



# Toothfriendly

NEWSLETTER OF TOOTHFRIENDLY INTERNATIONAL

1 | 2017

**BABY TEAS**

target dental health



**FLAVOURED WATERS**

soon Toothfriendly?

## ***DENTAL EROSION***

The power of sour:  
Food acids and oral health



Mints & gums  
**NEW PRODUCT  
LAUNCHES**



Code of  
Federal  
Regulations  
21 CFR Part  
101.80

## Matching today's expectations. Functional carbohydrates for a healthy smile, naturally!

Enjoying life for most of us goes hand-in-hand with great tasting food and drinks. Yet, with regular sweet snacking moments strongly embedded in consumers' habits, oral health is often put to the test. Not surprisingly, dental cavities are still a worldwide reality for both adults and children.

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Toothfriendly International is a non-profit association working for better oral health.

## Growing to new product categories

If you look at the list of Toothfriendly-certified products, you see an overwhelming variety: toothpaste, baby tea, cough drops, table-top sweeteners, pacifier...

We have come a long way from the days of being the association called „Toothfriendly Sweets International“.

So what triggered the change? Back in the 90s and early 2000s Toothfriendly International was pushing a confectionery-oriented communication strategy, trying to convince candy and gum manufacturers to reformulate their products from „sugar-loaded“ to „sugar-free“. This strategy was rolling well until we were forced to take a long hard look in the strategic mirror: the mission of Toothfriendly International is to improve oral health, and oral health is so much more than just sugar-free confectionery.

*We were forced to take a hard look in the strategic mirror.*



Today we still are certifying a wide range of confectionery products but we do our very best to become influential also in other product categories relevant to oral health. One new rising product category that we are particularly proud of is Toothfriendly baby tea. Thanks to Hipp, Milupa and Babydream, early childhood caries - also known as baby bottle caries - is one step closer to being eradicated.



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„The challenge for Toothfriendly beverages is high acid content.“



### NAZAR CHEWING GUM

Turkish Saadet's traditional mastic gum brand Nazar is now Toothfriendly-certified.



### DR. HEFF'S MINTS

Dr. Heff's is introducing Toothfriendly dental mints in the UK in February 2017.

## Flavoured waters soon Toothfriendly?

*Successful ideas from other product groups can be a good source of innovation: the success of Toothfriendly-certified baby teas paves way to first Toothfriendly-endorsed flavoured waters.*

As consumers are turning away from high-calorie fruit juices and diet drinks, the need for „naturally healthy“ and convenient thirst quencers is rising. This explains the increased interest in flavoured waters. While flavoured waters often do not contain sugars, they may contain high amounts of erosive food acids. Apparently, manufacturers are aware of the challenge. „We have received a number of requests from manufacturers of flavoured waters interested in using the Toothfriendly endorsement“, says Dr. Albert Bär of Toothfriendly International. „If acid content is kept out or low by choosing mild flavours - such as floral notes in stead of fizzy lemon or raspberry - there is nothing standing in the way of dental endorsement.“



### FRESH MINTS

Sanotact revamped its Impact mint range for the Asian market. The product line is Toothfriendly-certified.



Tea and dental health is a particularly good fit, since many teas – chamomille, fennel and many others – have a strong association in consumers' minds with health in many countries. Also, parents of babies and toddlers are particularly sensitive to avoiding prolonged contact to cariogenic sugars. Hence, baby teas are perceived healthy only when they are also guaranteed Toothfriendly.

## Kids' tea targets dental health

The Swiss-based tea specialist Sidroga has launched a Toothfriendly tea concept for children.

The line debuted in Germany, Switzerland and Austria in January 2017 and includes four herbal tea extracts sold in 4,5 gram packs. Each package contains 15 portions.

Each tea box carries the prominent message "Toothfriendly tested" and a statement to avoid permanent sipping („Dauernuckeln“). Sidroga's dental message is designed to chime with parents worrying about the risks of Early Childhood Caries – a condition caused by the frequent and time-out access to sugary drinks and snacks.



Toothfriendly-certified baby teas are a popular concept in Germany and Switzerland with Sidroga, HiPP, Milupa and Babydream offering a range of Toothfriendly alternatives.



## KIDS TOOTHPASTE

BM care children's toothpaste sold on the Chinese market is endorsed by Toothfriendly International.



## DENTICANDI

Synovation's Toothfriendly-certified Denti Candi is tapping on the growing market of compressed mints in Asia.



## MENTOS ICE CUP

Perfetti van Melle is adding Ice Cup to its successful range of Toothfriendly-labelled chewing gums in Europe.



**Sugar-free or  
Toothfriendly?**

Unfortunately, some sugar-free products are bad news for tooth enamel. It's because these products contain high amounts of food acids – a major cause of tooth erosion.

# The power of sour

*Not just fizzy drinks but also sour candies can have a devastating effect on teeth. The zeal for „sugar-free“ reformulation could blinker companies against producing the healthiest version of their products. Let's look at ways to improve the acid balance.*

Nearly one in four children in the UK show signs of dental erosion that will lead to more severe tooth destruction and costly treatment in adult life. Dr. John Ruby, a pediatric dentist and associate professor at the University of Alabama at Birmingham School of Dentistry, is convinced that the combination of extremely acidic candies, immature tooth enamel, and a high frequency of ingestion is causing serious harm to children's teeth.

Dr. Ruby recently tested the pH levels of many popular candies, with startling results. One gram of each candy was dissolved in 5 ml water, then tested with Fisher Scientific pH paper accurate to within 0.1 unit.

Most of the sour and fruity candies had very low pH levels. Some of the more surprising findings from his testing included Warheads Sour Spray liquid — pH 1.6, and Altoids Citrus Sours hard candies — pH 1.9. (As a familiar frame of reference, battery acid has a pH of 1.0.) More importantly, most of the sour fruity candies had lower pH levels than any of the soft drinks previously studied.

Citric acid is the common “sour” food additive in these products, and the most erosive dietary acid. The low pH of these candies can also cause localized soft tissue irritation from surface damage to the mucous membranes of the inner cheek and tongue. In fact, some of these candy package labels contain a written warning

about potential soft tissue irritation due to frequent ingestion.

When different candy flavorings are compared, the flavours high in citric acid destroy much more enamel than the near neutral aromatic flavors of cinnamon and mint. Some examples of currently popular candies with the potential for erosive damage are the intensely flavored sour chewy candies, powdered candies, sour gels and sprays, and acid powder-coated gums.



### Measuring the erosive potential of confectionery

Many consumers are not aware that „sugar-free“ labelling does not mean that the product is safe for teeth. Dental erosion occurs through the presence of food acids, not sugar. Only products which carry the Toothfriendly certification label have undergone clinical studies and have the relevant expert's statements affirming that the product is safe for teeth.

There is no precise limit for what constitutes an acceptable level of acid in a candy or gum because the type of acid, the size of the product and the release time of acid also play a role. Therefore, the dental safety of foods in terms



### Food acids and oral health

Food acids, if consumed frequently and in high amounts, can have a direct demineralizing effect on the tooth surface which may develop into dental erosion, i.e. the visible disappearance of the surface layer of the tooth enamel. The frequent exposure to acidic foods also promotes the growth of acid-tolerant and therefore aciduric microorganisms in the dental plaque (Svanberg M., J. Dent. Res., 88:76-76, 1980).

of erosive potential must be evaluated by means of standardized pH-telemetry tests. This test is conducted with volunteers with a plaque-free electrode (Imfeld 1983). Foods which upon normal consumption do not expose the teeth to more than 40  $\mu\text{mol H}^+ \times \text{min}$  are considered not to have a significant erosive potential.

Following a standard operation procedure, such tests are performed at the university dental institutes of Zürich (Switzerland), Witten/Herdecke (Germany) and Beijing (China).

## Formulation challenges

So far the confectionery industry has been focusing on sugar reduction but little attention is given on high acid content. A broad holistic approach should be taken to reformulation, rather than focussing on sugar substitutes, Dr. Albert Bär, Executive Director of Toothfriendly International says.

„We have tested numerous sugar-free lollipops, candies and even chewing gum which contain unacceptably high amounts of food acids. It often comes as a surprise to the manufacturers that their product - which is sugar-free - does not qualify for the „Toothfriendly“ claim because of their erosive potential“, he says. The risk is particularly high in fizzy flavours such as lemon, sour cherry or cola. The larger the candy or gum is, the longer it takes for the saliva to neutralize the released acid. „Lollipops

and large lozenges simply should not contain high amounts of acids“, advises Dr. Bär.

## Lessons learned by the beverage industry

According to Dr. Bär, the beverage industry is now beginning to show interest in developing dentally safe products. Some have tried to take a shortcut, though, by using misleading claims. In 2001, SmithKline Beecham lost a Court battle with Advertising Standards Authority in the UK when the High Court backed their ruling against misleading claims made for the children's drink Ribena Toothkind.

Smith Kline Beecham had invested £19 million developing Toothkind, which was launched in an attempt to rehabilitate the Ribena brand after criticisms of its effect on children's teeth. pH-telemet-



ry test results clearly demonstrated that Ribena Toothkind was far from being beneficial for the teeth, as the advertisers suggested.

„The Ribena Toothkind ruling in the UK in 2001 set an important precedent for raising the standard of evidence required to justify health claims in foods“, believes Dr. Bär.

Ribena Toothkind was not the only beverage blamed for bad marketing manners. In 2008, HiPP's classic instant tea range came under media scrutiny when the German consumer protection organisation Foodwatch launched an online offence against the company. According to Foodwatch, one portion of HiPP's sucrose-containing instant tea – advertised as “healthy thirst quencher” – contained the equivalent of two and a half sugar cubes. Verdict: the tea has a high sugar content and may therefore by no means recommended for small children. Within days, over 10.000 German consumers complained against HiPP. HiPP responded by adjusting its marketing message and stated that a new Toothfriendly instant tea range had been developed and launched as healthy alternative.

To further enhance the product's dental positioning, HiPP began working together with Toothfriendly International which tested the products and provided a third party endorsement. Prof. Stefan Zimmer, the President of the association and the Head of Preventive Dentistry at the University of Witten/Herdecke, is quoted in HiPP's media release saying: “We dentists welcome the latest tooth-friendly product developments of HiPP. This demonstrates once again the company's engagement to the healthy development of children.”

## How is erosive potential tested?

The threshold value for erosion has been derived from a series of *in-vitro* experiments in which irradiated human enamel were immersed in solutions of different acids at different pH levels. From the collective data of these experiments the „Toothfriendly“ threshold value  $40 \mu\text{mol H}^+ \times \text{min}$  was derived for identifying dentally safe foods and beverages.

Products with a possible erosive effect are tested as follows: An aqueous solution of the product is made (1 g/15 ml distilled water) and its pH value is measured as a pre-check. If the pH-value is below 5.7 or if it is impossible to make an aqueous solution of the product, the following *in vivo* test must be performed: the pH of saliva is recorded during and for at least 15 minutes after consumption of the product using a clean (i.e., plaque-free) electrode. A product is considered as not to bear a significant erosive potential if the interdental plaque pH does not fall below 5.7 and if the pH of the saliva does not reach a value below 5 for longer than 4 minutes as measured with the plaque free electrode.

[www.toothfriendly.org/downloads](http://www.toothfriendly.org/downloads)





# Your Q&A on

# Toothfriendly certification



*Dr Albert Bär is a senior consultant at Bioresco Ltd. and the Executive Director of Toothfriendly International.*

*Dr. Albert Bär, Executive Director at Toothfriendly International, gives insight on the Toothfriendly labelling procedure.*

ning its Toothfriendly quality". The cost for such a Toothfriendly Confirmation is CHF 200 per product.

## OTC products

● Does the pH-telemetry test differ for pharmaceutical products?

Certain OTC pharmaceutical products, such as throat lozenges, cough syrups, chewable or effervescent vitamin tablets and teething gels for babies with erupting teeth, come in contact with teeth in the same way as food. Hence, the Toothfriendly certification criteria and the applied test methods are the same as for food.

## Is xylitol superior?

● Our product contains xylitol, and we would like to highlight the dental benefits on our product label. Do you endorse dental claims for xylitol?

The dental benefits of xylitol are similar to those of other polyols (e.g. isomalt, erythritol). In the EU, they may be claimed only to the extent that they are explicitly authorized in the EU health claims regulation, which leaves very little room for maneuvering (even in B-2-B and Business-to-professionals communication). Only explicitly authorized health claims are permitted in the EU for foods, i.e. whatever researchers or Cochrane says, it does not form a legally sufficient basis for a health claim.

## Toothfriendly sweeteners

● We are a US-based company interested in formulating a Toothfriendly beverage for children. Which Toothfriendly sweeteners do you recommend?

All intense sweeteners authorized as food additive for use in beverages are fit for formulating toothfriendly products. However, beverages for children should be sweetened only very slightly in order not to accustom children to an extremely sweet taste.

Among the polyols, which are key ingredients of toothfriendly confectionery, only erythritol qualifies for use in beverages due to its good intestinal tolerance. A respective amendment of EU Regulations which so far preclude the use of polyols in beverages is in preparation and will provide for the use of erythritol in beverages ( $\leq 1.6\%$ ).

Among the novel sugars, isomaltulose, D-tagatose and D-psicose (allulose) are not fermentable to a significant extent. For children up to 6 years isomaltulose (e.g. from Beneo) may be used. Upon digestion, isomaltulose provides the body with glucose and fructose (like sugar would do) but more slowly. For older children you may also consider D-psicose.

Which ever ingredients you decide to use choose, we are happy to guide you through R&D, food regulation and marketing issues to ensure that the product fulfils the Toothfriendly criteria.

## Recipe adjustment

● Does every product need to be tested with pH-telemetry method in order to carry the Toothfriendly label? We have a minor recipe change only.

For products to be labelled as Toothfriendly we need very solid evidence of this quality: either by the results of properly conducted pH-telemetry tests or by determination of the substantial equivalence with a very similar tested product of the same company. In either case, the determination of the Toothfriendly quality must be based on facts and conclusions which stand up not only to scientific but also to juridical scrutiny.

Where a new product does not need testing because its Toothfriendly quality is predictable with certainty on basis of a comparison of its composition with that of an earlier tested product (of the same company), we issue a "Confirmation of the substantial equivalence of Product A (new) and Product B (tested earlier) con-

### Ferhan Alesi joins Toothfriendly

Ferhan Alesi is newly appointed Director of International Projects at Toothfriendly International. Her key task is to introduce the Toothfriendly labelling initiative to new countries around the world.



### UK: gum would cut health care costs

New study published in the *British Dental Journal* demonstrates that the UK's National Healthcare System (NHS) would potentially save 8.2 million pounds every year if all members of the UK 12-year-old population chewed sugar-free chewing gum twice a day. Strong evidence demonstrates that sugarfree gum can help prevent tooth decay. Independent clinical research proves that chewing sugarfree gum for 20 minutes after eating or drinking helps neutralise the plaque and contributes to removing food remains. Increased flow of saliva also promotes the remineralisation of tooth enamel, thus reducing one risk factor for developing tooth decay.

*Claxton et al. (2016), BDJ Vol. 220, 121 - 127*

## „Anti-sugar“ trend powers Toothfriendly sales

*Consumers bought more Toothfriendly-labelled products in 2015, but not just because more products are available: they are also more motivated to avoid sugar.*

According to a new consumer study commissioned by BNEO, 57 percent of the consumers polled said they try to cut their sugar intake. A healthy diet (58 percent), weight management (56 percent) as well as tooth decay (37 percent) were named by respondents as concrete reasons to limit sugar intake. On the other hand, respondents said they are not prepa-

red to completely forego sugar, with taste being the number one reason at 58 percent. Twenty-four percent said sugar provides essential energy and 20 percent indicated that sugar acts as a 'mood food.' About two out of three respondents agreed that naturally derived sugars from fruits, vegetables and plants are healthier (64 percent).

The study of 1,000 U.S. consumers, commissioned by BNEO, was conducted by Ipsos, one of the world's leading market research firms.





### SOCIAL RESPONSIBILITY

The Swiss toothbrush manufacturer Trisa supports the Toothfriendly caries prevention program in Romania with a generous annual donation of toothbrushes.



## Toothfriendly's oral health program spreads smiles

Toothfriendly is making a difference in oral health through innovative and sustainable community oral health programs. The program in Arad, Romania, is heading to its 8th school-year. In Istanbul, Turkey, Toothfriendly teams up with Carrefour to bring oral health education to shopping centers.

### Romania: school-based program targets sustainability

In Romania, the Dinti Sanatosi („Healthy Teeth“) project of the Toothfriendly Foundation reaches annually around 4600 children. The Foundation educates selected teachers which in turn visit every school class in their community six times per year giving instructions on how to maintain healthy teeth. The program is based on the fact that regular fluoridation at young age coupled with an awareness about the importance of appropriate oral hygiene and nutritional habits will also lead to an improved dental health after school has ended and in fact throughout life.

### Turkey: Carrefour offers new innovative platform

The Romanian caries prevention program is a successor of Toothfriendly Foundation's first caries prevention program which began in Turkey in 2002. The program reached annually over 17'800 children, making oral hygiene a part of daily routine for

school children around the country. In 2016, the Turkish Toothfriendly teamed up with Carrefour. The retail giant built „Toothfriendly oral care education centers“ into its malls in Istanbul to spread the health message to its customers. The Toothfriendly roadshow is continuing to other cities in 2017.



### TOOTHFRIENDLY MALLS

Giant mouth, Tooth Fairy and dozens of games and visual teaching aids were part of the Carrefour oral health roadshow in Istanbul in November 2016.





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