

11 – Installation Report

Client:	Universiteit Gent, Belgium		
Quotation Number:		Date:	
Job Number:	IN1334 (warranty revisit)	Date:	

Contact:	Katja Van Neuland, Samuel Bode		
Date of Visit:	20 th – 22 nd May 2026	No. of Days:	3
Engineer:	David Harris		

Reason for Visit:

Replacement of damaged furnace, heater element & prep PCB.
 Set up of HTEA system (¹⁸O analysis only).

Details of visit:

Engineer arrived on site and inspected instrument. Instrument had been damaged in transit during delivery from Sercon (Returned for repair).

Furnace damaged. Heating element damaged. Prep PCB damaged. All Parts to be replaced.

New parts delivered from Sercon. Inspected items. All OK. No issues noted with new stock.

Heating element already removed from system.

Engineer removed old furnace. Replaced with new part – All OK.

Engineer fitted new heating element and wired into system. Alignment good – All OK.

Engineer removed old PCB and fitted new PCB to System. PCB jumpers arranged for GC oven capability – All OK.

Engineer established flows to system. He line was disconnected from mains. Remade pipework and connection – All OK.

Installed Pyro reaction tube. -CO₂/-H₂O trap already in place – All OK.

Refitted autosampler. He carrier flow through system good. No leaks detected on HTEA or lines to MS.

Established comms via software to HTEA system. No issue found - All OK.

Calibrated flow meter – All OK. User reports that they want to run the system at 70ml/min.

They also state that they have been running GC oven temp at 50C. This is lower than standard practice.

Furnaces initially locked out. Reboot of system resolved issue.

Furnaces heat up with no problem. Set to 1000C and leave to bake out tube overnight. Temp holds at 1000C all night with no issues. Increase temp to 1350C from testing – All OK.

GC oven heats to 50C – All OK.

System does not have any CO₂ Ref Gas available. Tuning is performed via trapping loop.

Sample pyrolysed and trapped to tune. Adjusted tuning as required – All OK.

Large amount of peak tailing noted on sample peak chromatography. Separation of N₂ and CO₂.

Adjusted method as required. Double checked system for leaks. No leaks found on HTEA system, but leak found with connected EA system. Leak on inside of EA unit on inlet union. These share the same He cylinder Which would have caused pressure loss to HTEA system.

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Tailing improved, but still present. Separation still poor.

Dropped GC oven temp to 30C from usage. Separation now acceptable, but this indicates damage to GC column. GC column will need to be replaced for new at some point in the future.

GC oven tested for incorrect readback. No fault found with GC oven temps.

Replaced magnesium perchlorate from water trap, used customer furnace dried samples for testing and upped furnace temp to 1400. This improved tailing of sample peaks to normal levels for HTEA – All OK.

Initial test sample yield high CO blanks, but low N₂ blank peaks. This indicates contaminating material entering system when autosampler opens, but not an atmospheric leak. Inspected autosampler, no issues found. High blanks vanished after several test samples run.

N₂ and CO blanks now good. (major beams <2^{e-10} peak height)

CO background good (major beam approx. 8.9^{e-11}) – All OK.

3/1 Stability good – All OK.

Ran test batches with customer cellulose samples. Approx. 100µg O present in samples.

Results good.

CO 3/1 Peak Shape = Pass

CO 3/1 Stability = Pass

Pyro, n=5, ¹³C Precision =0.133‰ S.D.

Pyro, n=5, ¹⁸O Precision =0.207‰ S.D.

Pyro, n=12, ¹³C Precision =0.103‰ S.D.

Pyro, n=12, ¹⁸O Precision =0.279‰ S.D.

Instrument handed over to customer for normal usage.

Recommendations:

- GC column to be replaced.

Faults and Shortages:

- N/A

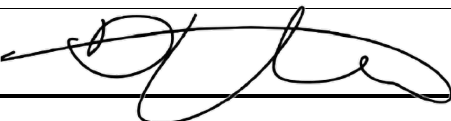
Follow up:

- GC column to be replaced

Engineer: David Harris

Date: 22nd May 2026

Signed:



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Notes:

N/A