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The GERMIPHENE® Review

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PIXIE PEARLS™

Next Generation Prophy Powder offers enhanced cleaning capabilty while preserving tooth and soft tissue structure

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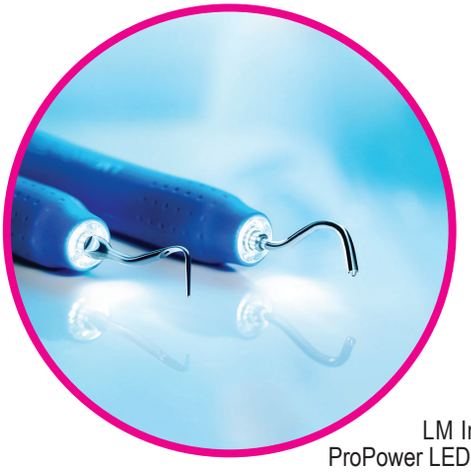
Since its earliest recorded history, the goal of dental treatment has been to preserve tooth structure and prevent further destruction of the tooth. To that end, modern preventive dental hygiene has been an important and necessary part to dental treatment.

Recently there has been many comparisons made between the use of Air Polishing treatments versus Rubber Cup prophy treatments. Both sides of this debate put forth valid and worthy arguments. Proponents of the rubber cup method hold that the rubber cup method is kinder to tooth and soft tissue structure while those who support the use of Air Polishing believe that the increased contact and speed of air polishing provides them with a clinically superior treatment modality and that any acute harm to tissue is both short lived and clinically insignificant.

An additional point of consideration has arisen in recent years which supports the notion that there are abrasive powders which have greater cleaning ability than old abrasives (such as Sodium Bicarbonate) and that they are much kinder to soft tissue. This report reveals our findings and provides some simple comment sense reasons to incorporate air polishing into your practice.

In January 2011, Germiphene Corporation introduced a revolutionary new Air Polishing Powder called *Pixie Pearls*™. Unlike older powders, *Pixie Pearls*™ is a Calcium Carbonate product that provides exceptional cleaning properties while minimizing damage hard tooth structures and soft tissue.

A clinical study on the use of old style Sodium Bicarbonate abrasive powder by Vande Velde, Adrieaens and De Boever concluded that while there was profound cleaning capacity for Air Polishing treatment, there was clinically significat damage to both hard and soft tissue. Using clinical, histologic and SEM studies on the use of Dentsply Prophyjet/Sodium Bicarbonate, all patients showed gingival desquamation (damage) which could last up to 3 days. In post treatment follow up it was observed that several patients also suffered from aphthous ulcers. The gingiva of the Prophyjet treated areas showed severe epithelial damage including papillary connective tissue. Considered in isolation from other data, it might be concluded that one should stay away from this sort of treatment however, other studies have shown results in direct opposition to the above study. Specifically, a 1991 study by LM Weaks, NB Lescher, et al compared effects of Air Polishing and Rubber cup polishing using a randomized “split mouth” model. Their study concluded that Air Polishing removed plaque and stain as well as the rubber cup method and it does so in less time. Although some initial soft tissue impact was observed (Trauma index of 0.23) Post operative follow up in 6 days showed that the relative trauma scores of either Air Polishing or Rubber Cup treatment were not significantly different. Similar results were shown for marginal gingival redness and bleeding upon probing. They concluded that Air Polishing was an excellent alternative instrument for removal of plaque, and tooth stain.



LM Instruments
ProPower LED Handpiece

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Is there a point where speed and efficacy of air polishing treatment can override clinically insignificant soft tissue impact – and provide superior treatment outcomes? Is there a cleaning powder that can provide superior results with little or no trauma to hard and soft tissue?

With the introduction of *Pixie Pearls*™ Calcium Carbonate Prophy powder, dental professionals may now safely utilize Air Polishing as an effective and minimally invasive solution to the removal of tooth stain and plaque. Utilizing next generation LM Instruments Air Prophy/Scaling equipment, studies were performed using two separate Sodium Bicarbonate based Prophy Powders and one Calcium Carbonate powder. The Sodium Bicarbonate particulate was of random shape and size and charcterized by some sharp edges and some wide flat sides. *Pixie Pearls*™ Calcium Carbonate powder was of spherical shape without sharp protrusions or flat surface areas.

After exposing sample teeth and temporary metal crowns to both the Sodium Bicarbonate and Calcium Carbonate powder, for equal times and at equal distances it was clearly evident that the *Pixie Pearls*™ Calcium Carbonate powder cleaned significantly better than the Sodium Bicarbonate powder. Of greater significance from a clinical standpoint was the fact that the Calcium Carbonate did not damage hard tooth structure, whereas severe abrasion was observed with both of the
Sodium Bicarbonate powders.

Pixie Pearls™ exhibit greater cleaning action than old style Sodium Bicarbonate Powders because all sides of each particle are able to clean, whereas only the sharp sides of the Sodium Bicarbonate particle provide optimal cleaning activity. Flatter sides are unable to remove stain but contribute to the quantity of superfluous slurry that must be managed with large quantities of water. Since the *Pixie Pearls*™ particulate can clean on all surfaces, the amount of water required to manage the resultant slurry may be reduced making it easier to manage for both the Dental Professional and the patient.

Additional Considerations:

Older style Prophy Powders are notoriously associated with clogging of equipment which unnecessarily delays treatment. This is frustrating to both the patient and the dental care provider. Jamming of prophy jet nozzles is the inevitable result of humidity or moisture contacting Sodium Bicarbonate. Because there are numerous flat surfaces to Sodium Bicarbonate particles, even minute amounts of water tend to bind the particles together in much the same way as a brick wall or cobblestone street are formed. The resultant blockage can be difficult to clear and can sometimes result in damage to equipment or even cause “sharps” injuries to the Dental professional as they try to clear the blockage. The spherical particulate of *Pixie Pearls*™ Calcium Carbonate powder has significantly less contact area between particles allowing less area for moisture to create a bond between particles. The resultant powers is less apt to jam nozzles, foul internal lines or lead to down time of the unit – sometimes for extended periods of time due to expensive servicing.

With the advent of Calcium Carbonate Prophy powders such as *Pixie Pearls*™ and “next generation” delivery systems such as the LM ProPower Air Prophy/Power Scaler, Dental Professionals now have the products and delivery systems available to affect superior dental hygiene and perio treatments in a timely and cost effective manner. With the use of these products, treatment is improved by reducing damaged to hard and soft tissue, minimizing the amount of slurry required to affect treatment and by virtually eliminating down time due to equipment failure.

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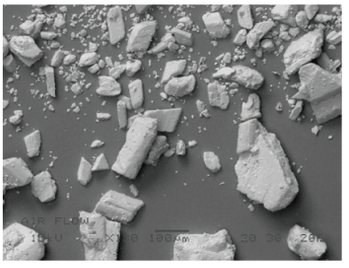
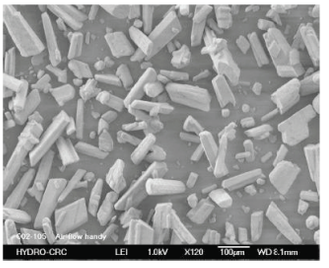
For further information, EM pictures of the following products are shown here:



Air-Flow Photo I



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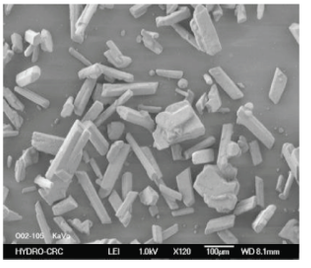
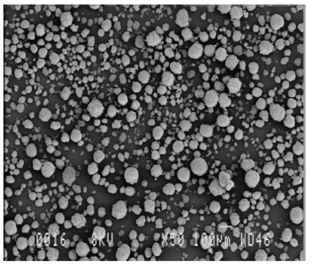


PROPHYflex Sodium Bicarbonate



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