

CHRONECT™
Workstation
with Application
Function
Guarantee!



Fully automated workflow

CHRONECT™ MOSH/MOAH Workstation

Product Specification Sheet



Setting a new standard

The CHRONECT™ MOSH/MOAH Workstation represents the highest standard in automated MOSH/MOAH testing. Each system undergoes rigorous Acceptance Testing (AT) to confirm compliance with strict analytical and operational performance criteria – ensuring reproducible, reliable, and fully validated results across all test matrices.

Saponification, double extraction, epoxidation, purification via aluminum oxide, large volume HPLC injection & separation, cold-on-column-large-volume-online-LC-GC-direct-transfer, dual-channel GC-FID analysis in a single step. Fully automated. Reduction of manual work to less than 2 minutes per sample.

The acceptance test is performed twice: once as a factory acceptance test and once as a site acceptance test at your location. Both tests are part of a comprehensive quality assurance process, ensuring that the system meets the highest standards of reliability and performance before and after installation.



The acceptance test is structured in two focused stages.



Stage 1 – Core system verification

Operational precision and calibration

This stage evaluates the instrument's base configuration and confirms its operational integrity through standard mixture calibration, ensuring the system's essential functions and analytical precision are fully validated.



Stage 2 – Full system evaluation

End-to-end reproducibility & performance

This stage expands the assessment to the complete setup, including automated sample handling and a comprehensive performance verification, demonstrating that the entire apparatus operates reliably under real-world conditions.

Blueprint for reliability

Understanding acceptance test workflows

Core system verification:

Basic instrument configuration and operational assessment

Calibration and standards used

Test	Standard mix	Supplier
MOSH/MOAH Internal standard mix	Cat. No. 31070	Restek
Retention time n-Alkane mix (C10-C50)	Cat. No. 31076	Restek
n-Alkane mix (C7-C40)	–	Sigma Aldrich

Process

Step	Parameter	Requirement
Injection of internal standard MOSH/MOAH (6x)	RSD (peak areas)	<5%
	RSD (retention times)	<5%
	Internal standards (ISTDs) to CyCY for MOSH and TBB for MOAH	Target $\pm 10\%$
Injection of n-alkane standard (C10-C50)	RSD (peak areas C10-C50)	<10%
	Linearity (20-500 ng)	RSD <5%
	Mean RT shift MOSH-MOAH	<0.1 min
	Trailing factor	0.9 to 2.0
Carryover test by n-alkane injection (1000 ng)	Carryover	Normal: MOSH <1.0%; MOAH <0.5% Reversed: MOSH <0.5%; MOAH <1.0%
GC-FID baseline evaluation	GC-FID baseline	Free of humps
Recovery	Recovery of C50	>80% (normal and reverse injections) *according to ISO
Clean up	Aluminium oxide clean-up (C7-C40)	Discrimination of C20 evident elimination of C22 confirmed (not present)

Additional validation criteria

- ✓ Baseline humps ≤ 1 ng/mL
- ✓ Free from electrical spikes
- ✓ Stable baseline across full chromatogram
- ✓ Solvent band ends cleanly (no tailing/noise)
- ✓ C11 / 5B peaks well separated from solvent
- ✓ Minimal column bleeding at max oven temperature
- ✓ Updated quantitation templates aligned to retention shifts
- ✓ Carrier gas flow ratio (normal:reversed) 80-120%
- ✓ The evaporation pressures of MOSH and MOAH are in the same range, which is proof that there are no restrictions.



Automated sample preparation: Validated across numerous oil types

To demonstrate proven performance across real-world food matrices, the system is validated using two representative edible oil categories – soft oils (such as sunflower and rapeseed) and tropical oils (such as coconut and palm). Each is analyzed in dedicated series of five replicates using the fully automated CHRONECT workflow, encompassing saponification, epoxidation, aluminum oxide clean-up (for soft oils), and LC–GC–FID analysis.

This comprehensive evaluation confirms consistent accuracy, precision, and reliability across oils with naturally low MOAH content – ensuring dependable results regardless of sample type.

Tropical oils (e.g. coconut oil, palm oil)

Workflow	Automated saponification + epoxidation
Criteria	• RSD (MOSH & MOAH): <10% • z-score: ± 2 • Procedural blank: <0.4 ppm • ISTD ratios within target ranges

Soft oils (e.g. sunflower oil, rapeseed oil)

Workflow	Automated saponification + epoxidation + AlOx clean-up
Criteria	• RSD (MOSH & MOAH): <10% • z-score: ± 2 • Recovery of cholestane confirmed • Long-chain n-alkanes after C20 eliminated • Procedural blank: <0.4 ppm • ISTD ratios within target ranges

For readers interested in practical sample analysis and LOQ determination with a specific device according to JRC and SC PAFF guidance, the report “MOSH/MOAH Analysis of SC PAFF– and JRC-Relevant Food Matrices from Low- to High-Fat Samples – CHRONECT Workstation MOSH/MOAH AWF: Sample and LOQ Determination” provides detailed results. All consumables were professionally prepared, and the laboratory environment was optimized for MOSH/MOAH analysis. Fully documented data support independent verification and regulatory compliance assessment.

Performance validation summary

Performance area	Acceptance criteria	Outcome
Precision (RSD)	<10%	✓ Verified
Linearity	RSD <5%	✓ Verified
Carryover	<1% MOSH / <0.5% MOAH	✓ Verified
Recovery (C50)	>80%	✓ Verified
Blanks	<0.4ppm	✓ Verified
z-score	±2	✓ Verified

The ratios of ISTDs should be:

- MOSH: C11/CyCy between 0.8 and 1.1, C13/CyCy between 0.45 and 0.6.
- MOAH: 5B/TBB between 0.7 and 1.1, 2MN/TBB between 0.7 and 1.1, 1MN/TBB between 0.7 and 1.1.

Compliance and standards

The CHRONECT™ MOSH/MOAH Workstation meets or exceeds the requirements of:

- **ISO 20122:2024**
- **DGF C-VI 22 (20)** and conforms with **EFSA** analytical recommendations for MOSH/MOAH testing
- **DIN EN 16995**

Through rigorous Acceptance Testing and validated workflows, the CHRONECT™ MOSH/MOAH Workstation ensures analytical confidence from sample to result. Every configuration is verified for reproducibility, compliance, and precision – delivering the reliability today's laboratories demand.



Ready to experience validated automation?

Visit chronect.trajanscimed.com or
contact chronect@trajanscimed.com
to discuss your laboratory's needs.



CHRONECT™ MOSH/MOAH Workstation

Validated automation from sample to result – setting a new benchmark for mineral oil hydrocarbon analysis

Visit us at chronect.trajanscimed.com or contact your regional Trajan representative for more information.

Science that benefits people

Trajan Scientific and Medical develops products and services that can enable critical improvement in the analytical workflow. We aim to have positive impact on human well-being with the delivery of precision products that protect sample integrity and minimize result variation.

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