

GERSTEL and Büchi in cooperation

New Solution for Fat Determination

In order to further improve the patented Caviezel® rapid analysis method for determination of fat in food and feed, the Swiss company Büchi has entered into cooperation with GERSTEL.

When it comes to the determination of fats in food and feed, the Swiss company Büchi plays a substantial role. This is due to the patented Caviezel method, which is increasingly specified in standardized methods. Examples are the determination of fat contents that must be listed on food products as well as the determination of milk fat in foods.

Following the Caviezel method, an internal standard is added to the sample and the fat is extracted before undergoing alkali-

line digestion. The resulting salts are converted to free acids and these are subsequently determined using a gas chromatograph (GC) with flame ionization detection (FID). Leading Büchi managers looked to GERSTEL to provide technical and application know-how in order to fully unlock the potential of the Caviezel method.

GERSTEL has provided improved automation and simplified, accelerated GC analysis; in short: a single system that performs three different analyses in one short run, providing the analyst in the laboratory with a simpler, more efficient method.

Büchi was faced with the challenge of improving the automation of their fat analysis solution, and they seized the opportunity to team up with outside expertise. The goal of the GERSTEL-Büchi cooperation was to create a comprehensive integrated solution, comprised of the Büchi extraction unit B 815, an Agilent 7890 GC with a split/splitless inlet and a FID, a GERSTEL MultiPurpose Sampler (MPS), integrated software control as well as a customized report. GERSTEL has exclusive sales and distribution rights world-wide for this solution.

MPS provides high throughput

Automated sample preparation and sample introduction are among the core competencies of the GERSTEL MPS, making it the ideal candidate for automating all the required steps in the GERSTEL-Büchi fat analysis solution. „The MPS combines high sample capacity with the flexibility to adapt to any sample preparation challenge”, says Ralf Bremer, Managing Director in charge of R&D and Production at GERSTEL. Using the PrepAhead functionality of the GERSTEL MAESTRO software, the MPS can even prepare the next sample or multiple samples while the current analysis is ongoing. This means that the next sample is always prepared and ready for injection as soon as the GC finishes running the previous sample. The GC system never has to be idle; it is always utilized to its fullest capacity providing best possible return on in-

vestment. MAESTRO additionally offers an unsurpassed degree of flexibility, which is often sorely needed in a production environment. Priority samples that need to be analyzed as soon as possible, (for example, to release a batch of product or to accept an incoming raw material shipment), can simply be inserted into the running analysis sequence table.

3-in-1 chromatography system

Büchi's pre-GERSTEL solution was based on a GC method using packed columns, an older technology that has limited separation power. Because of this limitation, three different GC runs, each based on a different column was required per sample. The total analysis time needed was of course quite long and the user had to change and condition the columns prior to performing the next analysis. Last, but not least, lack of separation power resulted in wider peaks and less accurate results. „Implementing a method that uses capillary column technology along with the 7890 GC from Agilent Technologies enabled us to improve the separation and provide more accurate peak integration and thus more accurate results”, says Ralf Bremer, „and all three analyses are now performed in one run in just 9 minutes”. There is no longer a need to change columns and this of course improves the stability, performance and productivity of the system. The system provides values for the following: Total fat content, fat profile and butter fat (milk fat) content. According to Jochen Knecht, Ph.D., Managing Director of Büchi Germany and initiator of the cooperation, „This is a big step forward”.

GERSTEL delivers the complete system pre-loaded with required analysis method parameters and a reporting tool that delivers all relevant results nicely organized on one page. „To use our system, you don't have to be a GC expert”, says Ralf Bremer, „the system produces first class results in both production and R&D environments – and it does so much faster than it's predecessor”.



Complete solution from Büchi and GERSTEL for the determination of fat levels in food and feed products. The system is based on the Büchi Extraction unit B 815, a 7890 GC from Agilent Technologies with a split/splitless inlet and a FID, a GERSTEL MultiPurpose Sampler (MPS) and MAESTRO software.