



Confectionery for healthy lifestyles

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Introduction

This paper describes an innovative process that allows confectioners to maximise value from the growth market for candies with a healthy image. It explains the benefits of a unique range of sugar-free/Xylitol combination products, and functional/medicated confectionery.

Synopsis

The new “ServoForm” SFX Depositing System developed by Baker Perkins incorporates innovative cooking and depositing technology enabling confectionery companies to take advantage of an exciting new family of products with a highly distinctive taste and mouth-feel. They feature crystallised Xylitol, a long-established, tooth-friendly sugar substitute. Combining a Xylitol element with other sugar-free polyols creates a sophisticated product that commands a premium position and price.

It goes a stage beyond sugar-free hard candy, already well accepted world-wide, by adding a positive dental benefit.

The SFX system also allows extra value, functional ingredients such as vitamins and breath fresheners to be added to sugar-free candy, and the process may additionally be validated for the production of medicated confectionery such as nasal decongestants or throat sweets.

Market background

Today’s consumer is subjected to a seemingly never-ending and often confusing stream of advice on healthy eating. However, there is a clear consensus that one of the things that consumers have to do to achieve a healthy, balanced diet is to restrict their intake of calories from sugar.

There is massive pressure to adopt a new approach to health and eating. Governments are increasingly likely to intervene: health-related guidelines might well dictate future confectionery product concepts, as well as to whom, where and how they can be marketed and sold.

The flow of health and diet advice and information from every kind of media outlet is clearly having an effect on consumers. There are signs that many are heeding the advice and looking for alternatives to traditional sweets – although equally clearly the existing market for indulgence confectionery will continue. The industry’s challenge is how to meet the hitherto conflicting demands of indulgent yet healthy confectionery.

Market opportunity

Baker Perkins has been working for many years with ingredient suppliers on product and process solutions that help confectioners meet this challenge and the result is the “ServoForm” SFX Depositing System.

Sugar-free confectionery, now an established part of the market around the world, neutralises the negative perception of confectionery. Now available with natural flavours and colours, it addresses consumer concerns about traditional confectionery and has established a significant market share. It offers low calorie, guilt-free snacking in a diet-aware environment, for both adults and children.

The new “ServoForm” SFX Depositing technology enables confectionery companies to take the next logical step – confectionery with positive health benefits. The use of Xylitol and other functional ingredients creates sugar-free confectionery products with a ‘good for you’ image with no loss of taste or visual appeal. They can be marketed as totally sugar-free to match a healthy lifestyle, and with functional benefits for purposes such as breath freshening or nasal decongestion.

This type of functional confectionery is evolving to fill the gap between medicated and mainstream products, with brands that are as enjoyable as any conventional candy, but also improve well-being. They are high value, high margin products that offer manufacturers an opportunity to achieve a good rate of return by adding value rather than cutting costs.

Xylitol – well proven health benefits

Xylitol is a long-established tooth-friendly sugar substitute offering well-proven health benefits. These include a reduction in tooth decay with long lasting protection against caries, and suitability for diabetics because of a low glycaemic index.

For diet-oriented consumers, Xylitol has 40% less calories than other carbohydrates. Xylitol is a sweetener that occurs naturally. It can be found, for example, in berries, fruit, vegetables and mushrooms.

The properties of crystallised Xylitol in confectionery are a clear cut cooling sensation and a unique grainy texture. The cooling effect can augment breath and mouth freshening applications, while the grainy texture, combined with a conventional sugar-free component, produces a confection with contrasting taste and texture sensations.

Hard candy/Xylitol combination confectionery consists of separate deposited components, one crystallised Xylitol, and the other a sugar-free syrup based on Isomalt or Maltitol combinations. They may be deposited in various combinations including layered and side-by-side and there is virtually limitless scope for colour and flavour combinations to emphasise the inherently indulgent texture and mouth-feel sensations.

These products have already achieved high volume market penetration in Japan, with substantial and increasing demand in other parts of Asia.

Functional confectionery

Consumers reluctant to take vitamin pills and supplements may often readily accept confectionery as a carrier – many of the ingredients routinely found in a health food shop can be combined with a sugar-free base.

Typical ingredients being used include vitamins (B, C & D particularly), calcium, Omega-3 and beta-carotene. They address health and vitality concerns, and can be categorized in four main areas:

- Fresh breath; active ingredients with new formats and delivery systems that allow for deep cleaning and other oral care claims,
- Therapeutic; from immediate cough/dry throat relief to longer-term protection with strengthening ingredients. Nasal decongestants also fall into this category.
- Energy and alertness; inspired by sport and energy drinks, with vitamins and minerals.
- ‘Feel well’ products; bring freshness, relaxation and balance, plus digestive aid. Herbal remedies such as ginseng, plus ingredients such as chamomile, vanilla and mint, which claim a physical benefit in their own right, plus have a calming physical effect, are all possibilities.

The SFX Depositing System

Baker Perkins developed the new SFX depositing solution as a complete production system, specifically for healthy confectionery. For Xylitol products, two cooking elements – the Turbofilm plate pack model for hard candy, plus a unique continuous crystallisation process for Xylitol, are involved. Both feed into a ServoForm depositor adapted to the specific problems of handling crystallised Xylitol.

Sugar-free hard candy/Xylitol confectionery is made on a ServoForm depositor with single or multiple depositing heads. The single head machine deposits the two components side by side or in layers. Depositing layers from a single head is known as ‘short term’ layering and deposits the second (Xylitol) layer before the first (hard candy) has set. Although the two components are still completely separate they coalesce to form an interesting “eyeball” shape.



Short term layered



Side by side layered

With two or three heads 'long term' layering can be achieved. The gap between the heads allows the first layer to settle before the next is added, creating a true layered product with a clean joint between the layers.



Long term layered



Long term layered triple

ServoForm SFX multi-head depositors can also produce one-shot items, sugar-free or with sugar, for added line versatility and very high outputs. The ServoForm SFX process can be validated to comply with cGMP standards

Proven depositing technology

With over 500 cooking and depositing plants installed throughout the world, Baker Perkins is acknowledged as the market leader in the deposited confectionery sector.

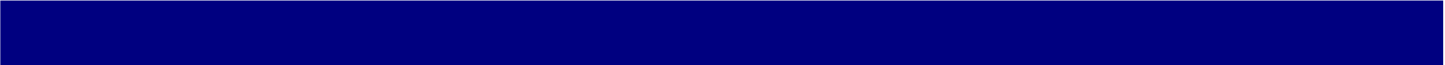
The company is the world's leading manufacturer of confectionery depositing lines for hard and soft products, and the current ServoForm depositor range is the product of 40 years experience in the industry, along with a continuing commitment to an extensive research and development programme.



ServoForm sets the standard for depositor design with innovative features that improve flexibility, increase output and make operation easier. The ServoForm offers greater quality and production flexibility than the traditional die forming process.

Superior appearance, high clarity and rapid flavour release with a smooth 'mouth-feel' are key quality advantages. The nature of the depositing process creates complete control throughout the system leading to extremely high dimensional, shape and weight accuracy; negligible scrap rates and efficient wrapping; plus maximum hygiene with low maintenance.

Major benefits of the ServoForm design are greater flexibility and improved process control, made possible by the adoption across the range of servo motors to control machine movements.



Three axis servo control is standard, enabling deposit patterns, fillings and weights to be changed at the touch of a button. This gives the operator complete mastery of the depositing process, including ‘on-the-run’ fine-tuning of operation. An optional fourth axis of control is available for the mould lift.

The servos are under the control of a PLC and touch sensitive HMI screen that provides full process visualisation, recipe management, alarm handling and data logging. The system can be integrated with up-stream and down-stream equipment or into a plant supervisory system (SCADA).

Higher output is another key benefit of the ServoForm range, and this is achieved by mounting drive components on the machine frame rather than on the depositing head. This unique Baker Perkins underband design reduces inertia of the head, allowing a higher depositor running speed. It also contributes to improved hygiene and easier maintenance.

Downtime due to product changeover and clean down has been reduced by the introduction as standard of a modular carrier mould with quick release attachments.

Cooking equipment

The cooking component of the process involves either a Baker Perkins “Microfilm” or “Turbofilm” cooker, plus a crystallisation system for Xylitol.

The Microfilm is recognised as the industry standard. It is the only cooker that applies vacuum directly onto a thin swept film during cooking, resulting in extremely rapid cooking with negligible process inversion. A host of additional features ensures ease of operation and a high level of flexibility.



The well-proven Baker Perkins “Turbofilm” cooker combines ingredient weighing and mixing with plate pack dissolving, cooking, vacuum extraction and discharge. It is suitable for both conventional hard and sugar-free candy; various levels of automation are available.

Innovation Centre

The versatility of the SFX Depositing System means that new products are continually being added to the portfolio. Many manufacturers from around the world visit the Baker Perkins Food Innovation Centre at Peterborough, which contains a range of production and laboratory scale equipment that can be configured for a wide range of products.

Customers use these facilities to develop new products and processes, produce samples for test marketing, or conduct feasibility trials – all in a confidential environment.