



# Food Analytics

Analysis of food, beverages  
and packaging

**CHRONECT Workstations**

Part of the  **TRAJAN Family**



**AXELSEMRAU**

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### The analysis of food, beverages and their packaging is complex and versatile.

It requires special knowledge so that reliable results can be achieved. To provide users with the best possible support, Axel Semrau has developed automated workstations that work precisely and timesaving. They meet current standards and deliver the most accurate results - often with lower recovery rates than required.

Our system solutions have been an essential part of routine laboratories worldwide for years. The reliable technology provided by our partners, the automation of common and self-developed methods, and our support in application-related issues form the ideal basis for reliable analysis. With regard to the sensitive topic of food analysis, we are aware of our responsibility.

Our CHRONECT Workstations are all based on the autosampler CHRONECT Robotic for reliable sample preparation. Depending on the application, it may be installed directly on the analyzer. Most commonly we use instruments from Agilent or Shimadzu. However, our solutions also work with instruments from other manufacturers, so that laboratories do not have to make any changes. Everything is controlled time-efficiently via the master software-CHRONOS, which communicates with the common chromatography data systems. We would be pleased to talk to you about your individual requirements!

### For 40 years, the medium-sized company Axel Semrau has been active in sales and support of special solutions for sample preparation and chromatography.

Since November 2021 it is "Part of the Trajan Family". New instrument components and applications are developed by experienced employees in cooperation with manufacturers and users.

Therefore, we can proudly say: "We sense good chemistry!"



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MOSH/MOAH Shimadzu

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The “mother of all workstations” is the CHRONECT Workstation MOSH/MOAH. All other LC-GC applications of Axel Semrau are based on it:

## CHRONECT Workstation MOSH/MOAH

Undesirable mineral oil residues, MOSH and MOAH, are found in numerous foods or food contact materials. The complexity of the analytes in addition to the ubiquitous occurrence of hydrocarbons complicate the analysis and require special analytical systems and sample preparation. Since 2010, this application has been continually updated in a permanent exchange with users. The fully automated saponification and epoxidation plus the online alumina purification make this workstation unique across the globe. Software specially developed for MOSH/MOAH analysis simplifies the evaluation of chromatograms. More than 185 laboratories already rely on Axel Semrau's LC-GC technology.

## CHRONECT Workstation Sterols

The determination of food quality and authenticity has become increasingly important in recent years. Olive oil is often subject to food fraud. Here, sterol concentration is an important indicator of authenticity, but the ISO method is very time-consuming. The solution is fully a automated analysis from sample preparation, including saponification, liquid/liquid extraction and drying, to subsequent analysis by LC-GC-FID.

## CHRONECT Workstation Cholesterol

The determination of cholesterol in egg-containing foods is routinely performed. The aim is to determine the amount of the ingredient whole egg or egg yolk, as these are value-adding components. This determination according to the paragraph 64 method involves time-consuming manual steps. The CHRONECT Workstation Cholesterol allows the fully automated determination of egg content in food. It has been modified together with users from the CHRONECT Workstation Sterols in order to be able to measure solid food samples directly.

## CHRONECT Workstation PAHs

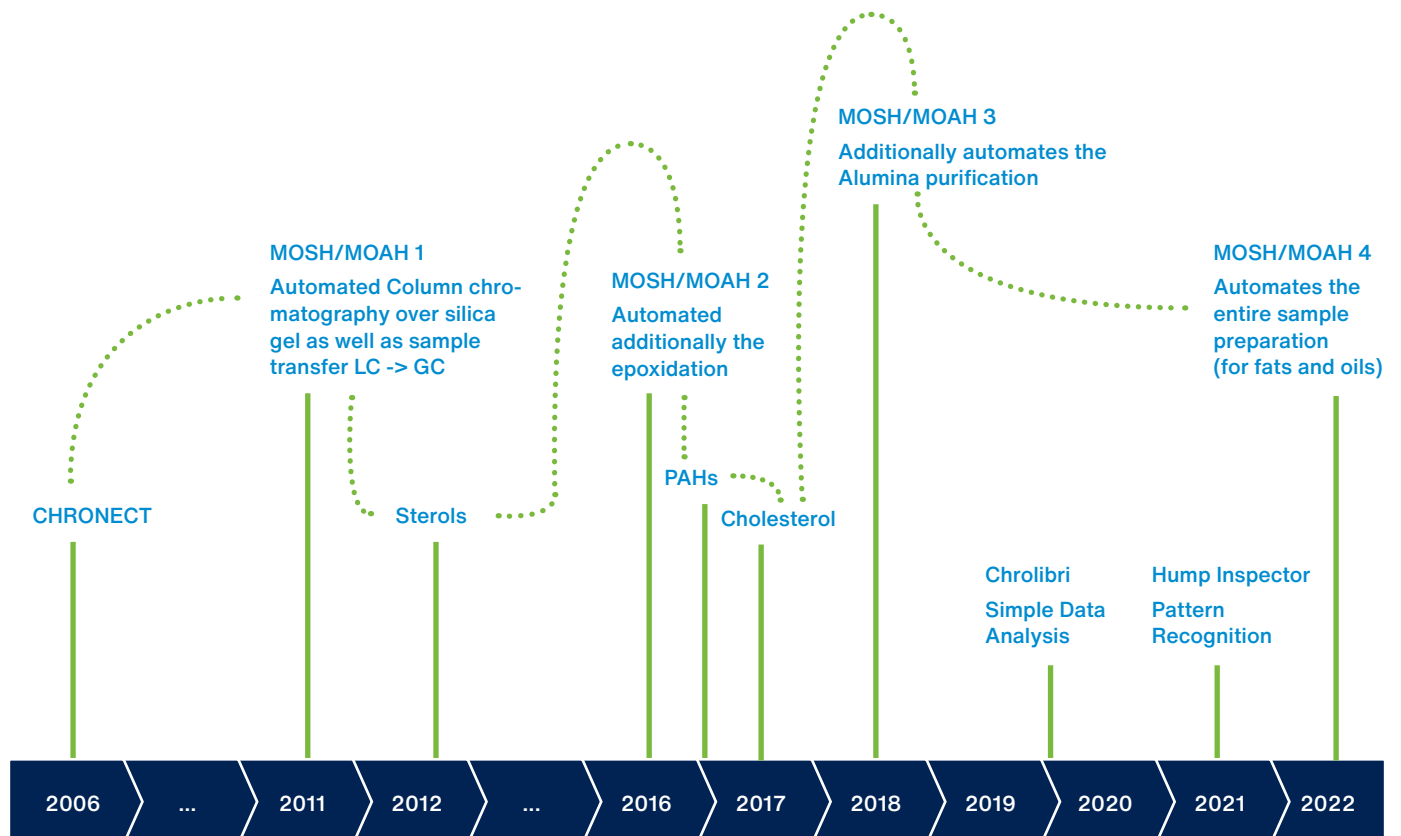
The determination of PAHs is a great challenge for analytics. One of the reasons is the large number of possible food matrices. In addition, laboratories must meet requirements such as reducing sample processing time without compromising analytical parameters such as sensitivity, precision and accuracy. As a result, highly automated analytical procedures are needed for analytical testing. This workstation enables automated determination of PAHs in edible oils by LC-LC-GC-MS or after LC-LC purification with fluorescence detection according to DIN EN ISO 22959.

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## Milestones of LC-GC workstations and software



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Other workstations for food analysis are:

## CHRONECT Workstation MCPD

The analysis of MCPD and glycidol is as complex as it is necessary. The four common methods ISO 18363-1, ISO 18363-2, ISO 18363-3 and ISO 18363-4 offer different approaches - each with advantages and disadvantages. With the CHRONECT Workstation MCPD, all methods have been automated so that it can meet the requirements of any laboratory while operating the different methods as needed.



## CHRONECT Workstation FAMES

There are several methods for FAMES analysis to determine the fatty acid composition. We have automated these methods. Among these are the DGF methods DGF C-VI 10 and C-VI 11, the SLMB 269.1 and the AOCS Ce 2-66. The latter includes methylation with the highly toxic boron trifluoride; an unpleasant step for any user. Manual preparation must be very reliable and clean to minimize carryover risks and achieve good reproducibility. Therefore, we developed an online automation of sample preparation followed by gas chromatographic analysis. The CHRONECT Workstation FAMES takes over difficult manual steps and ensures rapid processing. Automation, thus, increases sample throughput in addition to reproducibility.



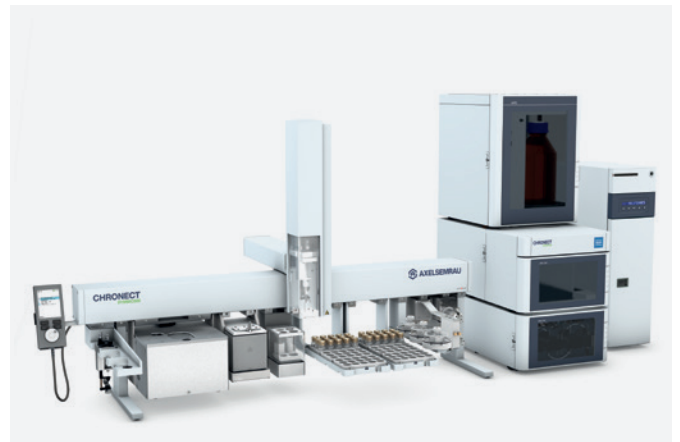
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## CHRONECT Workstation Glyphosate

The CHRONECT Workstation Glyphosate was developed for the analysis of glyphosate, glufosinate and AMPA in complex matrices such as food. Manual steps in sample preparation have been reduced to only 10 minutes. All other preparation steps and measurements are fully automated and carried out in an interleaved workflow in about 40 minutes. The CHRONECT Workstation Glyphosate is supplied with ready-to-use methods for different matrices. It can be coupled to different LC-MS/MS systems. Direct injection, online SPE with or without derivatization of samples are available on the instrument.



## CHRONECT Workstation MultiMix

The preparation of calibration standards and mixes in analytical laboratories is time-consuming and error-prone. The laboratory staff must not only pay attention to the correct preparation of the standard, but also meet the high requirements for documentation. The CHRONECT Workstation MultiMix enables the fully automated preparation of mixes and documents them via substance catalog management. For pesticide analysis, even completely compliant with SANTE 12682/2019.



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