

7: ASSEMBLY AND TEST RECORD

Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
Job Number:	IN1266	Date:	20/09/2021

PRODUCT:

HS2022

SERIAL NUMBER:

20402/4-2021/1215

 ASSEMBLED:
 (Name)

[Signature]

Date:

1/12/21

 PRE-TEST
 INSPECTION:
 (Production name)

P. Rayns
D. HARRIS

Date:

1/12/21

 PRE-TEST
 INSPECTION:
 (Test name)

10 Jan 2022
S. [Signature]

Date:

10 Jan 22

 SYSTEM TEST:
 (Name)

[Signature]

Date:

21/3/22

 PRE-DESPATCH
 INSPECTION:
 (Name)

[Signature]

Date:

21/3/22
P.A.T. Test results

 In compliance with Low Voltage directive 73/23/EEC
 To Low Voltage standard EN61010 – 1:1993

Earth Continuity

0.085 Ω

Insulation

>300 $M\Omega$

Earth Leakage Current

1.33 mA. @ 0.05 kVA.

Tested by:

P. H.

Date:

29/11/21

7: ASSEMBLY AND TEST RECORD

Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
Job Number:	IN1266	Date:	20/09/2021

PRODUCT: ISO-EARTH+ (ISO-EARTH+ UPGRADE)
(NOW CALLED PYRO-EARTH)

SERIAL NUMBER: 10202/14-2021/1266

ASSEMBLED: [Signature] Date: 16/12/21
(Name)

PRE-TEST INSPECTION: P. Hays Date: 16/12/21
(Production name)

PRE-TEST INSPECTION: S. Moss Date: 16/12/21
(Test name)

SYSTEM TEST: S. Moss Date: 21/3/22
(Name)

PRE-DESPATCH INSPECTION: [Signature] Date: 21/3/22
(Name)

P.A.T. Test results

In compliance with Low Voltage directive 73/23/EEC
To Low Voltage standard EN61010 – 1:1993

Earth Continuity 0.079 Ω

Insulation 127 $M\Omega$

Earth Leakage Current 0.75 mA. @ 0.27 kVA.

Tested by: P. Hays

Date: 16/12/21

7: ASSEMBLY AND TEST RECORD

Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
Job Number:	IN1266	Date:	20/09/2021

PRODUCT: X72 SAMPLING BOX

SERIAL NUMBER: 10202/10-2022/1266.

ASSEMBLED: [Signature]

Date: 18/3/22

PRE-TEST INSPECTION: P. Rapp
(Production name)

Date: 18/3/22

PRE-TEST INSPECTION: S. Marx
(Test name)

Date: 18/3/22

SYSTEM TEST: S. Marx
(Name)

Date: 20/3/22

PRE-DESPATCH INSPECTION: [Signature]
(Name)

Date: 21/3/22

P.A.T. Test results

In compliance with Low Voltage directive 73/23/EEC
To Low Voltage standard EN61010 – 1:1993

Earth Continuity _____ Ω

Insulation _____ $M\Omega$

Earth Leakage Current _____ mA. @ _____ kVA.

Tested by: _____

Date: _____

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Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
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 PRODUCT: 4CARBS For CF

 SERIAL NUMBER: 11103/2021/1266

 ASSEMBLED: Abun
 (Name)

 Date: 18.3.22

 PRE-TEST
 INSPECTION: P. Hayes
 (Production name)

 Date: 18/3/22

 PRE-TEST
 INSPECTION: S. Moss
 (Test name)

 Date: 18/3/22

 SYSTEM TEST: S. Moss
 (Name)

 Date: 21/3/22

 PRE-DESPATCH
 INSPECTION: James Hamer
 (Name)

 Date: 21/3/22

P.A.T. Test results

 In compliance with Low Voltage directive 73/23/EEC
 To Low Voltage standard EN61010 – 1:1993

 Earth Continuity 0.077 Ω

 Insulation >300 $M\Omega$

 Earth Leakage Current 0.25 mA. @ 0.05 kVA.

 Tested by: P. Hayes

 Date: 18/3/22

8 - Serial Numbers Record Document

Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
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Units S/N

MS/ABCA	
Integra 2	
Prep Unit 1	
Prep Unit 2/Misc	
Electronics Upgrade	
CETAC	1202/10-2022/1266
Gas Box	10202/10-2022/1266
Autosampler	42654
BCR	
Dual Heater Block	

2022 - 20402/4-2022/1266

Pump Kit and Optics S/N

Turbo pump S	210630158
Turbo pump A	210621717
Rotary Pump	210452877

Voltage 110 / 240

Gauge S	200439770
Gauge A	200404404
Source	20102415-189
Collector 1	20301-110 (21001)
Collector 2	20501-043 (2001)
Magnet	Texta 122
Tube	21007

Parts S/N

Fan PSU	
24V PSU	

PCBs S/N

Electronics Box	20210013
Prep PCB	2021/0002
VFC PCB	14002
Watchdog PCB	
Head Amp PCB 1	
Head Amp PCB 2	
Electromagnet RP	Pyro Earth 10202/14-2022/1266

Furnaces S/N

Combustion	
Reduction	
HT-EA	
GC Oven	
Furnace 1	
Furnace 2	

PC S/N

PC	7YKK4K3
Monitor	8V26WB3
Printer	

Key

Pumps:	E: Edwards
	P: Pfeiffer
Furnaces:	V/S: Vecstar
	E: Elite
Magnet:	E: Electromagnet
	S: Standard
Turbos & Gauges:	S: Source
	A: Analyser
Collectors:	Std: Standard
	S: Sulphur
	HD: Hydrogen Deuterium

Additional System Info:

CETAC - 121903A7400HR

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Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
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- ☐ 1 QUOTATION ✓
- ☐ 2 CUSTOMER ORDER ✓
- ☐ 3 MACHINE SPECIFICATION DOCUMENT_S027_v11 ✓
- ☐ 4 LOG SHEET_S028_v3 ✓
- ☐ 5 FAULT REPORTING DOCUMENT_S029_v3 ✓
- ☐ 6 TEST ACCEPTANCE SPECIFICATION_S030_v9 ✓
- ☐ 7 ASSEMBLY AND TEST RECORD_S023_v5 ✓
- ☐ 8 SERIAL NUMBER FORM_S053_v4 ✓
- ☐ 9 TEST DATA ✓
- ☐ 10 PACKING LIST_S035b_v6 ✓
- ☐ 11 INSTALLATION REPORT_S057_v6 ✓
- ☐ 12 INSTALLATION ACCEPTANCE AND WARRANTY CERTIFICATE_S071_v3 ✓

ADDITIONAL:

Payment Terms:

50% / 40% / 10%

Other: please specify

Penalty Clause Yes / No

Please specify:

Blue Book Completion:

Signed	<i>G. J. Connor</i>	Date	20/4/24
Verified	<i>S. Massey</i>	Date	20/4/24

3 - MACHINE SPECIFICATION

Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
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Ref No.	Product Description	Required
HS2022 (continuous flow)		
20402/1	HS2022 Ref Gas + P Mag	
20402/2	HS2022 Ref Gas + E-Mag	
20402/3	HS2022 Ref Gas + Hd Collector + E-Mag	
20402/4	HS2022 Ref Gas + Hd Collector+E-Mag+Trap Loop	✓
20501	Hd Collector Assy ***	
50101/2	Trapping Loop Assy	
70201-1	70201-1 Analyser spares kit – Included	✓
EA Units		
10202/11	iso-EArth	
* 10202/13	iso-EArth+	✓
10202/14	iso-Earth HT Furnace Upgrade	
10202/15	Iso-Earth (Without Autosampler)	
11802/1	Earth+PC	
11802/2	EArth+Clarity+PC	
70501-1	Consumables for C and N for Combustion Only	
70501-11	Simultaneous CNS Consumables Kit (approx. 10000 analysis)	
70501-3	Sample Prep Kit (Inc.)	✓
70501-4	GSL Combustion and Gas C & N Start Up Kit	
70501-5	Simultaneous NCS Consumables Kit	
70501-6	C&N Combustion Only Consumables Kit (approx. 5000 samples)	
70501-8	Simultaneous CNS Consumables Kit (approx. 5000 samples)	✓
70601-1	Sulphur Start Up Kit (Inc. with Sercon EA Systems)	
70601-2	Sulphur Consumables Kit for 1000 Samples	
70601-4	Sulphur Consumables Kit (approx. 5000 Samples)	
70801-2	Pyrolysis Consumables Kit-Low temp for Solids	
71701-1	Sub Microgram Nitrogen Analysis Start Up Kit	
SI2040	PN150 Pneumatic Autosampler with one no.50 pos, carousel	
SI2345	ME Micro Balance	
SI2737/A	Sercon 50 Position Autosampler Assy	
SI2789	Extra 50 Position Carousel	
SI2744	Automatic Liquid Sampler 15 Position	
SI2743	Liquid Sampler Mounting Plate	
Headspace Equilibration		
10202/10	XYZ Gas Sampling Control Box	
10302/1	Aqua System	
11103	µCarbs for CF	✓
11103-1	µCarbs for DI	
11601	200 Place Dual Heated Block 240 Volt	
11801	Sercon XYZ Gas Autosampler	
71107-1	CF oxygen-18 equilibration kit	
71107-2	DI Oxygen-18 Equilibration kit	
71201-1	CF deuterium equilibration kit	
71201-2	DI Deuterium Equilibration kit	
71801-1	WES-DI start up kit (Inc. with WES-DI)	
GC Units		
10402/2	Orchid module 1500C (Will run Hd 70901-1 C Spares Kit Inc)	
10901	Nitrogen Option (71301-1 N Spares kit Included)	
HP7890/1	Agilent 7890B GC System	
HP7890/2	Agilent 7890B GC with Auto Injector	
HP7890/3	Agilent 7890B GC + Auto Injector + 150 Vial Sample Tray	
SI2561	Nexis GC 2010 Plus	

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Ref No.	Product Description	Required
GC Units continued		
SI2564	Nexis GC-2030	
70901-3	GC Pyrolysis H and O Start Up Kit	
70901-4	GC Pyrolysis H Spares Kit	
70901-5	GC Combustion C Spares Kit (approx. 5000 samples)	
70901-6	GC Pyrolysis h Start Up Kit (approx. 5000 samples)	
71301-1	GC N Spares kit	
ABCA2 Units		
10502/1	ABCA2 Sercon XYZ Autosampler	
10602	ABCA2 Gas Box	
20602	Complete Sercon ABCA2 system	
20603	ABCA IR Analyser	
70101-1	ABCA2 spares kit (Inc. With ABCA2)	
70101-2	ABCA2 Spares Kit for AB Analitica Systems	
70101-3	ABCA2 Autosampler Upgrade Kit	
SI1767	CVL505 – Barcode Reader	
SC9973	13C Urea breath test kit for Helicobacter pylori infection	
SC9974	Helicobacter Test kit for children age 3-11 (45mg)	
Integra2 Units		
20802/4	Integra2	
70201-2	Integra2 analyser spares kit - Included	
70401-1	Integra-2 consumables (Inc. With Integra2)	
Trace Gas Systems		
10802/4	CryoPrep	
10802/5	Automated LN refiller	
10802/6	CryoFlex (TOC)	
10802/7	CryoGas	
10802/8	CryoFlex (LA)	
SI2533	Silicon Carbide Vertical Furnace	
SI2731	213nm Laser Ablation System	
SI2733	isoScell 100 sampler chamber	
71001-1	Cryoprep Spares Kit	
71001-5	CryoGas Consumables Kit	
TOC Units		
14001	Thermalox Environmental TOC-IRMS	
14002	Thermalox Environmental TOC-Standalone	
14003	Thermalox Environmental TOC-Standalone No Sampler	
SI2772	CO2 Detector, High sensitivity Option	
SI2773	NOx detector Option	
SI2774	Vacuum pump Option	
SI2775	Stirred Vial rack Option	
72101-1	TOC Start Up Kit	
72101-2	TOC Chem Pack	
72101-3	TOC & TN Instrument with heavy usage - one year	
72101-4	TOC only - economy holding	
GEO 20-22 (dual inlet)		
10702	GEO 20-22 Water Equilibration System (D & 18O)	
21802/1	GEO 20-22	
21802/2	GEO 20-22 + E-Mag	

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21802/3	GEO 20-22 + E-Mag +Hd	
21802/4	GEO 20-22 Inlet	
70301-1	GEO start up kit - Included	
70301-3E	Comprehensive GEO 20-22 spares kit for 5 years operation	
HT-EA		
11501/4	HT-EA (With Autosampler)	
11501/5	HT-EA With Liquid Option	
11501/6	HT-EA Stand Alone	
11501/7	HT-EA (Without Autosampler)	
SI2622	CTC PAL3-LSI-L-S	
SI2624	CTC PAL3-Kit-Standalone	
70801-1	Pyrolysis Consumables Kit-High Temp for Solids	
71501-1	HT-EA Pyrolysis Start Up kit O and H	
71501-2	HT-EA Pyrolysis Kit for Water injections	
71501-3	HT-EA Sensitivity Start Up Kit for O & H in small samples	
71501-4	HT-EA Sensitivity Consumables Kit for O & H in small samples	
71501-5	HT-EA Sensitivity Kit for O&H in Small Samples (5000 samples)	✓
71501-7	HT-EA Kit for Room Temp Equilibration	
71501-8	HT-EA Pyrolysis Kit for Water injections (approx. 1 year kit)	

Ref No.	Product Description	Required
Upgrades		
12101	Evacuation System ***	
12102	2 Ref Gas+ Dilutor Box ***	
20101	Standard Source Assy ***	
20102	HS Source Assy ***	
20301	Standard Collector Assy ***	
30202/1	System Control Upgrade (Pmag) installation not included	Edwards Or Pfeiffer
30202/2	System Controller Upgrade (Emag) installation not included	Edwards Or Pfeiffer
10202/7	Preparation PCB Upgrade	
30202/3	Hijack Box ***	
30302/4	nEXT85 Edwards Pumping System Upgrade Single - installation not included	
30302/5	nEXT85 Edwards Pumping System Upgrade Dual - installation not included	
30302/6	nEXT85 Edwards Pumping System Upgrade Triple- installation not included	
SI2542	ABCA2 Upgrade Kit	
CALLISTOW	Callisto software upgrade ***	
Specials		
11702	LC-I interface	
12202	Leco Interface Unit	
SI2320	Agilent 1260 Series Refractive Index Detection HPLC System	
71401-1	ABCA-G Start Up/Spares Kit	
71401-2	ABCA-G Equilibration Spares Kit - Room temp O only	
71401-3	ABCA-G Equilibration Spares Kit - Room Temp O & H	
71601-1	LC Interface Spares Kit	
ADDITIONS		
PC	Windows 7 based PC System with Callisto Software	✓
Printer	Printer	
INST1	Installation and start up training at customer's site by Sercon Engineer	✓
INST2	Installation and start up training at customer's site by Agents Engineer	
WARR	1 year warranty	
WARR2	2 year warranty	✓
TRAIN	Training in UK for one person for 3 days	
SCONTRACT	Maintenance Service Contract – 1 year	

3 - MACHINE SPECIFICATION

Client:	Gulf Bio Analytical Group		
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SPECIFICATION REQUIREMENTS		
Voltage	Volts 50/60Hzs 230v	✓
Plug Type	SI2510 3 Metre USA/Japan plug to IEC C 13	
	SI2511 2.5 Metre Australian plug to IEC C 13	
	SI2512 3 Metre UK 13 amp Fused plug to IEC C 13	
	SI2523 3metre Schuko (Euro) Plug to IEC C13 Socket	✓
	SI2514 2.5 metre Chinese mains to IEC C13	
Pallet	Stamped for export heat treated for 30 min @ 56 °C	✓
	Complies with all Export Requirements	



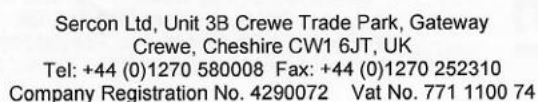
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* HT Furnace upgrade to iso-EANCH.

Needs 71107-5 mCombs. CK sent
up kit 1 off

Reference Materials. to be included.
Jo - Gary.

Approved by Sales: (Name)		Date: 17/Nov/2021
Approved by Tech.: (Name)		Date: 17/11/21



3 - MACHINE SPECIFICATION

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[illegible]

4 - LOG SHEET

Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
Job Number:	IN1266	Date:	20/09/2021

Date	Action Taken	By Whom
10 Jan 22	Parts need testing for LabTech order Emag, Emag drive panel + cable, VFC PCB, HD collector + Head amp standard Head amp + cables. HD collector + HD head amp fitted. Instrument pumped down OK All Cons OK Filament conditional OK	
11 Jan 22	Same issues - unstable beams removed + inspected found swarf from over tightened focusing magnets. Removed swarf + pumped down	DTH
17 Jan 22	Tuned instrument. Peak shapes OK for N ₂ + CO ₂ Stability OK for N ₂ + CO ₂	DTH
13 Jan 22	CO ₂ prec = 0.06%, N ₂ prec = 0.042% CO ₂ linearity = 0.074%, N ₂ linearity = 0.068% Swapped to HD mass ADJUSTED pMag pot - Read backs OK HD peak + stability OK HD legus prec = 0.213% All parts tested + okay to remove from instrument + ship to China	DTH
18.1.22	EMAG Fitted + connections Filament on 11:36 (local) HD Head amp fitted.	
14.1.22	N ₂ + CO ₂ tuning incl. Ref Gas specs: initially 15N = 0.09 std 13C = 0.12 precision. 15N = 0.08 std 13C = 0.64 linearity	
20.1.22	CO ₂ Ref Gas Wt: 0.24 (0.10 std) lin. reg. off CO ₂ Ref Gas Prec: 0.03 std. Peak shape: PASS 2/1: PASS	

4 - LOG SHEET

Client:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
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Date	Action Taken	By Whom
20.1.22	N ₂ Peak shape : Pass 2/1 stability : Pass N ₂ Ref Gas Precision : 0.03 Wt: 0.49 0.10 LROFF 0.48 LROFF	
1/3/22	Pyro Earth Arrived onto test	SM
	Instrument leak checked and Sampler fitted	SM
2/3/22	The System has a diverter valve to change between ACS and HT-CA mode the 3way valve is now Assigned as V15 on the prep Side when activated the Flow will still have a back up flow through the System 15ml	SM
3/3/22	on further investigation the MFC one in the wrong way round now changed round and read and control ok	SM
①	tried to calibrate Flow but Flow meters went read	
②	Flow meters wired back to front at PCB End	SM
	now correct and calibrated ok	SM
4/3/22	All Flows and crimps now set Flow Paths appear correct	SM
③	re-checked MS on further investigation the top of the isolation valve had been overtightened as all 4" Production informed all valves changed	SM

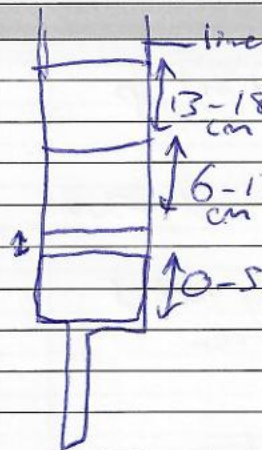
4 - LOG SHEET

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Quotation Number:	15002	Date:	16/08/2021
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Date	Action Taken	By Whom
7/3/22	Made up tubes for ACS Standard Setup All Furnaces heated up	SM
	Com 1000 Red 890 GC 60 red 2-300	
	The new HT Furnace has run away melted the High Purity copper and broken the Furnace element!!	SM
8/3/22	new element in place machine has also made a separate piece of software now built into Callisto to slowly heat up the Furnace	
	works well so far and copper now not melting	SM
9/3/22	temps now stable and full flow through the MS	
	Dropped Cystine to see what peaks we get	
	NTC Present no SO2!!	SM
10/3/22	Changed packing slightly inside comb tube packing higher up to Aid Combustion Purge or also upped to 80 ml/min	
	Flash combustion seen but sample height lower than should be	
11/3/22	Tube Packing inside comb changed again Brian Fry Paper copied	

4 - LOG SHEET

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Quotation Number:	15002	Date:	16/08/2021
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Date	Action Taken	By Whom
		
14/3/22	reaction tube worked much better NCS peaks are excellent	SM
	NCS Precision Batch ran data on spec sheet	SM
16/3/22	Instrument now Set up for Pyrolysis heated liner upto 1400 full flow measured at MS	SM
⑤	lower Citer o-ring has melted flow lost Small 240 Pen added to cool down Ritting K-Type therm Put read Ritting at 1400 degree Ritting now reads 140 degree Citer melts 220 Full flow left into see if it remains	SM
17/3/22	Full flow still present HD Sample run through base and peaks look great batch Put on 1-5 ahead before sending to Ship	

4 - LOG SHEET

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Quotation Number:	15002	Date:	16/08/2021
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Date	Action Taken	By Whom
17/3/22	Fan still keeping fitting in the lower furnace cool water O-ring not moved at all and full flow present	SM
	Micro carb3 Gas box re-plumbed all wrong not to drawing	SM
18/3/22	Instrument Powered off and cooled reactor to ship	
	Micro carb3 Gas box valve checked no flows on pumps set run out of time	SM
	Valve cable made up to new run from Valve bank 2 of System controller to pump ready adjusting slightly in micro carb3 mimic	SM
	TCD cable sent again not tested so time	SM
21/3/22	Final Set up for Reference	
	HE-25PS2 O ₂ - 25PS2 - 60ml 80ml NCS	
	V13 Purge 35ml	
	Comb - 1050 - reads - 1025 red - 890 GC - 60 red 2 - 300	
	Pyrolysis	
	Set Temp to 1425 1425 degrees on Saen	

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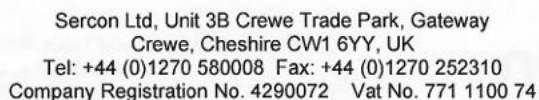
S028_v3

Client:	Gulf Bio Analytical Group			
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[illegible]

19/01/2017

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
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HS20-22

Reference Gas Precision (n=5)

¹³ C	(CO ₂)	0.06	
¹⁵ N		0.06	
¹⁸ O	(CO ₂)	0.06	
³⁴ S	(SO ₂)	0.1	
² H		0.4	

Reference Gas Linearity

¹³ C	≤0.02‰/nA	
¹⁵ N	≤0.02‰/nA	

IsoEarth & IsoEarth+

Combustion (n=5)

¹³ C	100 µg C	0.1 0.05		10 µg C	0.8	
¹⁵ N	100 µg N	0.15 0.4		10 µg N	1.5	
³⁴ S	25 µg S	0.3 0.17		10 µg S	1.0	
Dual	400 µg C	0.1		100 µg N	0.15	

Integra2

¹³ C	100 µg C	0.2	
¹⁵ N	100 µg N	0.3	
Dual	100 µg N & 400 µg C	0.4 & 0.15	
³⁴ S	30 µg S	0.5	
¹⁸ O	100 µg O	0.5	

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HT-EA			
Pyrolysis (n=5)			
¹⁸ O	100 µg O or 1 µl water	0.3	
² H	200 µg H or 1 µl water	1.0	i. S

Aqua, µCarbs & GasBox					
Equilibrations (n=5)					
¹⁸ O	0.2 ml water	0.1			
² H	0.2 ml water	2.0			
Carbonates (n=5)					
¹³ C	100 µg CaCO ₃	0.08			
¹⁸ O	100 µg CaCO ₃	0.1			
Gas Analysis (n=5)					
¹³ C	5% CO ₂	0.1		Air CO ₂	0.1
¹⁸ O	5% CO ₂	0.1		Air CO ₂	0.2
² H	0.5 ml H ₂	1.5			
¹⁵ N	0.5 ml N ₂	0.1		100 ppm N ₂ O	0.5
¹³ C	Breath (12 ml)	0.1			
DIC (n=5)					
¹³ C	15ppm (0.5ml)	0.15			

LC-I			
(n=5)			
¹³ C		0.2	

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
Job Number:	IN1266	Date:	20/09/2021

GC Orchid						
Combustion (n=3 for each analyte)						
¹³ C	3 Alkanes	100 ng C	0.2		10 ng C	0.5
¹⁵ N	2 Amines	100 ng N	0.5		14 ng N	1.5
Pyrolysis (n=3 for each analyte)						
² H	3 Alkanes	250 ng H	3.0		25 ng H	10.0
¹⁸ O	3 FAMES	100 ng O	0.5		20 ng O	2.0
Water pyrolysis (n=5)						
² H	0.1 µl water	3.0				
¹⁸ O	0.1 µl water	0.4				

CryoRange						
(n=5)						
¹³ C	Air CO ₂ (12ml)	0.1		Air CH ₄ (125ml)	0.2	
¹⁵ N	Air N ₂ (1ml)	0.1		Air N ₂ O (125ml)	0.4	
¹⁸ O	Air CO ₂ (12ml)	0.15		Air N ₂ O (125ml)	0.7	
¹⁸ O	Air O ₂ (1ml)	0.1				
² H	Air CH ₄	3.0				
¹³ C	TOC (5ppm)	0.4				
¹³ C	Laser					

6 - TEST / ACCEPTANCE SPECIFICATION

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Geo2			
Internal precision (no change overs)			
² H	200 Bar µl	0.15	
¹³ C	100 Bar µl	0.01	
¹⁵ N	100 Bar µl	0.01	
¹⁸ O	100 Bar µl	0.015	
³⁴ S	100 Bar µl	0.015	
Single cold finger volumes (10 change overs)			
¹³ C	20 Bar µl	0.01	
¹⁸ O	20 Bar µl	0.015	
¹³ C	3 Bar µl	0.02	
¹⁸ O	3 Bar µl	0.03	
CAPS (n=5)			
¹³ C	50 µg CaCO ₃	0.03	
¹⁸ O	50 µg CaCO ₃	0.06	
WES (n=5)			
² H		1.0	
¹⁸ O		0.05	
Manifold (10 tubes)			
² H		0.5	
¹³ C		0.02	
¹⁵ N		0.02	
¹⁸ O		0.03	
³⁴ S		0.03	

6 - TEST / ACCEPTANCE SPECIFICATION

Customer:	Gulf Bio Analytical Group		
Quotation Number:	15002	Date:	16/08/2021
Job Number:	IN1266	Date:	20/09/2021

Special tests

Sales Signature: 	Date: 21/3/22
Test Signature: 	Date: 21/3/22

