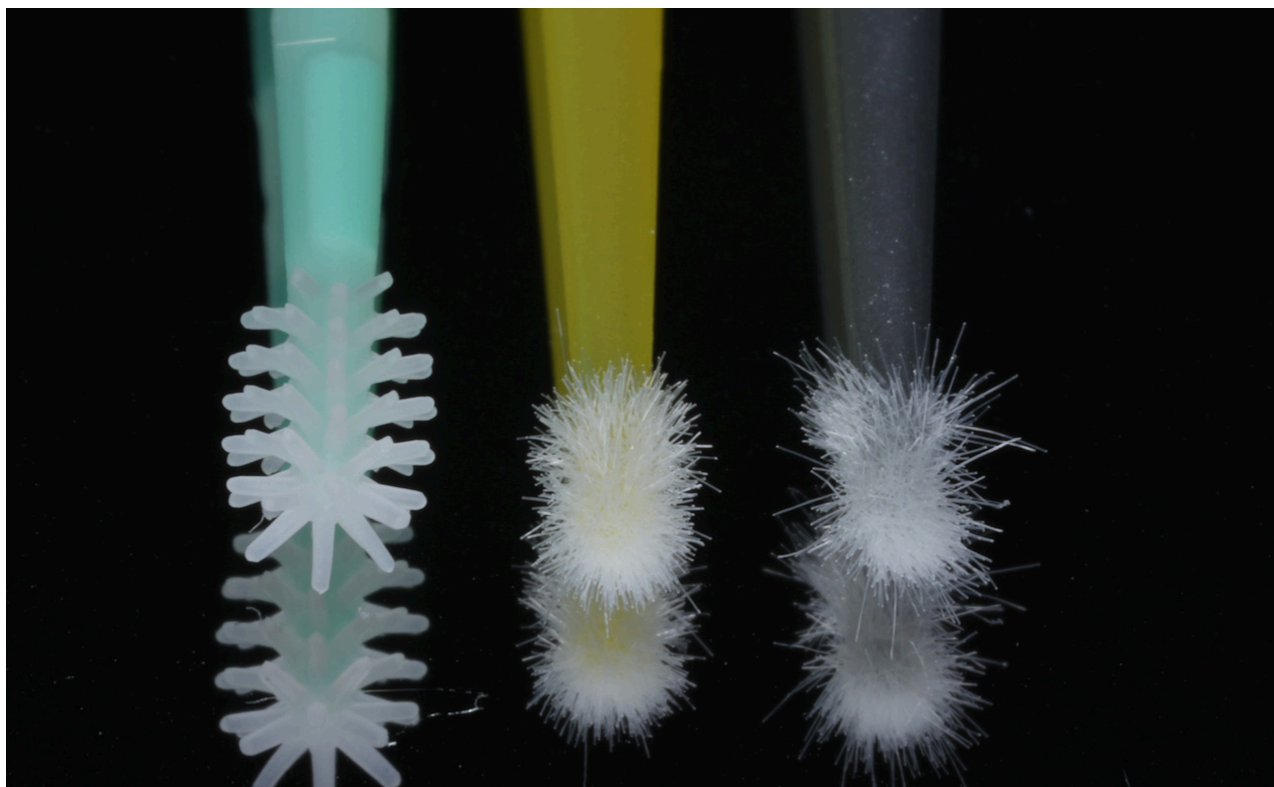


Fig. 4 ZerofloX compared to two commonly used flocked-type dental applicators.

CLINICAL CASE

OPTIMIZED EFFICIENCY AND USER-FRIENDLY APPLICATION

Zeroflox™ also offers optimized efficiency which can be attributed to its exceptional liquid absorption capabilities as well as its user-friendly application process. These characteristics are especially beneficial in delicate clinical procedures, where accuracy and preservation of materials are of the utmost importance.

Thanks to Zeroflox's adaptable head combined with its triangular-shaped grip handle and dual-bending points, clinicians can easily maneuver around intricate shapes of teeth with an unparalleled degree of control and accuracy.



**Two bending
points**

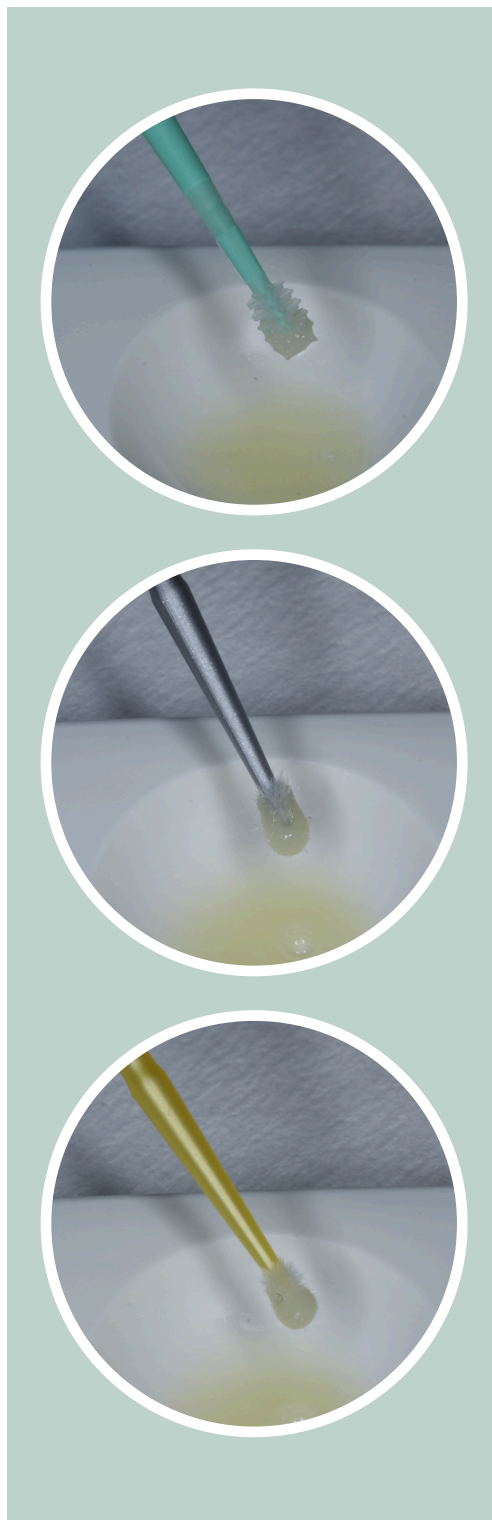


Fig. 5 Zeroflox's optimal absorption of the dental bonding agent materials demonstrate complete release of material during application to minimize material waste for every application. This feature also minimizes the need to recoat the applicator head with material several times, thus saving time and minimizing the risk of errors.

CLINICAL CASE

UNIVERSAL ACCESS FOR A VARIETY OF DIFFERENT INDICATIONS

ZerofloX™'s thinner diameter in the anterior section allows for universal access for a variety of different indications. The inclusion of these features has greatly enhanced my ability to effortlessly and accurately access difficult-to-reach tooth surfaces, especially in the posterior and distal region.



Fig. 6 Easy application of dental adhesive material in difficult-to-reach tooth surfaces using ZerofloX.



Fig. 7 ZerofloX allows for easy navigation around the shape of the tooth due to its pliable head design comprised of a soft elastomer substance and adjustable handle which can be customized according to the user's liking. This versatility guarantees that dental adhesive and other materials are applied with high precision.

ZerofloX overcomes the challenges of conventional applicators and offers an unparalleled level of control and simplicity.

CONCLUSION

NEW STANDARD FOR QUALITY OF CARE AND EFFICIENCY IN DENTAL MATERIAL APPLICATION

The ZerofloX™ micro applicator has significantly revolutionized the adhesive and material application procedures in my dental practice. The enhanced mobility and precision of our dental restorations thanks to ZerofloX has significantly improved the clinical outcome, making conventional dental applicators previously utilized in our practice now appear obsolete and less effective.

The ZerofloX micro applicator not only overcomes the restrictions of these outdated application devices, but it also has established a new standard for the quality of care and efficiency of dental material application, especially in adhesive dentistry. The incorporation of this technology in our dental office has revolutionized our workflow, greatly improving both the efficiency and clinical outcomes we can deliver to our patients.

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ABOUT THE AUTHOR



Dr. Alessandro Devigus, was born on August 21, 1962, in Sardinia, Italy. He graduated from the Dental School of Zurich, Switzerland in 1987 and has since run a successful private practice in Bülach, Switzerland. As the Editor-in-Chief of the "International Journal of Esthetic Dentistry" (published by Quintessence from 2005 to 2021), Dr. Devigus significantly influenced the field. He is an active member of the European Academy of Esthetic Dentistry (EAED) and a speaker at international events. Additionally, he imparts knowledge as a CEREC instructor at the Zurich Dental School. Dr. Devigus's passion for innovation and patient care continues to inspire dental professionals worldwide.