

**Tyvek® Rx**  
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**Printing on Tyvek®**

## **Tyvek® Helps Calcitek Get to the Root of Periodontal Disease**

More than half of all people over the age of 18 show signs of some type of periodontal disease, such as gingivitis or periodontitis. These virtually painless disorders are caused by a variety of bacterial infections that attack the gums, bone, and ligaments that anchor the teeth into the jaw. Without regular dental checkups, periodontal disease can go undetected for years -- until the damage is so extensive that tooth loss is inevitable.

Guided Tissue Regeneration (GTR), a surgical procedure for advanced cases of periodontal disease, treats defects located below the gumline. During GTR therapy, plaque is removed from the root of the tooth, and a barrier membrane is placed over the defect. This membrane guards the cavity against tissue invasion, giving bone and ligaments sufficient time to regenerate. Traditionally, only nonresorbable membranes were used, requiring clinicians to reopen the site several weeks later to remove the membrane. Today, the development of resorbable membranes has virtually eliminated this need for a second surgical procedure, so the healing process continues uninterrupted .

Calcitek, Inc., a member of the Sulzermedica consortium of medical device manufacturers, is a global leader in innovative oral rehabilitation technologies, including dental implants and wound dressings used in dental surgeries. In response to the growing popularity of resorbable membranes for GTR therapy, the California-based company recently introduced the BioMend™ absorbable collagen membrane. Made from Type I medical-grade collagen, the purest source of collagen available, the BioMend™ membrane is available both in the United States and internationally.

According to Jamie Balis, Product Manager, membranes used in GTR therapy must conform to the size and shape of the periodontal defect being treated. Because no two defects are exactly alike, membranes are usually trimmed to match the area of the defect, requiring a great deal of skill and patience on the part of the clinician.

"Compared to competitive copolymer materials, the BioMend™ membrane comes in a sheet form and handles in a superior fashion, making it uniquely suited for custom shaping," said Balis. "And, to make the trimming process even easier, every BioMend™ membrane comes with a special template the clinician can use as a guide." The template for the BioMend™ membrane is made from medical-grade DuPont Tyvek® spunbonded olefin -- a decision

Calcitek arrived at after investigating a number of configurations and materials.

We looked at stencils, stainless steel "cookie cutters," and dental films and foils, but these materials were either too flimsy or cost prohibitive," Balis noted. "Also, Calcitek's clinical advisors indicated a strong preference for paper-like patterns that could be trimmed to the proper shape, then placed against the membrane to cut a duplicate shape. This reduces the likelihood of the membrane becoming contaminated because it is only placed in the site one time. We had been packaging our dental implant products in Tyvek® for years with great success, so it seemed only natural to evaluate it for this new application, too."

Balis explained that a number of features make medical-grade Tyvek® an attractive material for the BioMend™ template. For starters, Tyvek® is exceptionally strong and highly resistant to water. These properties are particularly important because the template is exposed to continual handling, saliva, and rinsing as the clinician adjusts it to the size and shape of the defect. In addition, the unique structure of Tyvek® minimizes fiber tear, which means there is little chance of particulate contamination when the trimmed template comes in contact with the BioMend™ membrane. Finally, Tyvek® is compatible with ethylene oxide (EtO), the technique Calcitek uses to sterilize its templates.

Tyvek® is converted into the BioMend™ template by Mangar, Inc., of New Britain, Pennsylvania. Mangar embosses the Tyvek® with a dimple pattern to differentiate it from the BioMend™ membrane, then precuts three commonly used shapes -- an "H," a "U," and an apron-like configuration. The template also includes an open area for customized shapes.

Balis noted that although most competitive membranes are available strictly in precut configurations, the BioMend™ membrane is offered in sheet form -- an advantage tied directly to the use of the Tyvek® template.

"By trimming the template first, then the membrane, the clinician avoids having to keep large inventories on hand to accommodate different defect sizes and shapes," said Balis. "Using the template also greatly reduces the margin of error in properly shaping the BioMend™ membrane."