

# Efficient Handling of Bakery Sandwich Creams

WITH LOW *TRANS* FATTY ACIDS

Bakery filling creams for sandwich biscuits (also known as sandwich creams) pose numerous process challenges including dispersion of the high sugar content (50-70% fine sugar), the time to mechanical stability and the high pressure and torque required to handle the product. Additionally, health concerns, consumer demands and legislation have led to the reduction or removal of trans fatty acids and, indeed, reduction in the percentage of saturated fatty acids from these products. This has left many producers with the challenge of handling a recipe that has a slower crystallization speed which results in a change in the vital consistency of the product.

A high quality cream will be well homogenized, have a good taste and mouth feel and have the right viscosity at temperature to provide the required mechanical stability needed by the final product. These thick, fast setting products require specific process features to ensure efficient, high quality production. They need to be produced near the filling station to ensure the correct consistency for the application and up to 40% gas injection (usually nitrogen) may also be required within the process.

To make the cream, sugar is dispersed into a mixture of melting fats and then quickly cooled on a scraped surface heat exchanger (SSHE). In order for the cream to sit correctly on the cookie and hold the layers together, the crystallization of the fat is controlled so that it occurs immediately after the filling process. This control is a function of the recipe, temperature and time. The firm, poor flowing properties of a cookie cream require a SSHE which can handle the associated high pressure and high motor shaft torque. To avoid the sandwich cream from setting in the line and creating a blockage, a direct connection to the filling machine is desirable and improves operational reliability.



The requirement to reduce or remove saturated and *trans* fatty acids from recipes have changed the way the cookie cream recipes react. These healthier products are based on the use of oil blends which mainly contain palm oil, palm stearin and, sometimes, palm kernel oil. The slower crystallization speed of palm oil creates filling creams with softer consistency. This can cause problems with the stability of the final cookie and variances in the depth of the cookies – which in turn creates issues with packaging.

To compensate for the recipe change and the use of palm oil, the filling cream can be cooled to a lower temperature (16-17°C instead of the traditional 20-22°C). This achieves the required consistency but does require a machine to provide the increased cooling capacity and handle the high pressure generated – such as the Gerstenberg Schröder Kombinator SSHEs from SPX. Tests have shown that the lower temperature level can be obtained and capacities maintained through the use of a bigger heat transfer surface. Other minor adjustments, such as less mechanical treatment to avoid de-oiling of the product, have further been proven to optimize the filling cream texture.

In this process it is important to obtain a homogenous distribution without destroying the structure of the crystallized oils. Creams with low *trans* fatty acids are more sensitive to processing changes than traditional blends and tend to get too soft if gas is distributed into the mixture at the end of the process with a mixing unit. Having the right configuration of SSHE means that the gas can be added at the crystallization stage, a high homogenization is achieved and the structure of the crystallized oils can be protected – keeping the desired consistency of the filling cream for its application.

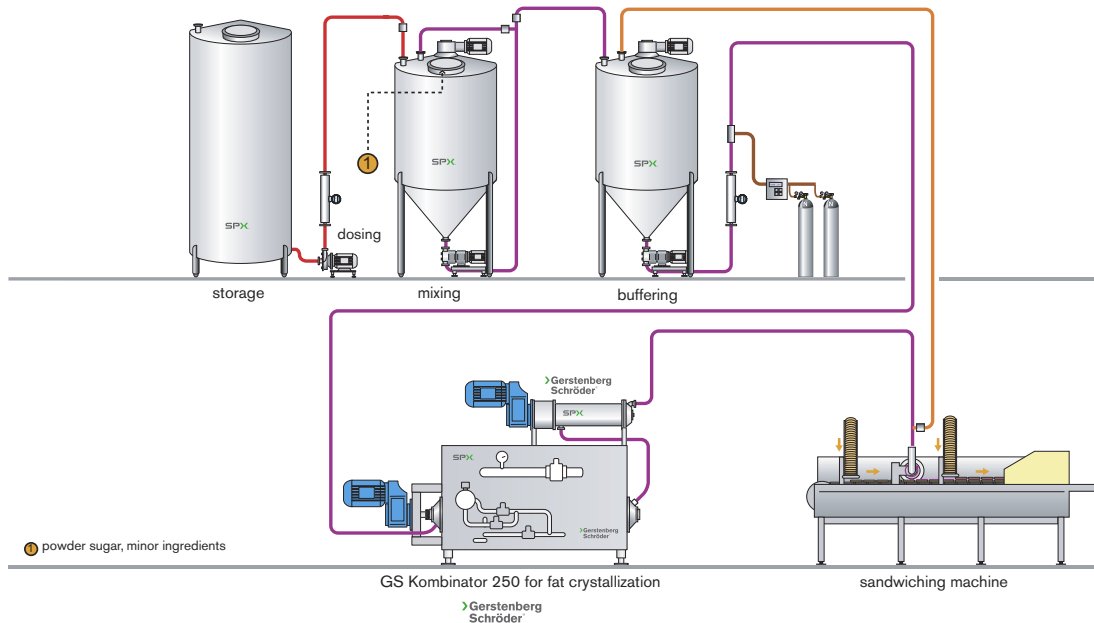
A completely closed system provides assurance of a more hygienic solution but can also bring other significant advantages in bakery applications. For example, the equipment is jacketed or insulated to keep process temperatures consistent - a critical factor for reproducible product quality. As ambient temperatures vary within the factory setting from summer through to winter, such insulation keeps the cream at the same temperature when it reaches the filling machine. A closed system further helps prevent the incorporation of air, reduces residence time and can operate continuously to produce higher capacities.

The SPX Gerstenberg Schröder brand has vast experience in the processes used in the production of bakery creams and has worked closely with its customers to resolve the issues faced,



GS Kombinator 250S for fat crystallization

particularly in the production of sandwich creams with low *trans* fatty acids. It has comprehensive test facilities for customers to check recipes and processes before installation for full production. It also offers pilot plants which can be rented for testing directly at the production site. SPX has proven, tangible solutions for customers facing problems adapting processes to avoid *trans* fatty acids and its machinery delivers real customer benefits in efficiency, reliability and cost savings.



GS Kombinator 250 for crystallization of sandwich creams



Denmark: P: +45 7027 8222 F: +45 7027 8223 E: [gs.dk.sales@spx.com](mailto:gs.dk.sales@spx.com)  
 Germany: P: +49 451 3709 0 F: +49 451 3709 311 E: [gs.de.sales@spx.com](mailto:gs.de.sales@spx.com)

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