

32ND ANNIVERSARY

REALITY

The information source for esthetic dentistry

2018

FirstLook

BLEACHING MATERIALS



Polus Advanced Ultra

Beyond International

www.beyonddent.com

SHELF LIFE

2 years

WARRANTY

3 years

PRICES

(USA only. Please contact Beyond directly for the prices in other locations.)

Polus Advanced Ultra

\$3,950.00

Max5 Kit

\$115.00 (for 5 patients)

Total bleaching material/syringe = 2.6g/2.2ml

Cost/patient/appt = \$23.00

Blast Kit (for 1 patient)

\$22.00

Total bleaching material = 0.7g + 2.0ml

Cost/patient/appt = \$22.00

CoreWhite Take-Home Kit

\$45.00 (\$3.41/ml)

Total bleaching material = 13.2ml

Michael B. Miller, D.D.S. – President/Editor-in-Chief

Ingrid R. Castellanos, C.D. – Vice President/Publisher

Editorial Team: Leslie C. H. Ang, B.D.S., M.Sc.; David L. Baird, D.D.S., Bellevue, WA; Robert W. Baker, Jr., D.M.D., Ithaca, NY; Sema Belli, D.D.S., Ph.D., Konya, Turkey; Nathan S. Birnbaum, D.D.S., Wellesley, MA; Alan A. Boghosian, D.D.S., Chicago, IL; Matthew Brock, D.D.S., C.A.G.S., M.S.D., Chattanooga, TN; Mitch A. Conditt, D.D.S., Fort Worth, TX; Juliana da Costa, D.D.S., M.S., Portland, OR; Marvin A. Fier, D.D.S., Pomona, NY; George A. Freedman, D.D.S., Toronto, Ont., Canada; Fay Goldstep, D.D.S., Toronto, Ont., Canada; Gary Henkel, D.D.S., Horsham, PA; David S. Hornbrook, D.D.S., San Diego, CA; Mark E. Jensen, D.D.S., Ph.D., Diamondhead, MS; Thomas P. Keogh, M.D., D.D.S., Navarra, Spain; Timothy F. Kosinski, M.S., D.D.S., Bingham Farms, MI; Hannu O. Laamanen, D.D.S., M.S., Turku, Finland; Carole Landman, D.D.S., Chicago, IL; Clarence C. Lindquist, D.D.S., Washington, D.C.; Edward Lynch, M.A., B.D.Sc., Ph.D., Coventry, UK; Hans Malmstrom, D.D.S., Rochester, NY; Sandesh Mayekar, M.D.S., Mumbai, India; Steven McGowan, C.D.T., Seattle, WA; Michael K. McGuire, D.D.S., Houston, TX; Aikaterini Papathanasiou, D.D.S., Boston, MA; Christopher Pescatore, D.M.D., Danville, CA; Stephen D. Poss, D.D.S., Brentwood, TN; Robert G. Ritter, D.M.D., Juniper, FL; Joseph Sabbagh, D.D.S., M.Sc., Ph.D., Beirut, Lebanon; Andrew T. Shannon, D.D.S., Vancouver, BC, Canada; Liviu Steier, D.M.D., Mayen, Germany; Franklin Tay, B.D.Sc.(Hons), Ph.D., Augusta, GA; Marcos A. Vargas, D.D.S., M.S., Iowa City, IA; Charles Wakefield, D.D.S., Dallas, TX; Thomas G. Wilson, Jr., D.D.S., Dallas, TX; David Winkler, D.D.S., Windsor Berks, England.



A publication member of the
American Association of Dental Editors

Innovations in power bleaching have not hit the market like you would expect. WhiteSpeed, the latest version of Zoom, arguably the market leader, has been available over 6 years. Other systems, such as Natural+, have come out with enthusiastic fanfare, but have never really caught on.

Which brings us to the latest and greatest from Beyond International called Polus Advanced Ultra, a cool, new bleaching light called a whitening accelerator. It is designed to be used with Max5 whitening gel. While this gel is tried and true 35% H₂O₂, the Polus Advanced Ultra light is definitely the star of this show, combining halogen, LED, and ultrasonic technologies.

The halogen and LED produce photoactivation between 480-520 nanometers, which is basically blue light. According to Beyond, this "LightBridge" technology is synergistic with the ultrasonic cavitation energy to physically and chemically activate the Max5 bleaching gel.

This ultrasonic energy is certainly a new twist in the battle to whiten teeth as quickly and effectively as possible. A recent study found bleaching was enhanced when it was performed with light + ultrasound compared to the light by itself or no light. Granted, the study was done *in vitro* on enamel disks artificially stained in a coffee solution, so *in vivo* validation still needs to be performed. Nevertheless, since there doesn't seem to be any downside to the ultrasonic energy, it seems to be a no-brainer to utilize this technology.

The light unit has a contemporary, compact design. It takes up much less room than a Zoom light since the Polus Advanced Ultra has a folding mechanism for its arms that looks similar to the BriteSmile equipment of yesteryear. When the Polus Advanced Ultra is in its storage profile, its dimensions measure approximately 48in high x 16in deep x 16in wide. The latter two measurements are determined by its base of four casters.

Compared to the Zoom unit (65in tall x 24in deep x 24in wide), the Polus Advanced Ultra stores in a corner much easier. And it has a logo-emblazoned, customized, off-white, heavy-duty cover with a rear zipper (to make it easy to place and remove) to keep the unit clean between uses.

However, to get maximum marketing advantage from this cool system, it would seem that placing it in a highly visible spot in your office and keeping it powered up so patients would no doubt be curious and ask about it would be a better approach.

The actual unit has a tubular-like body sitting on the aforementioned four casters. This body is clad in glossy white plastic that, despite this composition, still looks upscale. It should be a positive complement to any office environment. There are bilateral, metallic silver handles near the top of the body that facilitate moving it from room to room as well as for positioning optimally for use. The front half of the top of the tubular body is angled at about 45 degrees (for easier viewing) since it contains the semicircular control panel.

The bifurcated arms holding the light head arise from the folded storage position in the back of the unit using the motorized assist (see control panel below), while the light head is ovoid, has dual handles, and is disc-like in profile. The rear of the light head's right handle also has two silver triangular buttons that function as motorized, height adjustments.

The front surface of the light head is concave to better wrap around the curvature of the dental arches. In the center of this concavity is the rectangular window (2.6in/6.6cm x 0.9in/2.2cm) through which the light is projected. There are two continuous bands of halogen lights separated by a line of several LEDs. Below this window are three, round, ultrasonic generators, one slightly larger one in the center and two smaller ones flanking it.

The front of the unit has an attractive silver accent running vertically in a tapered configuration with the pointed end at the bottom. Just above this pointed terminus is a small vent that is part of the ionizer air filter/sanitizer system. According to Beyond, this ionizer can remove airborne pollutants, odors, etc in the vicinity of the unit. While the ionizer in the default setting is active whenever the machine is on, you have the option to turn it off, although we're not sure why anyone would want to do this.

There is also a built-in, corded LED curing light sitting in a bracket on the left side (as you face it) of the unit. It is included to polymerize the BlueSeal Gingival Protection material and/or to accomplish single tooth whitening. It is a simple wand with the same metallic-like silver cladding as is featured on the unit's handles. The removable, glass tip has a curing diameter of 7mm.

There are only two buttons controlling its functions, one designated with a "C" and the other with an "S". The top "C" button is for the regular curing light. It beeps once when pushed, activates the light for 15 seconds, and then deactivates automatically without any signal. You can also deactivate it manually by pushing the "C" button again. Manual deactivation is accompanied with a beep.

Although the light output is described as "intense", we measured its irradiance at 600 mW/cm², which in the LED curing light universe, can only be considered mediocre at best. Nevertheless, its power is more than adequate to polymerize the gingival protection resin.

The "S" button controls the single tooth bleaching function. Select the single tooth whitening mode on the unit's control panel and set your preferred bleaching time. Beyond recommends 12 minutes. Then press the "S" button to activate the curing light, which will stay illuminated until the bleaching session is over. You can either hold

the light manually, which will no doubt be a nuisance, or there is a holder device that attaches to the lighthead, which definitely looks like the better option. We did not test the single tooth mode.

Additionally, there is a cordless remote control that is about the size of a mini garage door opener. You give the patient this remote control to allow him/her to pause the unit's operation for any reason, press the Time button to tell the patient how much longer the bleaching interval will be, and to call you (if you walk out of the treatment room) via a beeping sound.

As noted previously, the main bleaching gel is called Max5. It is 35% hydrogen peroxide gel that comes in a typical, dual-barrel syringe with an automix tip. There is also an auxiliary, pre-treatment, presumably extra-strength bleach called Blast, which is meant to be used in difficult whitening cases such as tetracycline staining. It is also 35% hydrogen peroxide in liquid form, which is hand-mixed with silicon dioxide catalyst powder. As per Beyond, Blast can diffuse through enamel more efficiently than the Max5 gel, but could also cause more sensitivity, which is why it is only recommended for the difficult cases.

Note: There are other products in Beyond's whitening portfolio that we did not evaluate. Please go to the Beyond site for the complete range of products offered.

By soft touching the power button on the bottom of the control panel, the unit comes alive with a futuristic-like sound. The display, which measures 4.2in/10.7cm x 2.5in/6.4cm, sits in the middle of a black background, giving it a uber-cool appearance. With primarily white characters on a backlit blue or black background, it is easily read.

The center is dominated by the bleaching time indicator in large digits. Above this readout are five icons displaying various settings. To the left of the time display are arrows allowing you to

increase or decrease the bleaching time from the 10-minute default. On the right are similar arrows allowing to raise or lower through a motorized assist the height of the main control arm holding the lamphead.

Running across the top of the display is a white band with the Home button in the left corner, while the Settings button occupies the right corner. At the bottom of the display is a black band that includes various functions such as Start/Pause, Mode, and Whitening Range.

The actual bleaching session is not much different than what you are probably already doing if you are using Zoom except for one major difference — you don't have to install a light guide with a chip that controls whether the light itself will actually operate. This means you are free to use any bleach you choose. While Beyond believes its whiteners are the best, it doesn't hold you hostage like Phillips does with Zoom.

After doing a light rubber cup prophylaxis, isolate the arches with the supplied retractors that also have a tongue shield and with strategically placed cotton rolls. Cover the marginal gingiva with the BlueSeal resin, which we found to have an easy-to-use, nonrunny viscosity and only slight heat generation when light curing it. Dispense the Max5 gel directly on the teeth, position the light in front of the patient's teeth, and push Start.

The lights (halogen and LED) come alive along with the cooling fan. Most of the light seems to be from the halogen strips. Three of the five icons also activate showing the fan, ionizer, and ultrasonics are doing their jobs. The unit announces in perfect English when three minutes are remaining in the 10-minute bleaching session to alert the staff and patient.

After 10 minutes, the unit announces that the session is complete. The fan continues to cool the unit for a few minutes and the ionizer contin-

ues to clean the air, but the light and ultrasonics are automatically deactivated. You suction the gel (don't rinse) and reapply it for two additional, 10-minute sessions.

Note: You need to budget the thickness of the bleaching gel per session or you may run out before covering the teeth for the third application. Or you can purchase Max5 in a larger syringe containing 4g instead of the 2.6g in the syringe we tested.

For really dark teeth, mix the Blast's powder and liquid to a smooth but not runny consistency, apply to the teeth, and after changing the setting to the recommended 6 minutes, push Start. After 6 minutes, suction the gel (don't rinse) and apply Max5 as above for the three 10-minute sessions.

Note: These are the recommended times by Beyond. However, if you are experienced in power bleaching, there is nothing stopping you from freelancing. For example, even though the medium power setting is designed for most patients to minimize sensitivity, the high setting could certainly be used on patients who have not experienced post-bleaching sensitivity during previous whitening sessions assuming the patients understand that you can lower the setting or curtail the session if any untoward symptoms arise.

For this preview, we bleached two patients. The first patient was a 20-year-old college student who had already home bleached in the past. Although his starting shade was A1, he still wanted even whiter teeth. His immediate shade after 30 minutes of bleaching his maxillary teeth on the medium setting was lighter than B1. However, we were not able to check his shade at our regular one week postop (to discount the desiccation effect of the bleaching session) due to his school schedule.

The second patient was a 63-year-old woman with tetracycline staining who has been power bleached twice in the past with only mediocre

results. Her starting shade was C1.5, which changed to lighter than B1 immediately after a 6-minute Blast and 30 minutes of Max5 bleaching using the medium light setting. This patient experienced only very slight sensitivity for the first 12 hours after bleaching.

At one week, the shade was equal to B1 in value, but the grayish tetracycline hue was still evident. (It is unreasonable to expect that bleaching will change the basic hue of teeth.) And since we only whitened her maxillary teeth, the subjective comparison between her maxillary and mandibular arches found her maxillary teeth were visibly lighter than his mandibular teeth.

From these two cases, we have four preliminary recommendations:

1. Use the high light setting on patients who do not have sensitive teeth. We used the medium setting, but since both patients experienced only slight sensitivity that dissipated quickly, the high setting could be more effective.
2. Consider using Blast instead of Max5. Just like using the high setting, Blast could be more

effective than Max5. We would certainly consider it for our next patient, regardless of his/her starting shade.

3. If the patient is not uncomfortable after 30 minutes of bleaching, consider another 10 or 20 minutes. Since bleaching has always been time-related, a longer session could produce better results.
4. Just like virtually all other power bleaching systems, it would be prudent to combine power with home bleaching. Beyond's home bleaching product, called CoreWhite, is 6% H₂O₂ and comes in the typical mint plus a unique orange flavor. Its price is also lower than most other home bleaches.

The directions come in a 19-page, spiral-bound manual printed on glossy paper. There are numerous color photos and illustrations supplementing the easy-to-understand instructions. The unit itself has a treatment guide that covers whitening treatment plans, controlling sensitivity, avoiding rebound, and home bleaching maintenance. The information in this treatment guide may be useful for novices, but experienced clinicians may find it somewhat elementary.

BOTTOM LINE

The Polus Advanced Ultra System is well-conceived, intelligently designed, and convenient to use. While its initial cost is higher than Zoom (Beyond has promotions that can lessen the startup costs), you are not locked into purchasing the higher priced Zoom kits. With its higher H₂O₂ concentration, several levels of light/heat energy, and ultrasonics, it should produce better results than competitive systems.

To become a member of REALITY, please visit our Web site at www.realityesthetics.com.

NO COMMERCIALIZATION POLICY

We accept no advertising and are not beholden to any commercial interest. Product evaluations and ratings are intended only to guide our readers to make wise and informed purchases. The unauthorized use of product evaluations and ratings in advertising or for any other commercial purpose is strictly forbidden.

REALITY (ISSN#1041-8253) is an online information service from **REALITY** Publishing Company, 11757 Katy Frwy., Suite 210, Houston, TX 77079-1717, U.S.A., 800-544-4999, 281-558-9101, Fax 281-493-1558. A one-year membership includes access to the online database plus nine PDF issues of **REALITY NOW**. Call for membership and publication rates or access our Web site for enrollment information. Payments by check must be in U.S. funds drawn on a U.S. bank, or by Visa, MasterCard, or American Express. All rights reserved. No part of **REALITY** or **REALITY NOW** may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system without the written permission of the Publisher, except where permitted by law. Copyright ©2018 by **REALITY** Publishing Company. GST #898-896-659. POSTMASTER: Send address changes to **REALITY** Publishing Company, 11757 Katy Frwy., Suite 210, Houston, TX 77079-1752.



Your Whitening One Stop Shop

Because BEYOND products are designed to work together, it's easy to create a custom treatment plan for every smile. We offer a full range of in-office treatments, take-home kits, and oral hygiene products for your whitening needs.



248,000+
Satisfied Dentists



27,000+
Treatment Locations
Worldwide



2,500,000+
Optimized Smiles



www.beyonddent.com



Please contact us directly to hear about seasonal promotions.
Questions? Call +1-866-695-6452 M-F 9:00 a.m. – 5:30 p.m. CST