

# Move it safely

HYGIENIC BELT SURFACES ARE MANDATORY FOR SAFE FOOD PRODUCTION. FORBO SIEGLING IS ONE OF THE EXPERTS IN THIS FIELD



++ figure 1

++ figure 1  
New spreading belt with inverted pyramids surface

Hygiene is one of the most decisive criteria for the selection of transport belts in the food industry, followed by equipment and application related requirements such as temperature resistance and drum diameter. The forthcoming interpack in Düsseldorf, Germany, will demonstrate what hygiene-friendly developments have been achieved recently. baking+biscuit international has investigated one of the leading suppliers in this field: Forbo Siegling, Hannover, Germany. The preventive protection against microorganisms which might be transferred onto a product via a conveyor belt was the main aspect of the HACCP product range introduced by Forbo Siegling, in 2001. This was as a result of the central research carried out by the company. Following this, a series of application oriented solutions have been put onto the market.

In principle, Forbo Siegling disapproves of the use of biocidal agents in belt production. According to Claus Cremer, Head of Business Development Food and Tobacco, these agents could be a potential risk for food companies as they might migrate into the food product. Withdrawing the nutrients needed by microorganisms for their growth seems a better approach. A potential nutritive medium for microorganisms are the nitrogen compounds found in belt coatings and the softening agents present in PVC. Microorganisms are able to metabolize these compounds and damage the belt. Therefore, the research departments of Forbo Siegling

are concerned with the modification of the molecular structure of the belts in such a way as to prevent the microorganisms attacking them. Another focus of research is the resistance to hydrolysis. Hydrolysis – in this case induced by the influence of hot water and steam during cleaning or by a fermentation process – can trigger a separation of layers and damage the belt surface. The use of materials which are to a large extent resistant to hydrolysis helps to minimize this effect.

At iba, in autumn 2006, the company presented innovations with the focus on hygiene. One example is the elastic separation belt made from blue polyurethane for dough dividers. These 'easy to clean' plastic belts are approved by the FDA, unlike the commonly used felt belts. They are also easy to fit and retrofit and to fuse into an endless belt on site by the user. A respective tool has been developed and was introduced at the fair.

Every newly developed product has to be considered in terms of application-specific functional requirements and applicable hygiene regulations. A very smooth belt surface offers the least amount of surface for attack by microorganisms, although some types of dough strongly adhere to such a surface. One possible solution are belts with specifically developed surface structures which resemble an arrangement of tiny inverted pyramids which are still very easy to clean. The



++ figure 2  
Food-proof bluebelt



++ figure 3  
Dipl.-Ing Claus Cremer, Head of Business  
Development Food & Tobacco



++ figure 4  
ProLink Wendel from the modular belt range,  
produced in Denmark

dough pieces are literally moved on an air cushion from which they can easily be removed.

In general, conveying belts are designed in several layers. Often the belt is made of one or more textile materials which are coated with polyurethane, polyolefin, PVC, silicone or

polyester. According to Cremer, the trend is normally towards polyurethane and polyolefins. The webbing, in general polyester, is different in type of weaving and fibers and depends on the respective requirements. It is commonplace to produce belts in widths of up to 5 meters which are then trimmed by the customer to the required width and length. Open cutting edges are a good breeding ground for microorganisms and therefore, they are often sealed. This is traditionally done by fusing a plastic profile. However, with this process and due to the strain at the edge of the belt, it may result in the sealing coming away in part or completely. Forbo Siegling has now developed a new process to exclude this risk and ensure a permanent and safe sealing of the edges. No additional materials or auxiliary parts are required for this. This patented method called "Smartseal" will be presented for the first time, at interpack, in Düsseldorf. Furthermore, the company will also present another innovation which also improves the hygienic features of the belt. Fullseal is the name given to the belt design which does not require any sealing of the trimmed edges in order to prevent the intrusion of microorganisms. This patented material is constructed in such a way as to allow the belt to be cut at specific positions so that no woven materials are visible at the trimmed edge. +++

## Forbo Siegling GmbH

Hannover • [www.forbo-siegling.com](http://www.forbo-siegling.com)

The company was founded, in 1919, as a family-owned enterprise by Ernst Siegling. It was acquired by Forbo Holding, Baar, Switzerland, in 1994. Forbo is divided into three divisions: Movement Systems (transport and processing belts, flat belts), Flooring Systems (floor coverings), and Bonding Systems (adhesives and polymers). The Forbo Group originated from the Continentale Linoleum Union which evolved from the fusion of the Swiss, Swedish and German linoleum manufacturers.

### Forbo Movement Systems:

Forbo Movement Systems is the umbrella brand of the company on all markets. Forbo Siegling GmbH, Forbo Siegling, Inc. and Forbo Siegling Ltd. are the legal names of the respective national companies. Since re-branding, the product names are preceded with the term "Siegling" to ensure that the renowned name does not disappear. Forbo Movement Systems has 8 production sites in Germany, Switzerland, Denmark, China, Japan, the US, Brazil and Mexico, as well as more than 50 national branch offices and 300 service points all over the world.

Turnover of Forbo Movement Systems in 2006 (global): 354.2m CHF (about 225m Euros); Turnover of Forbo Siegling GmbH in 2006: 80.9m Euros (about 130m CHF)

### Forbo Siegling products:

Siegling Transilon – conveying and processing belts  
Siegling Extremultus – flat belts  
Siegling ProLink – modular belts  
Siegling Proposition – timing belts +++

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