

Customer Training 2010

IRMS

Training Courses 2010

Contents

1.	General Information	2
2.	Isotope Ratio Mass Spectrometers (IRMS)	3
	2.1 IRMS (GB-EA) Operator Training: GasBench II, ConFlo III/IV and Elemental Analyzer, TC/EA	5
	2.2 IRMS (GC-EA) Operator Training: GC IsoLink, ConFlo III/IV and Elemental Analyzer, TC/EA	7
	2.3 IRMS (GB-GC) Operator Training: GasBench II and GC IsoLink	9
	2.4 IRMS (EA-GC) Operator Training: ConFlo III/IV and Elemental Analyzer, TC/EA and GC IsoLink	11
	2.5 IRMS GC: GC-C III-Interface Operator Training	13
	2.6 IRMS (LC-GC) Operator Training: LC IsoLink and GC IsoLink	15
	2.7 IRMS (GC - LC) Operator Training	17
	2.8 IRMS (Dual Inlet) Operator Training: Dual Inlet and Peripherals – 3-Day Operator Training	19
	2.9 IRMS (EA-GB) Operator Training: ConFlo III/IV and Elemental Analyzer, TC/EA and GasBench II	21
	2.10 Isodat 3.0 Software Training	23
	2.11 IRMS Operator Training Registration Form	24
3.	Training Schedule 2010	25

General Information

Thermo Fisher Scientific offers a number of training courses throughout the year for advanced mass spectrometry product systems, peripherals and software. The courses are designed to suit the requirements of beginners and advanced operators. In order to get the most from your system, we would like to encourage you to take advantage of getting in-depth knowledge of the instrument and technology from our highly experienced application specialists. Certificates are provided upon completion of the training.

Scheduled training courses take place at our Application Laboratory at

Thermo Fisher Scientific (Bremen) GmbH
Hanna-Kunath-Str. 11
28199 Bremen
Germany

Each course requires a minimum of three participants, but each group will not exceed a maximum of six participants. The training course language will be English unless specified otherwise.

For **training fees** please contact your local Thermo Fisher Scientific sales representative. The training fees include catering during training session (two coffee breaks and lunch). The training fees do not include individual travel costs, hotel accommodation or per diem expenses. However, we offer to arrange your hotel accommodation in Bremen. Preferably, we book our training guests into the Holiday Inn Express Bremen Airport, which is conveniently located next to our facilities, in walking distance of the airport (6 minutes) and 15 minutes by tram from the main railway station. Our preferred rate of 81 € includes breakfast and internet access.

Registration deadline is six weeks prior to scheduled dates. For registration please use our registration form. You can also register online at <http://training.thermo-bremen.com/>

In case of **cancellation** we strongly recommend to nominate a substitute if possible. Cancellation prior to registration deadline is possible. Cancellations four weeks prior to scheduled courses are subject to a 50 % cancellation fee. Cancellations a week prior to scheduled courses are subject to a 90 % cancellation fee.

Training courses may be rescheduled or cancelled due to a lack of participants or other reasons. Already registered attendees will be informed as soon as possible.

On-site training Thermo Fisher Scientific can also conduct the training courses at your facilities. The on-site training courses will be customized according to your instrument(s), software and application requirement(s). Your own instrument(s) will be used to train operation and maintenance procedures.

Training upon request: Training courses with a special content will be held upon request only.

Visa Formalities: Please check whether you will need a visa for Germany. In case you do, please fill in the form below to enable Thermo Fisher Scientific (Bremen) GmbH to issue the visa invitation letter.

Please fax to No. +49 421 54 93 396 Customer Training

Last name (surname):	
First name(s) (given name(s)):	
Title:	
Gender (male / female)	
Date of birth DD - month (in letters) - YYYY	
Number of passport:	
Period of stay, including travel times:	
Correct and complete name and address of customer's company or institute, including telephone and fax numbers (no postbox):	
Correct and complete address of the embassy where to apply for visa, including telephone and fax numbers:	
Correct and complete address (including contact person) of where the originals of the invitation letters shall be sent by courier, including telephone and fax numbers:	

Isotope Ratio Mass Spectrometers

These Isotope Ratio Mass Spectrometer operator training courses are designed for customers who have purchased the DELTA series, and MAT 252/253 with various interfaces and sample preparation units.

The **general objective** of these training courses is to familiarize with the instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and trouble shooting.

The **instruments used for training** will be DELTA V. The **software** used for training will be Isodat 3.0.

The training is arranged in **3-day** and **5-day** courses. The general aspects of isotope ratio mass spectrometry are covered on the first day.

The **5 day course** is for IRMS user who need to gain a thorough understanding of two different preparation devices and their interfaces. Each technique is trained on two of the following days in the chronology given by the course name. E.g. GC-EA: GC interface and preparation unit on the 2nd and 3rd day of the course, ConFlo and EA on the 4th and 5th day of the training.

The **3-day course** only covers one preparation device and its interface.

Users can attend on the first three days of a scheduled 5-day course.

Please select your course carefully according to the interfaces and sample preparation units that suits your needs best. Thank you.

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

2. Isotope Ratio Mass Spectrometers

Training Courses 2010:	
Interfaces and Sample Preparation Units and Software	
GC - EA: GC IsoLink, ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals	08.02. – 12.02.2010
GC – LC: GC IsoLink and LC IsoLink	08.02. – 12.02.2010
GB - EA: GasBench II, ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals	15.02. - 19.02.2010
GC: GC-C III-Interface and peripherals	15.02. - 17.02.2010
EA – GC: Elemental Analyzer, TC/EA Peripherals, ConFlo III/IV and GC IsoLink	14.06. – 18.06.2010
GB – GC: GasBench II and GC IsoLink	14.06. – 18.06.2010
EA – GC: Elemental Analyzer, TC/EA Peripherals, ConFlo III/IV and GC IsoLink	01.11. – 05.11.2010
LC – GC: LC IsoLink and GC IsoLink	01.11. – 05.11.2010
GB – EA: ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals and GasBench II	08.11. – 12.11.2010
Dual Inlet and Peripherals (H-Device, Kiel Carbonate Device, Microvolume)- 3-day operator course	15.11. – 17.11.2010
GC: GC-C III-Interface and peripherals	15.11. – 17.11.2010
Isodat 3.0 Basic Training 2-day training	Upon request
Isodat 3.0 – Advanced Training, Hardware programming 3-day training	Upon request

Please also contact your local sales representative for upcoming Isodat trainings, workshop dates, or on-site training. Thank you!

Training Sessions:

Monday – Thursday

09:00 – 16:30 h

Friday

09:00 – 15:00 h

2.1 IRMS (GB - EA) Operator Training Course Outline

covering: GasBench II, ConFlo III/IV Interface, Elemental Analyzer and TC/EA Peripherals

The **general objective** of this operator training is to familiarize the operator with the DELTA V Plus and DELTA V Advantage instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and troubleshooting. It intends to give you the best understanding for the interfaces and sample preparation units GasBench II and ConFlo III/IV, Elemental Analyzer EA for N, C, S isotope ratio determination, TC/EA for H, O isotope ratio determination.

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electromagnet
- Ion detection & amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

2.1 IRMS (GB - EA) Operator Training Course Outline - continued

covering: GasBench II, ConFlo III/IV Interface, Elemental Analyzer and TC/EA Peripherals

Tuesday/Wednesday

GasBench II

Basic Operations

- VALCO 8 port valve and switching sequence
- Nafion water traps
- Tray and GC column temperature setting
- Open split and reference inlet
- Carbonate option
- Autosampler operation
- Isotope ratio determination

Applications

- CO₂ in air
- Breath tests
- Water equilibration for ¹⁸O and HD
- Carbonates
- Dissolved inorganic carbon
- Atmospheric gases

Thursday/Friday

ConFlo III/IV Interface and EA Peripherals

ConFlo III/IV

- General introduction
- Interface components

Elemental Analyzer TC/EA

- Reactor packing and maintenance
- H, O sample preparation and handling
- Measurement strategies
- Software setup (Methods, Sequences)

Elemental Analyzer EA (Flash EA 1112, Flash EA HT)

- Reactor packing
- N, C, S sample preparation and handling
- Measurement strategies
- Software setup (Methods, Sequences, EAGER 300)

Data Processing, Corrections, Calibration, Referencing

2.2 IRMS (GC - EA) Operator Training Course Outline

covering: GC IsoLink, ConFlo III/IV, Elemental Analyzer and TC/EA peripherals

The **general objective** of this operator training course is to familiarize the operator with DELTA V Plus and DELTA V Advantage instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and troubleshooting. It intends to give you the best understanding for the interfaces and sample preparation units GC IsoLink, ConFlo III/IV, EA Elemental Analyzer for N, C, S isotope ratio determination, and TC/EA for H, O isotope ratio determination.

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electromagnet
- Ion detection & amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

Tuesday/Wednesday

GC Interface and Peripherals

GC Peripheral

- Requirements for IRMS
- Injection methods
- GC columns
- Optimizing of GC pathways
- GC data evaluation
- Autosampler methods

2.2 IRMS (GC - EA) Operator Training Course Outline - continued

covering: GC IsoLink, ConFlo III/IV, Elemental Analyzer and TC/EA peripherals

GC Interface and Peripherals - continued

GC IsoLink

- General introduction
- Gas flow modes
- Interface components
- Tests after GC IsoLink maintenance

GC Combustion (GC/C)

- Reactors and conditioning
- C, N sample handling
- Isotope ratio determination and analytical approaches

GC High Temperature Conversion (GC/TC)

- Reactors and conditioning
- H, O sample handling
- Isotope ratio determination and analytical approaches

Maintenance

Thursday/Friday

ConFlo III/IV Interface and EA Peripherals

ConFlo III/IV

- General introduction
- Interface components

Elemental Analyzer TC/EA

- Reactor packing and maintenance
- H, O sample preparation and handling
- Measurement strategies
- Software setup (Methods, Sequences)

Elemental Analyzer EA (Flash EA 1112, Flash EA HT)

- Reactor packing
- N, C, S sample preparation and handling
- Measurement strategies
- Software setup (Methods, Sequences, EAGER 300)

Data Processing, Corrections, Calibration, Referencing

2.3 IRMS (GB - GC) Operator Training Course Outline

covering: GasBench II and GC IsoLink, ConFlo III/IV

The **general objective** of this operator training course is to familiarize the operator with DELTA V Plus and DELTA V Advantage instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and trouble shooting. It intends to give you the best understanding for the interfaces and sample preparation units GasBench II and GC-CIII, GC IsoLink.

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electromagnet
- Ion detection & amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

2.3 IRMS (GB - GC) Operator Training Course Outline - continued

covering: GasBench II and GC IsoLink, ConFlo III/IV

Tuesday/Wednesday

GasBench II

Basic Operations

- VALCO 8 port valve and switching sequence
- Nafion water traps
- Tray and GC column temperature setting
- Open split and reference inlet
- Carbonate option
- Autosampler operation
- Isotope ratio determination

Applications

- CO₂ in air
- Breath tests
- Water equilibration for ¹⁸O and HD
- Carbonates
- Dissolved inorganic carbon
- Atmospheric gases

Thursday/Friday

GC Interface and Peripherals

GC Peripheral

- Requirements for IRMS
- Injection methods
- GC columns
- Optimizing of GC pathways
- GC data evaluation
- Autosampler methods

GC-C III Interface Basics

- General introduction
- Gas flow modes
- Interface components
- Tests after GC IsoLink maintenance

GC Combustion (GC/C)

- Reactors and conditioning
- C, N sample handling
- Isotope ratio determination and analytical approaches

GC High Temperature Conversion (GC/TC)

- Reactors and conditioning
- H, O sample handling
- Isotope ratio determination and analytical approaches

Maintenance

Data Processing, Corrections, Calibration, Referencing

2.4 IRMS (EA - GC) Operator Training Course Outline

covering: ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals and GC IsoLink

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electromagnet
- Ion detection & amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

Tuesday/Wednesday

ConFlo III/IV Interface and EA Peripherals

ConFlo III/IV

- General introduction
- Interface components

Elemental Analyzer TC/EA

- Reactor packing and maintenance
- H, O sample preparation and handling
- Measurement strategies
- Software setup (Methods, Sequences)

Elemental Analyzer EA (Flash EA 1112, Flash EA HT)

- Reactor packing
- N, C, S sample preparation and handling
- Measurement strategies
- Software setup (Methods, Sequences, EAGER 300)

2.4 IRMS (EA - GC) Operator Training Course Outline - continued

covering: ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals and GC IsoLink

Thursday/Friday

GC Interface and Peripherals

GC Peripheral

- Requirements for IRMS
- Injection methods
- GC columns
- Optimizing of GC pathways
- GC data evaluation
- Autosampler methods

GC-C III Interface Basics

- General introduction
- Gas flow modes
- Interface components
- Tests after GC IsoLink maintenance

GC Combustion (GC/C)

- Reactors and conditioning
- C, N sample handling
- Isotope ratio determination and analytical approaches

GC High Temperature Conversion (GC/TC)

- Reactors and conditioning
- H, O sample handling
- Isotope ratio determination and analytical approaches

Maintenance

Data Processing, Corrections, Calibration, Referencing

2.5 IRMS (GC-C III Interface) Operator Training Course Outline

covering: GC IsoLink

The **general objective** of this operator training course is to familiarize the operator with DELTA V Plus and DELTA V Advantage instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and troubleshooting. It intends to give you the best understanding for the interfaces and sample preparation units of the GC IsoLink.

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electromagnet
- Ion detection & amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

2.5 IRMS (GC-C III Interface) Operator Training Course Outline - continued

Tuesday/Wednesday

GasBench II

Basic Operations

- VALCO 8 port valve and switching sequence
- Nafion water traps
- Tray and GC column temperature setting
- Open split and reference inlet
- Carbonate option
- Autosampler operation
- Isotope ratio determination

Applications

- CO₂ in air
- Breath tests
- Water equilibration for ¹⁸O and HD
- Carbonates
- Dissolved inorganic carbon
- Atmospheric gases

Thursday/Friday

GC Interface and Peripherals

GC Peripheral

- Requirements for IRMS
- Injection methods
- GC columns
- Optimizing of GC pathways
- GC data evaluation
- Autosampler methods

GC-C III Interface Basics

- General introduction
- Gas flow modes
- Interface components
- Tests after GC-C III maintenance

GC Combustion (GC/C)

- Reactors and conditioning
- C, N sample handling
- Isotope ratio determination and analytical approaches

GC High Temperature Conversion (GC/TC)

- Reactors and conditioning
- H, O sample handling
- Isotope ratio determination and analytical approaches

Maintenance

Data Processing, Corrections, Calibration, Referencing

2.6 IRMS (LC - GC) Operator Training Course Outline

covering: LC IsoLink and GC IsoLink

The **general objective** of this operator training course is to familiarize the operator with DELTA V Plus and DELTA V Advantage instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and trouble shooting. It intends to give you the best understanding for the interfaces and sample preparation units LC IsoLink and GC IsoLink.

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electromagnet
- Ion detection & amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

Tuesday/Wednesday

LC IsoLink Interface

- Principle of the new irm-LC/MS strategy
- Setup of the LC IsoLink
- Components of the LC IsoLink
- How to control the LC IsoLink and HPLC system with ISODAT
- Operating modes:
 - Bulk injection mode (μ -EA mode)
 - HPLC mode (CSIA mode)

2.6 IRMS (LC - GC) Operator Training Course Outline - continued

covering: LC IsoLink and GC IsoLink

LC IsoLink Interface - continued

- Getting started
- Liquid flow area of the interface
- Gas isotope area of the interface
- Requirements on the HPLC systems
- How to start with a new application
- Method Development
- Application examples
- Maintenance of the components
- Surveyor MS Pump and P1000 Pump
- Surveyor Autosampler

Thursday/Friday

GC Interface and Peripherals

GC Peripheral

- Requirements for IRMS
- Injection methods
- GC columns
- Optimizing of GC pathways
- GC data evaluation
- Autosampler methods

GC-C III Interface Basics

- General introduction
- Gas flow modes
- Interface components
- Tests after GC IsoLink maintenance

GC Combustion (GC/C)

- Reactors and conditioning
- C, N sample handling
- Isotope ratio determination and analytical approaches

GC High Temperature Conversion (GC/TC)

- Reactors and conditioning
- H, O sample handling
- Isotope ratio determination and analytical approaches

Maintenance

Data Processing, Corrections, Calibration, Referencing

2.7 IRMS (GC - LC) Operator Training Course Outline

covering: GC IsoLink and LC IsoLink

The **general objective** of this operator training course is to familiarize the operator with DELTA V Plus and DELTA V Advantage instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and trouble shooting. It intends to give you the best understanding for the interfaces and sample preparation units LC IsoLink and GC IsoLink.

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electromagnet
- Ion detection & amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

Tuesday/Wednesday

GC Interface and Peripherals

GC Peripheral

- Requirements for IRMS
- Injection methods
- GC columns
- Optimizing of GC pathways
- GC data evaluation
- Autosampler methods

GC-C III Interface Basics

- General introduction
- Gas flow modes

2.7 IRMS (GC - LC) Operator Training Course Outline - continued

covering: GC IsoLink and LC IsoLink

- Interface components
- Tests after GC IsoLink maintenance
- GC Combustion (GC/C)
 - Reactors and conditioning
 - C, N sample handling
 - Isotope ratio determination and analytical approaches
- GC High Temperature Conversion (GC/TC)
 - Reactors and conditioning
 - H, O sample handling
 - Isotope ratio determination and analytical approaches
- Maintenance

Thursday/Friday

LC IsoLink Interface

- Principle of the new irm-LC/MS strategy
- Setup of the LC IsoLink
- Components of the LC IsoLink
- How to control the LC IsoLink and HPLC system with ISODAT
- Operating modes:
 - Bulk injection mode (μ -EA mode)
 - HPLC mode (CSIA mode)

LC IsoLink Interface - continued

- Getting started
- Liquid flow area of the interface
- Gas isotope area of the interface
- Requirements on the HPLC systems
- How to start with a new application
- Method Development
- Application examples
- Maintenance of the components
- Surveyor MS Pump and P1000 Pump
- Surveyor Autosampler

Data Processing, Corrections, Calibration, Referencing

2.8 IRMS (Dual Inlet) Operator Training Course Outline

covering: Dual Inlet and Peripherals

3-day operator training course!

The **general objective** of this operator training course is to familiarize the operator with the DELTA V Plus and DELTA V Advantage instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and trouble shooting. It intends to give you the best understanding for Dual Inlet operation with peripherals including Multiport and Microvolume (H/Device, Kiel IV Carbonate Device, HDO II optional).

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electro magnet
- Ion detection and Amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

2.8 IRMS (Dual Inlet) Operator Training Course Outline - continued

covering: Dual Inlet and Peripherals

Tuesday/Wednesday

Dual Inlet and Peripherals

Dual Inlet

- Principle of operation, bellows and valves
- Pressure adjust
- Sample CO₂ acquisition
- Dual inlet system
- Isotope ratio determination (normalization & standardisation)
- Process control and evaluation
- Maintenance
- Microvolume
- Multiport
- H/Device (upon request)
- Kiel IV Carbonate Device (upon request)

Data Processing, Corrections, Calibration, Referencing

2.9 IRMS (EA - GB) Operator Training Course Outline

covering: GasBench II, ConFlo III/IV Interface, Elemental Analyzer and TC/EA Peripherals

The **general objective** of this operator training is to familiarize the operator with the DELTA V Plus and DELTA V Advantage instrument features, vacuum system, ion source setting, basic instrument operations, instrument check and maintenance basics, software and troubleshooting. It intends to give you the best understanding for the interfaces and sample preparation units GasBench II and ConFlo III/IV, Elemental Analyzer EA for N, C, S isotope ratio determination, TC/EA for H, O isotope ratio determination.

Participants' profile: General understanding of mass spectrometry (MS), English language, 3 – 6 months experience with the instrument.

Monday

Introduction

Basic Theory

- Ion source operation
- Analyzer and electromagnet
- Ion detection & amplifier

Vacuum System

- General introduction

Maintenance

- Ion source mounting, demounting and cleaning
- Pump maintenance
- Spare parts

Application Software

- Instrument control module
- Mass calibration
- System and signal stability
- File structure and data flow
- Result workshop
- Data import and export

2.9 IRMS (EA - GB) Operator Training Course Outline - continued

covering: GasBench II, ConFlo III/IV Interface, Elemental Analyzer and TC/EA Peripherals

Tuesday/Wednesday

ConFlo III/IV Interface and EA Peripherals

ConFlo III/IV

- General introduction
- Interface components

Elemental Analyzer TC/EA

- Reactor packing and maintenance
- H, O sample preparation and handling
- Measurement strategies
- Software setup (Methods, Sequences)

Elemental Analyzer EA (Flash EA 1112, Flash EA HT)

- Reactor packing
- N, C, S sample preparation and handling
- Measurement strategies
- Software setup (Methods, Sequences, EAGER 300)

Thursday/Friday

GasBench II

Basic Operations

- VALCO 8 port valve and switching sequence
- Nafion water traps
- Tray and GC column temperature setting
- Open split and reference inlet
- Carbonate option
- Autosampler operation
- Isotope ratio determination

Applications

- CO₂ in air
- Breath tests
- Water equilibration for ¹⁸O and HD
- Carbonates
- Dissolved inorganic carbon
- Atmospheric gases

Data Processing, Corrections, Calibration, Referencing

2.10 Isodat Software Training Course Outline

- **Session 1: System Setup**
 - ISODAT File Structure
 - Version Handler
 - Installation of ISODAT
 - Configurator:
 - Creating Configurations
 - Setup of Devices
 - Instrument Control
 - Mass Scale Calibration
 - Scan Functions
 - Standard and Gas Configuration
 - Diagnosis
 - Mass Spectrometer Tests

- **Session 2: Data Acquisition Strategy**
 - Application Programs: Acquisition, Workspace
 - Method Development: Acquisition, GC and Autosampler Methods
 - Jump Calibration
 - H₂ Calibration
 - H₃⁺ Factor Determination

- **Session 3: Data Handling**
 - Data Processing
 - File Browser and File Search
 - Data Reprocess
 - Export of Results and Chromatograms

- **Session 4: Advanced Features**
 - Ratio Editor
 - Reference Editor
 - Device Editor
 - Panel Designer
 - Result Workshop: Printout of Data

2.11 Registration Form

Isotope Ratio Mass Spectrometer Operator Training

Please mail this form to training.bremen@thermo.com

fax it to our office at ++49 (421) 54 93 396. Thank you.

<p>Participant</p> <p>Last name:</p> <p>First name:</p> <p>Title:</p> <p>Company/Institute:</p> <p>Address (street):</p> <p>Postal code:</p> <p>City / State:</p> <p>Country:</p> <p>Phone:</p> <p>Fax:</p> <p>E-Mail:</p>	<p>Training Course</p> <p>Course Name:</p> <p>Date:</p> <p>Accommodation</p> <p>Hotel reservation Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Smoking Non-smoking</p> <p>At Holiday Inn Express Bremen Airport (81 € including breakfast and internet access)</p> <p>Other (please specify price range / location)</p> <p>Date of Arrival:</p> <p>Date of Departure:</p>
<p>Instrument type(s)</p> <p>_____</p> <p>Service number (if known):</p> <p>S/N _____</p> <p>We use the following software</p> <p>_____</p> <p>Our main application is</p> <p>_____</p>	<p>Peripherals, you are most interested in:</p> <p>ConFlo III/IV Interface and EA peripherals (EA, TC/EA)</p> <p>GC/C/TCIII</p> <p>GC IsoLink and corresponding devices</p> <p>GasBench II (+ Precon)</p> <p>LC IsoLink and corresponding devices</p> <p>Dual Inlet and peripherals</p> <p>Microvolume, Multiport</p> <p>H/Device</p> <p>Kiel IV Carbonate</p>

Date _____

Signature _____

3. Training Schedule 2010

Instruments	Training Course	Dates
Isotope Ratio Mass Spectrometers DELTA series MAT 252/253	GB-EA: ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals, GasBench II	15.02. – 19.02.2010
	GC-EA: GC IsoLink, ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals	08.02. – 12.02.2010
	GC-LC: GC IsoLink , LC IsoLink	08.02. – 12.02.2010
	GC (GC-C III Interface): GC-C III Interface and Peripherals	15.02. – 17.02.2010
	GB-GC: GC IsoLink, ConFlo III/IV and GasBench II	14.06. – 18.06.2010
	EA-GC: Elemental Analyzer and TC/EA Peripherals and GC IsoLink, ConFlo III/IV	14.06. – 18.06.2010
	Dual Inlet: Dual Inlet and Peripherals / 3-day operator course	15.11. – 17.11.2010
	GB-EA: GasBench II, ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals	08.11. – 12.11.2010
	EA-GC: GC IsoLink, ConFlo III/IV and Elemental Analyzer and TC/EA Peripherals	01.11. – 05.11.2010
	LC-GC: LC IsoLink and GC IsoLink	01.11. – 05.11.2010
	GC (GC-C III Interface): GC-C III Interface and Peripherals	15.11. – 17.11.2010
Isodat Workshop Basic Software Training Advanced Software Training, Hardware programming	upon request	

3. Training Schedule 2010 - continued

Instruments	Training Course	Dates
ICP-MS / GD-MS XSERIES 2	XSERIES Operator Training	09.03. – 12.03.2010 08.06. – 11.06.2010 26.10. – 29.10.2010
ELEMENT ELEMENT 2 ELEMENT XR	ELEMENT2 / ELEMENT XR Operator Training German Language Training	01.02. – 05.02.2010 06.09. – 10.09.2010 22.11. – 26.11.2010 03.05. – 07.05.2010
ELEMENT GD	ELEMENT GD Operator Training	12.04. – 16.04.2010
Thermal Ionization Mass Spectrometer TRITON	TRITON Basic Operator Training TRITON 3 day Lab Manager Training	22.02. – 26.02.2010 25.10. – 29.10.2010 upon request
Multicollector ICP-MS NEPTUNE	NEPTUNE Basic Operator Training NEPTUNE 3 day Lab Manager Training	18.01. – 22.01.2010 18.10. – 22.10.2010 upon request
Organic Mass Spectrometers DFS LTQ FT Ultra LTQ Orbitrap XL LTQ Orbitrap Discovery	These trainings will be organized by the European Training Institute ETI. For more information please contact: euro.training.hemel@thermofisher.com OR catherine.lemardele@thermofisher.com Individual training available upon request.	