

GERSTEL GmbH & Co.KG

Pieter Stoutjesdijk
Regional Sales Manager WEMEA

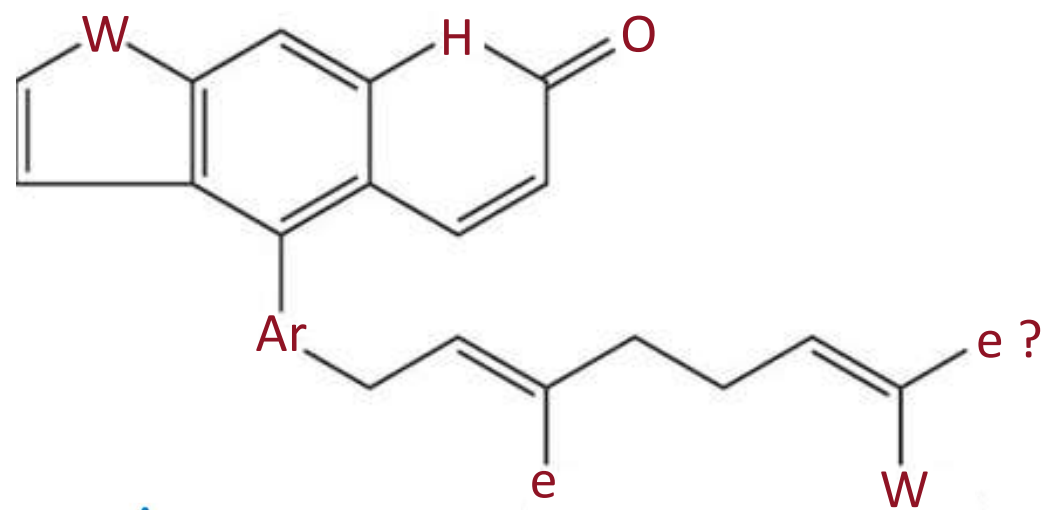
Welcome! - This is who I am:

- Pieter Stoutjesdijk (NL)
 - Regional sales manager WEMEA area
 - Working for GERSTEL since 1996
 - Chemistry degree
 - Petrochemical & environmental analysis experience
- Contact: pieter_stoutjesdijk@gerstel.de

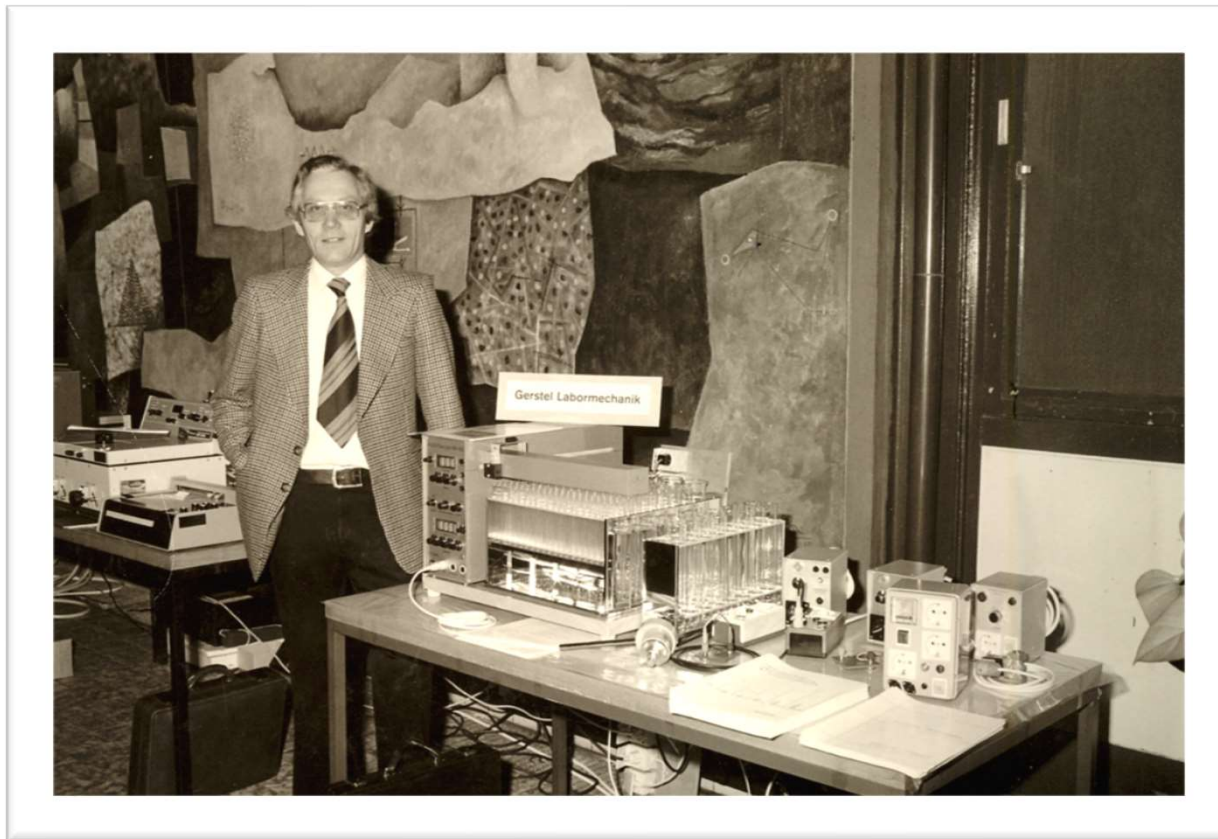


GERSTEL

MAKING LABS WORK

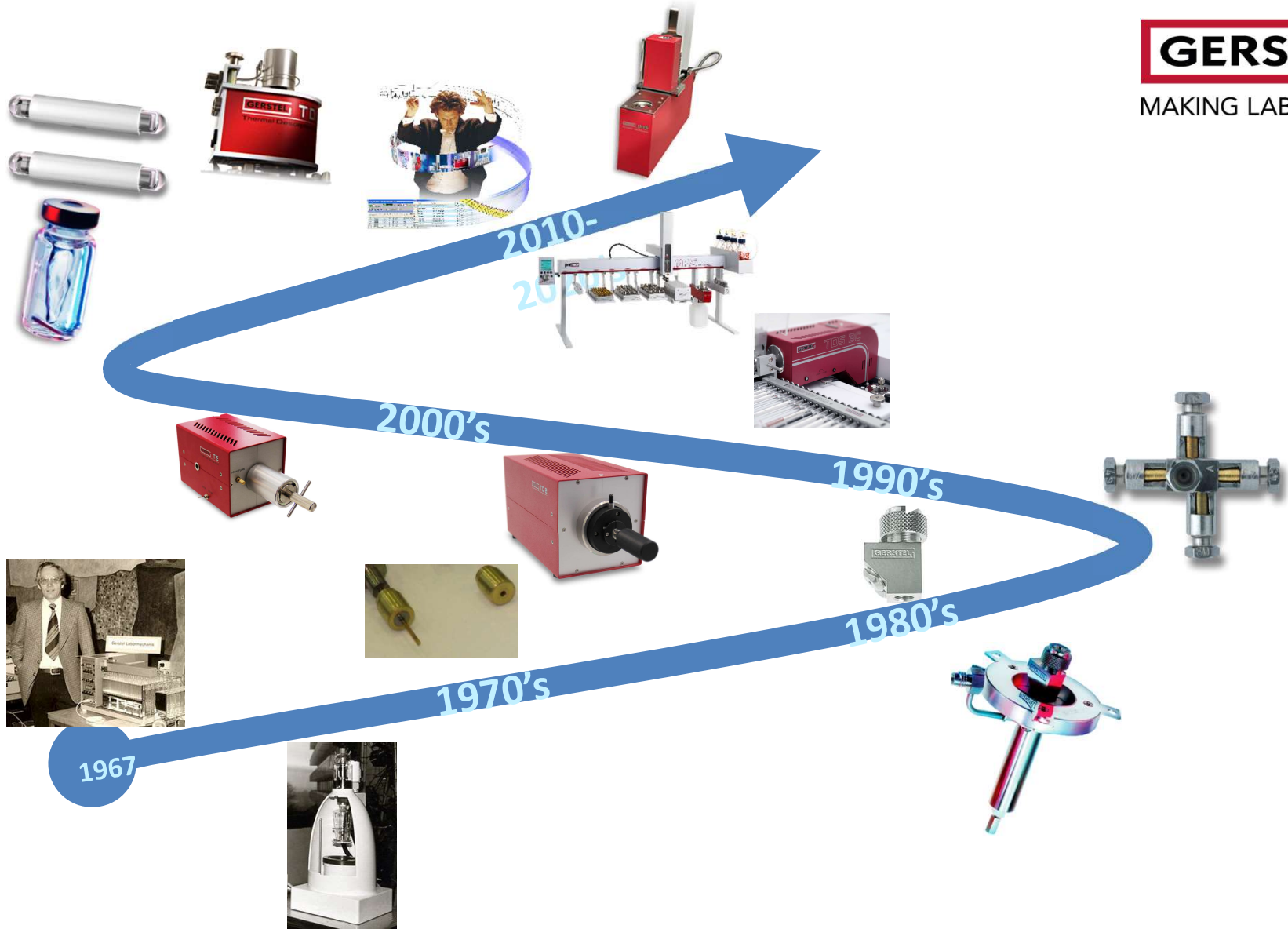


Eberhard Gerstel, founder



GERSTEL

MAKING LABS WORK



Headquarters





MAKING LABS WORK



Made in Germany

> 150 Patents

Production

Innovation & Technology

Training

Management

Logistics

Support

Sales/Marketing

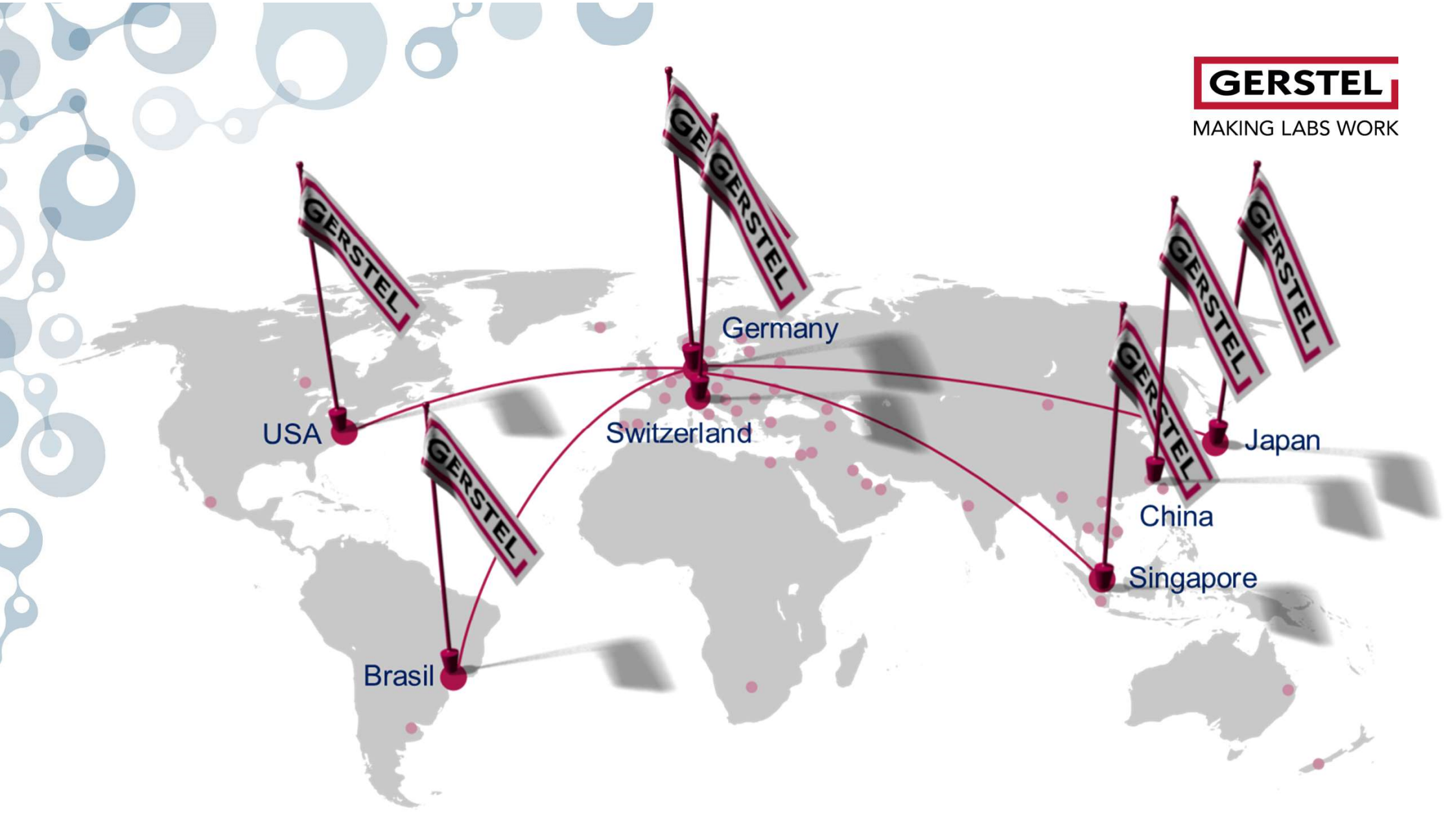


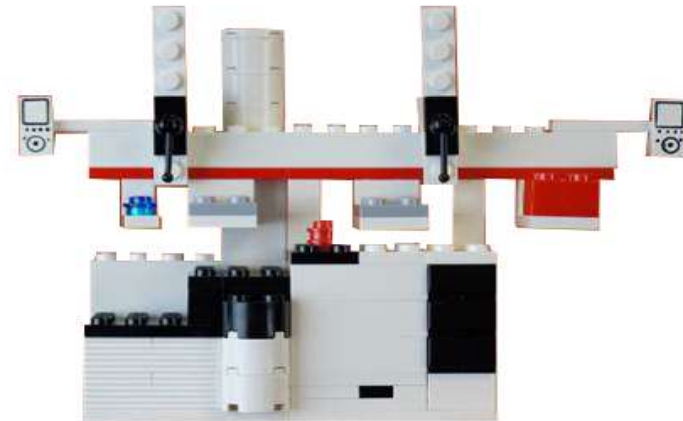
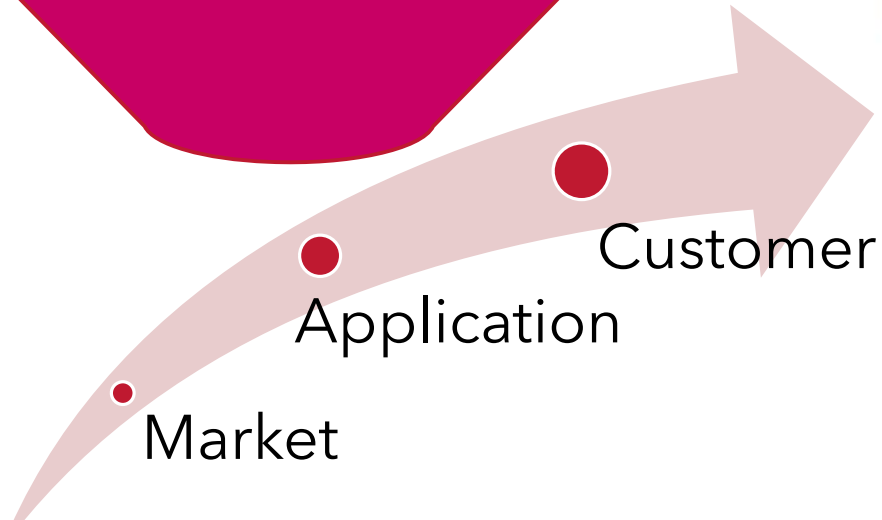
analytica
Munich 2018



GERSTEL

MAKING LABS WORK





MultiPurpose Sampler MPS



MPS WorkStation



MPS GC/MS



MPS LC/MS

MPS GC/MS

DHS Dynamic
Headspace



TDU 2 & TD 3.5+
Thermal desorption



PYRO
Pyrolysis



ATEX Thermal
Extraction in μ Vials



ALEX Automated
Liner Exchange



SPME, TF-SPME and
Stir Bar Sorptive
Extraction **SBSE**



CIS 4
Cooled Injection
System / PTV
Liquid Injection



HS Headspace
Autosampler



MPS LC/MS

mVAP
Evaporative
Concentration



μ-SPE
Solid Phase Extraction



SPE
Solid Phase
Extraction



Agitation, Extraction,
Addition of Standards,
Heating, Derivatization



DPX
Dispersive SPE



Cold storage
of samples



SPE^{xos}
online SPE



Filtration



MPS WorkStation

mVAP
Evaporative
Concentration



Weighing Option



Dilution
Wizard



quickMIX
Agitator



SPE
Solid Phase
Extraction



Cold storage
of samples



SID
Sequence
by Barcode



Centrifuge





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TDU / TD 3.5+

DHS
Dynamic
Headspace



DHS large
(0.2 - 1 L)



ATEX
Thermal Extraction
of liquids in μ -vials



TD 3.5+
Thermal Desorber for 1/4"
or GERSTEL Plus tubes



TSS
Tube
Spiking System



HIT: Hot injection
and Trapping for
HS and SPME



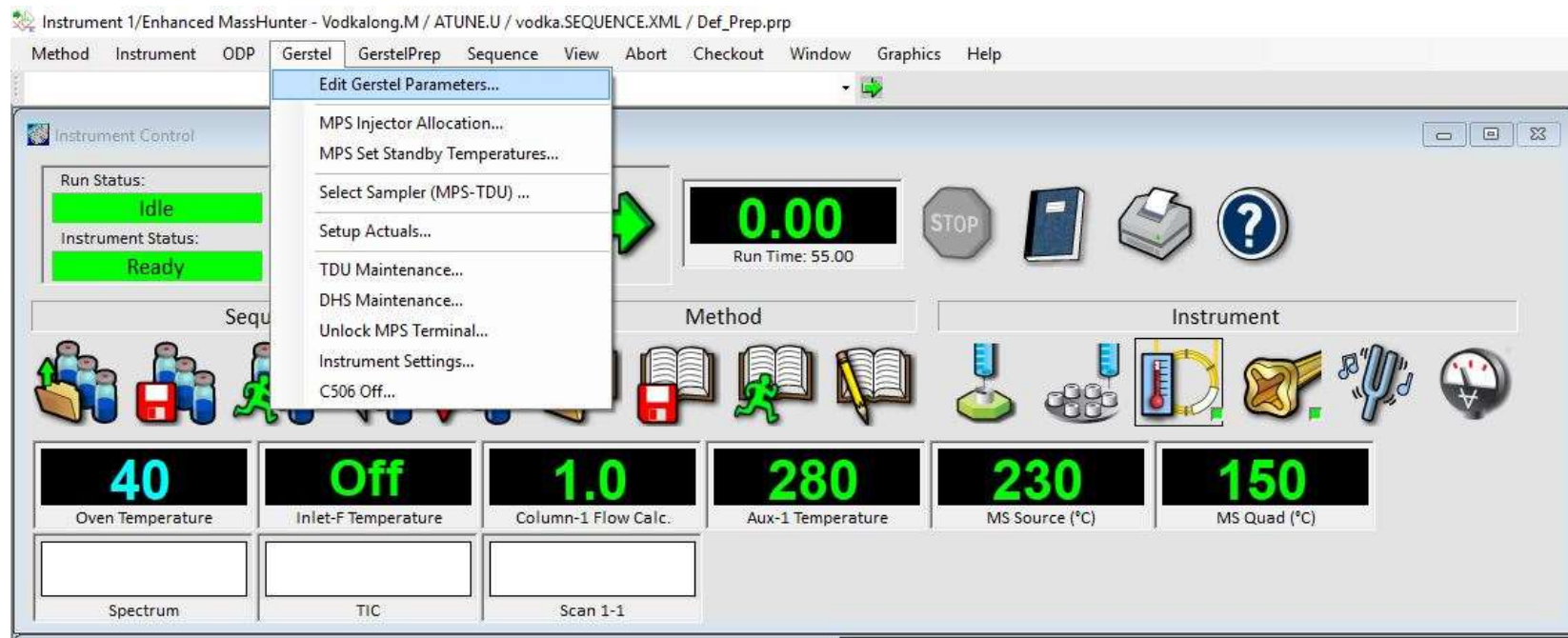
Twister™ / Twicester™
desorption



TF-SPME desorption



MAESTRO in MassHunter



ODP 4

Olfactory Detection Port



The World's Leading
Sniff-port



Fraction
Collector



Olfactory Data
Interpreter ODI

Flavor & Fragrance
GC/MS-O Systems



Flavor & Fragrance Support and Information

F&F AppNotes:

- Flavor & Fragrance and off-flavors in:
 - Food & Beverages
 - Consumer products
- Olfactory Detection (ODP)
 - NEW: ODP Performance Checkout - and Sniff and Trap Operation

Support and Training:

- Application Laboratory Support
- Workshops and courses held by experienced Flavor analysts
- On-Demand Webinars



Agilent - GERSTEL Solutions

- 3-MCPD and glycidol in edible oil
- MOSH/MOAH in food and packaging
- Contaminants in surface water following the EU-WFD
- Glyphosate / AMPA in water and soil
- Microplastics Mass Analysis in Food and Environment (PYRO or TED-GC/MS)
- From customer specific configurations to application specific solutions - ask us

3-MCPD Sample Prep Solution

- 3-MCPD:
 - WorkStation or complete system with GC/MS
 - AOCS Cd 29c-13 / DGF C-VI 18 (10)
 - Additional Methods performed:
 - AOCS Cd 29a-13
 - AOCS Cd 29b-13
 - Zwagerman & Overman (ISO 18363-4)
 - Evaporation of derivatization reagent for GC/MS stability
 - Support and Training:
 - Application Support
 - Workshops and courses held
 - On-Demand Webinars



3-MCPD Sample Prep Solution

- 3-MCPD:
 - WorkStation or complete system with GC/MS
 - AOCS Cd 29c-13 / DGF C-VI 18 (10)
 - Additional Methods performed:
 - AOCS Cd 29a-13
 - AOCS Cd 29b-13
 - Zwagerman & Overman (ISO 18363-4)
 - Evaporation **and Backflush** of reagent for GC/MS stability
 - Support and Training:
 - Application Support
 - Workshops and courses held
 - On-Demand Webinars



Shown with permission of Delta Wilmar LLC

MOSH/MOAH Sample Prep Solution

- MOSH/MOAH in Food and Packaging:
 - Complete LC-GC system with Sample Prep
 - MOSH/MOAH Standard system



Standard MOSH/MOAH system

MOSH/MOAH Sample Prep Solution

- MOSH/MOAH in Food and Packaging:
 - Complete LC-GC system with Sample Prep
 - Extended version including
 - ALOX Clean-up to remove long chain n-alkanes of plant origin
 - Epoxidation to remove interfering naturally occurring olefins

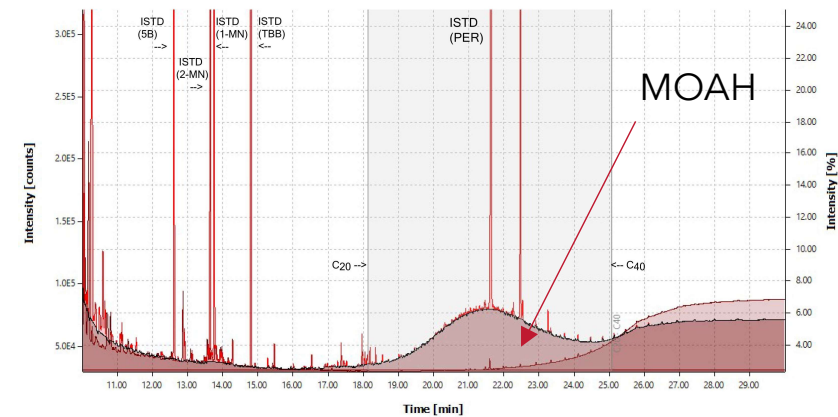
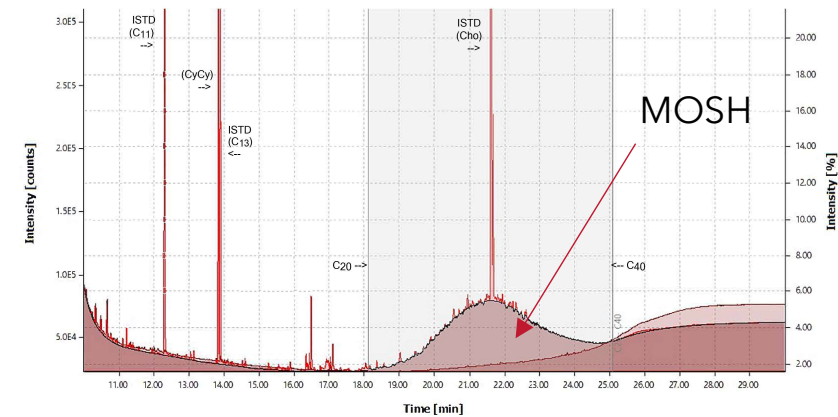


Dual Head MPS for ALOx clean-up and epoxidation

MOSH/MOAH Sample Prep Solution

■ MOSH/MOAH in Food and Packaging:

- Complete LC-GC system with Sample Prep
 - Methods and standards provided
- Software:
 - Automated Batch integration/processing
 - Integrated with Agilent OpenLab™ CDS software
- Support and Training:
 - Application Support , Workshops and courses held
 - On-Demand Webinars



MOSH (top) and MOAH (bottom) integrated chromatograms

Analysis Systems

- Microplastics mass determination
 - GERSTEL PYRO-GC/MS
 - Smart-Ramped Pyrolysis, ideal for unknowns
 - GERSTEL ChromIdent® Pyro Bundle Software
 - Optimized for search of complex samples
 - Powerful visual comparison tools
 - Reporting tool and User-generated Database
 - Support and Training:
 - Application Support
 - Workshops and courses held
 - On-Demand Webinars



Analysis Systems

- Microplastics mass determination
 - GERSTEL TED-GC/MS
 - Representative samples up to 100 mg
 - Limited Sample preparation
 - Decoupling of pyrolysis (TGA) and GC/MS
 - Improved system stability
 - GERSTEL ChromIdent® Pyro Bundle Software
 - Optimized for complex chromatograms
 - Powerful visual comparison tools
 - Reporting tool and User-generated library
 - Support and Training:
 - Application Laboratory Support
 - On-Demand Webinars



TD-GC/MS, MPS, TAU interface, and Mettler TGA 200

Solutions

■ Microplastics mass determination

- GERSTEL TED-GC/MS

- NEW: Filter crucibles for direct analysis of filtrate
- Material: stainless steel for direct use in TED-GC/MS
- For aqueous samples with low matrix load
- Analysis of micro-plastics in beverages (9 L samples)



Accelerated Determination of Microplastics in Environmental Samples Using Thermal Extraction-Desorption-Gas Chromatography/Mass Spectrometry



Fast identification of microplastics in complex environmental samples by a thermal degradation method

Erk Dümichen^{1,2*}, Paul Eisenbraun³, Claus Gerhard Rammick³, Anne-Kathrin Barthel³



Development and testing of a fractionated filtration for sampling of microplastics in water

Claus Gerhard Rammick^{1,2*}, Regine Szewzyk¹, Mathias Ricking², Sara Schlegler^{1,3},



Automated thermal extraction-desorption gas chromatography mass spectrometry: A multifunctional tool for comprehensive



Analysis of polyethylene microplastics in environmental samples, using a thermal decomposition method



Two Birds with One Stone—Fast and Simultaneous Analysis of Microplastics: Microparticles Derived from Thermoplastics and Tire Wear

Paul Eisenbraun¹, Erk Dümichen², Ali Sebastian Ruhl², Martin Jekel², Mirko Albrecht¹, Michael Gebick¹, and Ulrike Braun^{1,3*}

¹Bundesanstalt für Materialforschung und -prüfung, Unter den Eichen 87, 12205 Berlin, Germany

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Thank you for your attention!

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 - Regional sales manager WEMEA
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YouTube



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