



### Primary Advantages of BLIS K12® for Oral and Breath Support:

- Activates in the mouth to support healthy balance of bacteria\*
- Able to colonize and persist in the mouth\*
- Helps maintain long-term breath freshness\*
- Safe and effective for children and adults\*
- Promotes oral health\*
- Supports healthy levels of beneficial microbes in the mouth\*

## Probiotic for Oral and Breath Support

Halitosis is the term given to bad breath. Studies have shown up to 50% of people can suffer from halitosis. Like body odor, halitosis is a major source of personal embarrassment and can severely affect social interactions. There are a number of factors that contribute to bad breath including metabolic disorders and poor diet choices. However, the main source of bad breath is an imbalance of bacteria residing in the oral cavity.

Bad breath is mainly caused by the breakdown of proteins on the tongue by certain bacteria, and the subsequent release of volatile sulfur compounds. BLIS K12 inhibits these bacteria and therefore targets the source of bad breath instead of just masking it.

### Support Healthy Bacteria in the Mouth for Oral and Breath Support

*Streptococcus salivarius* (*S. salivarius*) is among the most numerous, bacteria found in the mouth of healthy individuals. However, only a small percent of people have *S. salivarius* with beneficial BLIS K12 activity. Scientists found that this particular K12 strain of *S. salivarius* secretes powerful antimicrobial molecules called Bacteriocin-Like-Inhibitory Substances. These have the ability to inhibit harmful bacteria such as the bacteria responsible for bad breath, sore throat and other upper respiratory infections.

### Why is BLIS K12 so unique?

Typically, long-term bad breath sufferers attempt to “mask” the odor with cosmetic products such as mouth rinses, gums and sprays. Alternatively, various expensive and complicated treatments involve the short-term reduction of the malodorous bacteria (as well as good bacteria) from the mouth. However, their numbers soon return to previous levels without structurally solving the problem.

Odiferous species such as *Porphyromonas gingivalis*, *Fusobacterium nucleatum* and *Prevotella intermedia* grow uncontrollably and produce malodorous by-products, known as volatile sulfur compounds (VSCs) following the metabolism of proteins and subsequent breakdown of certain amino acids, such as cysteine and methionine. These VSCs are the basis for experiencing bad breath. Furthermore, studies have found halitosis sufferers have lower numbers of beneficial bacteria such as *Streptococcus salivarius*.<sup>(2)</sup> Therefore, reintroducing these bacteria addresses the root cause of bad breath.

\*These statements have not been evaluated by the Food & Drug Administration. Our products are not intended to diagnose, treat, prevent or cure any disease.

Using the *S. salivarius* K12 probiotic increases beneficial *S. salivarius* levels in the mouth as these microbes bind to human epithelial cells restoring a balance of beneficial non-malodorous bacteria.<sup>(1)</sup> As seen in Figure 1 below, studies have shown subsequent reduction in VSC levels to more acceptable levels as a result of taking *S. salivarius* K12 products daily for 14 days.<sup>(3)</sup>

BLIS K12 is an advanced probiotic for long term breath support. It is a specific strain of *S. salivarius* with actions to help provide a natural long-term breath support and maintain overall oral health.

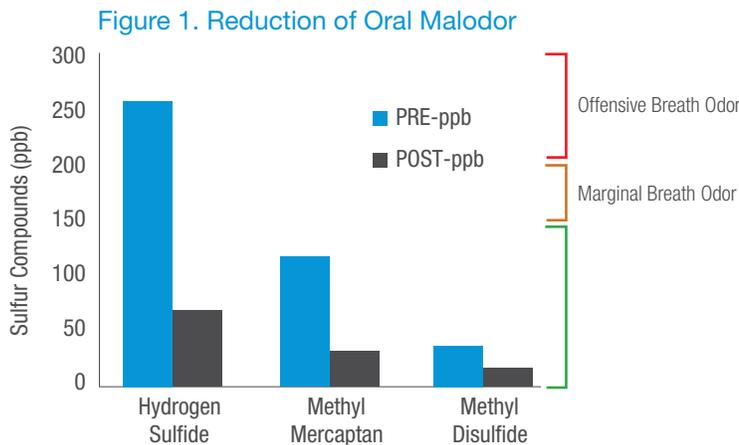


Figure 1: Reduction of total measurable Volatile Sulfur Compounds (VSCs) (ppm) after 2 weeks dosing with *S. salivarius* BLIS K12.

## References:

1. Guglielmetti et al, Appl. Environ. Microbiol. 2010 June; 76(12): 3948–58.
2. Kazor et al. J. Clin. Microbiol. 2003. 41: 558–63.
3. Burton et al. J. Appl. Microbiol. 2006, 100(4):754-64.

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