NanoTechnology

SilicoDent™

Mouth Wash

Protects from gum bleeding, periodontitis[1], caries and reduces dental plaque formation

Indications: SilicoDent is particularly recommended to people with gum bleeding and periodontitis, for oral mucosa protection after chemotherapy or recurrent canker sore. Regular use protects from dental plaque formation. It reaches the places where neither tooth brush nor dental floss can reach. It restores fresh breath.

Composition: (INCI) Aqua, Hydrated Silica, Menthol, Eucalyptol, Thymol, Xylitol (E967), Glycerin (E422) Alcohol (E1510), Xanthan Gum (E415), Methylparaben (E218), Ethylparaben (E214), Sorbic Acid (E200), Brilliant Blue (E133), Natural Mint Fragrance.

Directions for use:
Shake well before use. Wash your mouth with 15 ml (one table spoon) of undiluted preparation for several minutes. After use do not rinse with water again. Accidental consumption is harmless. Use after every time you brush your teeth at least twice a day, once in the morning and once in the evening, preferably after each meal if possible.

Properties and mode of action: Colloidal silica sol (an active ingredient of SilicoSan) has amazing binding properties. Due to the physical forces (so called van der Waals force[2]) created in an aqueous solution of colloidal silica it works like a magnet that binds to it all impurities like bacteria, their toxins, allergens, blood, water, etc., from the surface it is applied onto. One mole[3] of colloidal silica sol, thanks to these forces, has an adsorption[4] surface bigger than that of a soccer field. On the other hand silica is very inert chemically and hardly goes into chemical reactions. This makes the usage of SilicoDent so very safe.

SilicoDent can be used by anybody. However, it is recommended particularly to persons with gum and periodontal diseases or oral mucosa problems. SilicoDent contains colloidal silica that binds and facilitates removal of small particles like rests of food, bacteria, their toxins and blood from hardly accessible places in your mouth e.g. dental pockets. The bacteria that are in dental pockets produce enzymes that break down proteins and change pH[5] into alkaline (in contrast to bacteria that cause dental decay, which break down sugar and change pH into acidic). Only very small quantities of actives can penetrate into dental pockets when brushing teeth or rinsing mouth. It is far too little to produce any substantial healing effect. Thanks to the huge adsorption capacity of colloidal silica, SilicoDent even in small amounts very effectively removes all impurities and irritants harmful to gums and oral mucosa. SilicoDent fast revives gum strength and resilience and restores fresh breath, when used regularly.

Additional remarks: Store in room temperature (15 - 30 °C) in closed package and avoiding excessive heat. Keep out of the reach of children. When opened store in a cool place and use fully within 3 months. Shake well before use. **Protect from frost!**

Marketing authorization: Phytomedica Poland Co. Ltd., 31/35 Ogrodowa street, 00-893 Warsaw, phone: +48 22 651 75 40, www.phytomedica.pl, info@phytomedica.pl

References:

1. Bergna HE and Williams RO *Colloidal Silica Fundamentals and Applications*. 2006, CRC Press Tylor & Francis Group.
2. Chouiko AA. *Silicas in Medicine and Biology*; Kiev - Stavropol, 1993
3. Chuiko, A.A., Ed., *Medicinal Chemistry and Clinical Application of Silicon Dioxide*; Naukova Dumka: Kiev, 2003
4. Hubbart A. T, *Encyclopedia of Surface and Colloid Science*, vol. 1, Marcel Dekker Inc. 2002.

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[1] Periodontitis is an inflammatory disease affecting the periodontium, i.e., the tissues that surround and support the teeth. Periodontitis involves progressive loss of the alveolar bone around the teeth and, if left untreated, can lead to the loosening and subsequent loss of teeth. Periodontitis is caused by micro-organisms that adhere to and grow on the tooth's surfaces, along with an overly aggressive immune response against these micro-organisms.

[2] Van der Waals forces include attractions between atoms, molecules, and surfaces. Van der Waals forces play a fundamental role in fields as diverse as nanotechnology, surface science, and condensed matter physics.

[3] The mole or gram-molecule is a unit of measurement for the amount of substance. It is a mass in grams exactly equal to that substance's molecular mass.

[4] Adsorption is the adhesion of molecules to a surface. This process creates a film of the adsorbate (the molecules being accumulated) on the surface of the adsorbent. Adsorption is a consequence of surface energy due to creation of specific forces (so called van der Waals forces) that occur between molecules in nano-distances.

[5] In chemistry, **pH** is a measure of the acidity or basicity of an aqueous solution. Solutions with a pH less than 7 are said to be acidic and solutions with a pH greater than 7 are basic or alkaline. pH measurements are important in medicine, biology, chemistry, food science, environmental science, oceanography, civil engineering and many other applications.