

THE RATINGS | Bleaching Materials and Equipment – Power

REALITY

Four Star Award



(4.2)

Polus Advanced Ultra

MANUFACTURER

Beyond International

www.beyonddent.com

PRICES

Polus Advanced Ultra

\$4,150.00

Max5 Kit

\$118.00 (for 5 patients)

Total bleaching material/syringe = 2.6 g/2.2ml

Cost/patient/appt = \$23.60

Blast Kit (for 1 patient)

\$28.00

Total bleaching material = 0.7g + 2.0ml

Cost/patient/appt = \$28.00

CoreWhite Take-Home Kit

\$47.00 (\$3.56/ml)

Total bleaching material = 13.2ml

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

SHELF LIFE

2 years

WARRANTY

3 years

RAVES & RANTS

- + Very cool unit with numerous options
- + Doesn't require proprietary sensor to operate
- Cost of unit
- Results can be unpredictable

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INTRODUCTION/MANUFACTURER'S CLAIMS

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 7 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. Most (71%) evaluators thought the overall design was very cool and really liked it, while the other 29% felt it was acceptable but not exceptional. One evaluator noted it has a very modern look to it, while another commented that patients were very complimentary.

COMPOSITION

Max5	35% H ₂ O ₂ gel. Primary bleaching gel.
Blast	35% H ₂ O ₂ powder/liquid. Auxiliary, pre-treatment, presumably extra-strength bleach meant to be used in difficult whitening cases such as tetracycline staining. Liquid H ₂ O ₂ 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.

ACTIVATION UNIT/MODE

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 + ultra-sound 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 evaluators were split right down the middle on whether the three activation technologies are actually more effective than just a one-technology light. Half of the evaluators felt the combination of activation energies definitely are superior, while the other half were not convinced.

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. All evaluators found the storage size to be acceptable, although one evaluator noted that it could be bulky for boutique-type practices. On the other hand, all evaluators found moving it from room to room was easy.

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. Half of the evaluators really liked the cover, while the other half thought it was acceptable.

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.

Most (57%) evaluators considered getting the arms unfolded and ready to use was easy, while the other 43% felt this task was cumbersome. One evaluator noted this maneuver had a slight learning curve, while another felt it was challenging. The reverse movement of folding the arms back into the body was less of an issue, with most (71%) evaluators considering it to be easy, while the other 29% feeling it was cumbersome.

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 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.

However, no evaluators were able to detect that the

air around the unit was fresher. Most (57%) evaluators just were not sure, while the other 43% were doubtful it helped at all.

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. All evaluators found the light worked well curing the resin shield, but 43% felt its position and cord made its use somewhat of a nuisance.

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. Only one evaluator used the curing light in the single tooth mode and found that it worked fine by holding the light manually.

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. Although all evaluators except one gave the remote to patients to use, only one evaluator noted that his patients actually used it.

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. Most (57%) evaluators really liked the motorized height adjustment, while 29% felt it was just OK and 14% didn't find it to be useful. One evaluator noted its movement was somewhat slow.

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.

When the light is in use, all evaluators except one found its size to be acceptable, while the lone dissenter felt it is too large and somewhat cumbersome.

RECOMMENDED TOTAL BLEACHING TIME

36 minutes per appointment.

APPROXIMATE LENGTH OF APPOINTMENT

60 minutes per appointment (includes actual bleaching time, isolation procedures, polishing before bleaching, removal of isolation at end, etc.)

pH

Max5	4.0 - 6.0
Blast	3.5 - 5.5

SOFT TISSUE PROTECTION

BlueSeal resin Easy-to-use, nonrunny viscosity and only slight heat generation when light curing it. All evaluators found it easy to apply and found its color and viscosity to be acceptable.

USE

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 Philips does with Zoom. Most (71%) evaluators really appreciated being able to use any bleach, while the other 29% did not consider it to be a major factor. One evaluator noted that he stopped using Zoom for that reason.

After doing a light rubber cup prophyl, isolate the arches with the supplied retractors that also have a tongue shield and with strategically placed cotton rolls. Apply the BlueSeal resin, dispense the Max5 gel directly on the teeth, position the light in front of the patient's teeth, and push Start. Dispensing, mixing, and applying the Max5 gel was considered easy by all evaluators. Its viscosity was considered acceptable by all evaluators.

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 continues 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.

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. Dispensing Blast was considered easy by all evaluators except one. Mixing and applying Blast was considered easy by all evaluators.

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.

The evaluators were just about split down the middle as to which bleach they used. Although 14% just used Blast, the other 86% either used just Max5 or Blast + Max5. For the power level, 43% used medium, 28.5% used high, and 28.5% stated it depended on the patient. One evaluator started at low power and then raised it to medium.

All evaluators except one found the unit easy and intuitive to use, while the lone dissenter thought it was complicated and cumbersome. For the control panel itself, most (57%) evaluators found it easy and intuitive to use, while the other 43% still needed the user manual to guide them through the operations.

WHITENING RESULTS

Just like with most power bleaching systems, this was a mixed bag. Most (57%) evaluators used the

Vita shade guide before and after, 29% used a shade computer, and 14% used a shade guide and the opposing untreated arch as a control.

Blast for 6 minutes followed by 3 sessions 10 minutes each of Max5

Most (67%) evaluators reported visibly apparent whitening occurred for most of their patients, while the other 33% stated it always produced visibly apparent whitening. However, two evaluators noted the whitening from one session relapsed at subsequent visits.

3 sessions 10 minutes each of Max5 (no Blast)

Most (60%) evaluators reported visibly apparent whitening occurred for all of their patients, while 20% stated it produced visibly apparent whitening most of the time and 20% found it did not produce visibly apparent whitening. One evaluator noted he needed to stop the session due to sensitivity while another stated whitening was more apparent when Max5 was preceded by Blast.

PATIENTS' RESPONSES

Most (57%) evaluators reported that all patients were pleased with the whitening results, while 29% stated some were pleased and some were disappointed and 14% noted all patients were disappointed.

SENSITIVITY

The occurrence of sensitivity was another mixed bag, including the power level used. Half of the evaluators who used high power stated their patients had sensitivity most of the time during the procedure, while the other half reported no sensitivity from high power. One evaluator who switched from medium to high stated that patients had no complaints either way. After the procedure, only one evaluator reported that patients had sensitivity after high power was used.

If patients had sensitivity, it was not long lasting, with 60% stating it faded after 1-2 days and for 40%, it had resolved in 24 hours.

During the Procedure

With Blast + Max5, most (67%) evaluators stated it produced sensitivity some of the time, while the

other 33% had no sensitivity. Three evaluators noted the sensitivity was minor and not significant.

With Max5 alone, half of the evaluators stated it produced sensitivity some of the time, while the other half had no sensitivity.

After the Procedure

With Blast + Max5, most (67%) evaluators stated it produced no sensitivity, while the other 33% had sensitivity some of the time.

With Max5 alone, most (67%) evaluators stated it produced no sensitivity, while 16.5% had sensitivity most of the time and 16.5% all the time.

DESENSITIZATION

Most (60%) patients were told to use desensitizing toothpaste or a desensitizer like MI Paste, while 20% used analgesics and 20% used potassium nitrate gel in a bleaching tray.

MARKETING MATERIALS

Standing and wall full color posters in a vertical orientation featuring two smiling young women, one which is wearing a hard hat! There is another wall poster in a horizontal orientation with two smiling young men and one young woman, with one of the men and the women wearing athletic handbands. There is also a 4-fold flyer with the aforementioned two young women.

For those of you who are more into monochromaticity, there are two additional wall posters on "Discovering your smile potential", one with a young smiling woman playing with her tussled hair and the other with a smiling young man in a black t-shirt. Very hip.

PACKAGING

All evaluators found the packaging to be acceptable.

Max5 Sealed foil pack with labels on the top and bottom identifying the product. Label on bottom includes all details including the contents, expiration date, and need to refrigerate. The actual bleaching gel comes in a typical, dual-barrel syringe with an automix tip.

Blast Sealed foil pack with labels on the top and bottom identifying the product. Label on bottom includes all details including the contents and expiration date, but there is no proclamation whether it requires refrigeration. The H₂O₂ liquid comes in a plastic bottle, while the silicon dioxide powder is in a jar.

DIRECTIONS

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. All evaluators found the instructions to be acceptable.

Strengths

Very slick, futuristic unit with many operational options. Ultrasonic technology is unique, with one study validating its efficacy. Choice of bleaching materials. Does not require a proprietary sensor to operate. Bleaching results were mostly positive. Sensitivity was minimal and short-lived. Most patients were impressed with the unit and results.

Weaknesses

Does not always produce long-lasting whitening results. While unit is relatively compact, it can still be cumbersome to manipulate in a tight treatment room.

BOTTOM LINE

Well-conceived, intelligently designed, and convenient to use, but just like competing systems, its one-visit whitening results can be equivocal. Here are some suggestions to increase its effectiveness:

1. Use the high power setting on patients who do not have sensitive teeth.
2. Use Blast in conjunction with Max5 on all patients.
3. If patients are not uncomfortable after 36 minutes of bleaching, consider another 10 or 20 minutes.
4. Just like virtually all other power bleaching systems, combine power with home bleaching.

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POLUS[®]

Advanced Ultra[®]
Whitening Accelerator

Combines **halogen, LED and ultrasonic** technologies to provide a premium whitening experience.

We offer a full range of in-office treatments, take-home kits, and oral hygiene products for your whitening needs.



BEYOND[®] MAX5[®] Treatment Kit



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