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| Job Number:       | IN1350                 | Date: | 08/10/2024 |

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### ADDITIONAL:

Payment Terms:  
 50% / 40% / 10%  
Other: please specify

Penalty Clause Yes / No

Please specify: \_\_\_\_\_

### Blue Book Completion:

|          |  |      |  |
|----------|--|------|--|
| Signed   |  | Date |  |
| Verified |  | Date |  |

## Quotation

**To:** Duplicate of <International Atomic Energy Agency>  
Wagramerstrasse 5  
P.O. Box 100  
A-1400 VIENNA  
AUSTRIA

VAT Reg No: KE

**Quotation Date:** 12/09/2024  
**Quotation Reference:** 18404  
**Customer Ref:**  
**Account Ref:** IAEA001  
**Quotation Validity:** 27/12/2024

| Quantity                           | Product Code | Product Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Unit Price<br>€ | Net Price<br>€ |
|------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------|
| <b>Proposal for EA IRMS System</b> |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                |
| 1                                  | 20402/4      | HS2022 + Hd Collector + E-Mag + Trap Loop<br>Continuous flow isotope ratio mass spectrometer. Including high sensitivity source, electro magnet and HD collector<br>Innovative trapping loop technology included, which allows the source to be tuned and delta values to be calculated without the need for a reference gas.<br>System configured for m/z 28 to 64 for the analysis of H <sub>2</sub> , CO <sub>2</sub> , N <sub>2</sub> , N <sub>2</sub> O, NO, O <sub>2</sub> , SO, SO <sub>2</sub> , CO and CH <sub>4</sub> (converted to CO <sub>2</sub> ).<br>Windows based data system.<br>70201-1 - Analyser spares kit includes a filament, copper gaskets, source tool kit, pump oil, snoop and ferrules | 143,750.000     | 129,375.00     |
| 1                                  | 10202/14     | PyroEarth<br>High performance elemental analyser with pyrolysis capable furnace including TCD for simultaneous CNS + OH analysis. Includes autosampler for solids.<br>70501-3 - Includes sample preparation kit - micro spatula, mirror, forceps, sample tray and syringe<br>- Includes 70501-5 Simultaneous CNS consumables kit<br>- 70801-1 Pyrolysis Start Up Kit high temp for Solids                                                                                                                                                                                                                                                                                                                          | 61,250.000      | 55,125.00      |
|                                    |              | Upgrade Furnaces to silicon carbide elements to run at 1450 deg C<br>Requires Trapping loop                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |                |
| 1                                  | SI2743       | Automatic Liquid Sampler 15 positions Configured: LEFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7,500.000       | 6,750.00       |
| 1                                  | SI2744       | Mounting Plate & Accessories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 425.000         | 425.00         |
| 1                                  | 70501-8      | Simultaneous CNS Consumables Kit (approx. 5000 samples)<br>Dangerous goods in excepted quantities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4,886.250       | 4,886.25       |
| 1                                  | 70801-6      | Pyrolysis Kit High Temp 5000 Samples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3,125.000       | 3,125.00       |

## Quotation

**To:** Duplicate of <International Atomic Energy Agency>  
Wagramerstrasse 5  
P.O. Box 100  
A-1400 VIENNA  
AUSTRIA

VAT Reg No: KE

**Quotation Date:** 12/09/2024  
**Quotation Reference:** 18404  
**Customer Ref:**  
**Account Ref:** IAEA001  
**Quotation Validity:** 27/12/2024

| Quantity | Product Code | Product Description                                        | Unit Price<br>€ | Net Price<br>€ |
|----------|--------------|------------------------------------------------------------|-----------------|----------------|
| 1        | INST         | Installation and start up training at Customer's site      | 20,168.750      | 20,168.75      |
| 1        | TRAIN        | Additional 5 day on-site for user training/troubleshooting |                 |                |
| 1        | WARR         | 1 year warranty                                            |                 |                |
| 1        | DEL          | ExWorks                                                    |                 |                |

**\* The price quoted does not include any local taxes or duties**  
See separate document for terms and conditions

**Delivery: within 90 days of receipt of order**

**Payment Details:-**

50% with order, 50% on delivery  
Payment is required within 30 DAYS of invoice date by bank transfer.  
All bank transfer charges are the responsibility of the customer.

**This quotation is issued in Euro**

|                         |          |            |
|-------------------------|----------|------------|
| <b>Total Net Amount</b> | <b>€</b> | 219,855.00 |
| <b>Total VAT Amount</b> | <b>€</b> | 0.00       |
| <b>Order Total</b>      | <b>€</b> | 219,855.00 |

**Sercon Bank Details:-**

National Westminster Bank, 36 High Street,  
Nantwich, Cheshire CW5 5GA U.K.

IBAN: GB14NWBK60721013806831  
SWIFT/BIC: NWBKGB2LXXX

## INTERNATIONAL ATOMIC ENERGY AGENCY



WAGRAMER STRASSE 5, P.O. BOX 100  
1400 VIENNA, AUSTRIA  
TEL: (+43-1) 2600-0  
FAX: (+43-1) 2600-7

## PURCHASE ORDER

No.: 202408234-DD  
Date: 08-OCT-2024

Invoices must contain this  
PO Number, and match  
the information contained  
herein. Non-compliance  
will result in rejection of  
invoices and/or delay in  
payment.

Sercon Limited  
Unit 3B Crewe Trade Park  
Gateway  
Crewe CW1 6JT  
United Kingdom  
IAEA Info  
Email: sales@sercongroup.com

Consignee: EMIDICT  
Calle 16 No.102 esq 1ra.  
La Habana, Cuba

Ship to: Centro de Protección e Higiene de las  
Radiaciones (CPHR)(540403)  
Calle 20, No. 4113, e/41 y 47  
Miramar Playa  
Direccion Postal A.P. 6195  
CIUDAD DE LA HABANA  
Cuba  
cphr@cphr.edu.cu

Attn: Jose peralta Vital  
peralta@cphr.edu.cu;secembajador@ecuaust  
ria.at  
0053 7 682 4891

Marking: CUB5024

Invoices should be submitted to:

IAEA MTBF Accounts Payable  
Wagramer Strasse 5  
P.O. Box 100  
1400 Vienna

Email: invoices@iaea.org

or through the IAEA iSupplier portal at <https://suppliers.iaea.org>

Date of delivery: See below  
Supplier Incoterms: Carriage Paid To destination specified above  
Terms of Payment: Immediate  
Guarantee and other conditions: 1 Year

|                                                                                       |                                                                                                                                                           |                                     |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Responsible contracting staff: <u>Dissanayake, Dineth</u>                             |                                                                                                                                                           | Subtotal(EUR): 219,855.00           |
| <u>D.Dissanayake@iaea.org</u>                                                         |                                                                                                                                                           |                                     |
| For the IAEA:                                                                         | This Purchase Order has been electronically signed by <b>Leinen, Daniela</b> , Director (MTPS), Office of Procurement Services<br>Signed Date: 2024-10-08 | <b>GRAND TOTAL(EUR): 219,855.00</b> |
| Supplier's order acknowledgement (please sign here and return as order confirmation): |                                                                                                                                                           |                                     |
| Complete Name:                                                                        | Signature:                                                                                                                                                |                                     |
| Position:                                                                             | Date:                                                                                                                                                     |                                     |

Note to Supplier: As per your Quotation no 18404

| ITEM | DESCRIPTION                                                                                                                                                                                                                                                          | UNIT | QTY | UNIT PRICE | AMOUNT(EUR) |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|-------------|
| 1    | Isotope Ratio Mass Spectrometer as per attachment<br><i>Date of delivery: 2025-01-18</i>                                                                                                                                                                             | each | 1   | 199,686.25 | 199,686.25  |
| 2    | On-site installation and 5-day's training for up to three staff of the End-User in the operation and maintenance of the System immediately after the installation of the System or at a mutually agreeable time and location.<br><i>Date of delivery: 2024-03-18</i> | each | 1   | 20,168.75  | 20,168.75   |

Purchase Order conditions and instructions:

CONDITIONS OF CONTRACT

The Supplier named on the face of this order (hereinafter referred to as the "Contractor") acknowledges and agrees that the acceptance of this Purchase Order (PO) shall be evidenced by either the return to the IAEA of a signed acknowledgment copy, or a written confirmation issued by the IAEA to the Contractor of the Contractor's verbal acceptance or performance, in whole or part, of the obligations of the Contractor set out in the Purchase Order. Acceptance of the Purchase Order shall constitute a contract between the Contractor and the IAEA (hereinafter referred to as the "Purchase Order" or the "Contract"). The Contractor acknowledges and agrees that the General Conditions of Contract that have been delivered together with this Order form an integral part of this Contract and shall govern the rights and obligations of the parties to this Contract. No exceptions or additional provisions proposed by the Contractor shall be binding, unless agreed in writing by a duly authorized Contracting Officer of the IAEA's Office of Procurement Services.

The following documents shall govern the Purchase Order and are listed in order of precedence in case of a conflict:

1. This Purchase Order;
2. The IAEA General Conditions of Contract;
3. The IAEA Specification/Statement of Work;
4. The Contractor's quotation.

DATA PRIVACY

Any data that relates to natural persons ("data subjects") who can be uniquely identified by that data ("the personal data") transferred by the IAEA to the Contractor, is transferred for the specific purpose of the Contractor's performance of obligations under the Contract.

1. The Contractor represents that it shall:

- (a) Process personal data only for fair, legitimate and legal purposes (data processing shall be understood as any activity concerning the handling of personal data);
- (b) Process and retain the personal data only as proportionate and necessary for the purpose of performing its obligations under the Contract;
- (c) Take appropriate measures to protect the personal data from unauthorised access and other risks presented by data processing;
- (d) Refrain from transferring the data to a third party, unless the Contractor is satisfied that that third party affords appropriate protection for the personal data; and
- (e) Inform the Agency, upon request, how the personal data has been processed and which rights data subjects enjoy with respect to the personal data.

2. The IAEA represents that it shall:

- (a) Process any personal data received from the Contractor in accordance with its internal policies and for the specific purpose of the performance of its obligations under the Contract; and
- (b) Inform data subjects, upon request, how they may request information regarding processing of their personal data. The IAEA will assess such requests on a case-by-case basis, in accordance with its internal policies.

This is without prejudice to, and may not be construed as a waiver, either express or implied, of any of the privileges and immunities of the IAEA

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IAEA DESIGNATED FREIGHT FORWARDER

The IAEA has entered into an agreement with Scan Global Logistics to provide global freight forwarding services for the IAEA. As the Contractor's quote under this Purchase Order is based on FCA (suppliers' warehouse) INCOTERMS 2010, the IAEA authorizes Scan Global Logistics to liaise directly with the Contractor to coordinate all activities related to collecting and delivering the goods to the final destination in accordance with the applicable shipping terms in this Purchase Order.

Scan Global Logistics Point of Contact for IAEA Shipments: [IAEA@scangl.com](mailto:IAEA@scangl.com)

Tel +45 3248 0000 for general queries or the telephone number of the agent handling your shipment, as provided in their email signature

To track the status of shipments against this Purchase Order:

- a) Go to [www.scangl.com/it-tools/](http://www.scangl.com/it-tools/) there is no need to log in to use this tracking service);
- b) Search for either the IAEA Purchase Order number (Reference), the Booking no. or any of the other options, as may be known (AWB/Container no/etc).

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INSTRUCTIONS FOR THE CONTRACTOR

1. RECEIPT OF THE PURCHASE ORDER (PO)

Upon receipt of the PO, the Contractor shall:

- a) Send an order confirmation to the IAEA Contracting Officer – preferably by completing and signing the Supplier's order acknowledgement provided at the top of the PO;
- b) Immediately notify the IAEA Contracting Officer in case of any issues;
- c) Immediately notify the IAEA Contracting Officer in case of any delays and provide a new target delivery date. Mitigation measures shall be proposed to reduce delays as much as possible (e.g. alternative products, split shipments, etc.).

## 2. SHIPMENT OF GOODS

The Contractor shall carefully read the "Country Shipping Instructions" provided in this PO and accordingly:

- i) prepare the goods for shipment;
- ii) prepare export paperwork; and
- iii) arrange export clearance of the shipment.

When goods are ready for shipment, the Contractor shall:

- a) Pack the goods for export in compliance with any specific instructions in the "Country Shipping Instructions" provided in this PO.
- b) Notify the IAEA's Global Freight Forwarder with copy to the IAEA Contracting Officer that the goods are ready for collection, including:
  - i) copies of all relevant shipping documents;
  - ii) confirmation of whether shipment is complete or partial.

FOR PARTIAL SHIPMENTS: The Contractor shall indicate/circle on the IAEA PO document which line(s) and respective quantities are included in each shipment;

- iii) details of any special handling requirements (e.g. dry ice, no tipping, oversize, etc.);

- c) Hand over goods to IAEA's Global Freight Forwarder and sign/provide any related confirmation of receipt/collection;
- d) Subsequently submit relevant invoice, in accordance with the terms of this PO and items shipped (e.g. partial/complete), to IAEA Accounts Payable [invoices@iaea.org](mailto:invoices@iaea.org).

FOR PARTIAL SHIPMENTS: The Contractor shall indicate/circle on the IAEA PO document which PO line(s) and respective quantities were included in the shipment and attach it to the invoice.

## 3. ARRANGING SERVICES

If applicable, the Contractor shall liaise directly with the End-User for a suitable date to perform the services. Any special requirements for travel to the End-User shall be arranged directly with the End-User.

## 4. PAYMENT OF EQUIPMENT, TRAINING AND/OR INSTALLATION SERVICES

The IAEA will pay 100 percent of the equipment cost on receipt of the invoice and confirmation of collection/goods ready by the IAEA Global Freight Forwarder.

If applicable, installation and/or training services will be paid upon receipt of a separate invoice and certificate of satisfactory installation and/or training signed by the Contractor and the End-User. The Contractor shall:

- a) Email a completed and signed Certificate of Completion to [TC-Procurement.Contact-Point@iaea.org](mailto:TC-Procurement.Contact-Point@iaea.org) with a copy to the IAEA Programme Management Officer and IAEA Contracting Officer (see contacts details on last page of this PO). A template Certificate of Completion can be found attached to this PO.
- b) Submit the invoice for the services to IAEA Accounts Payable [invoices@iaea.org](mailto:invoices@iaea.org).

Invoice(s) shall only be submitted for payment following successful handover of the associated goods to the IAEA Global Freight Forwarder and/or acceptance of the associated services as confirmed by the related Certificate of Completion.

## 5. ISSUES/CLAIMS

The Contractor shall support and/or process, as applicable, any product delivery issues (e.g. missing items), warranty or any other claims related to the goods and/or services, in coordination with the IAEA Global Freight Forwarder and/or End-User (as the case may be) and the IAEA Contracting Officer copying the IAEA Programme Management Officer.

## 6. FEEDBACK

The Contractor may be requested to provide feedback on matters related to the implementation of the PO.

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### COUNTRY SHIPPING INSTRUCTIONS

- END-USER REQUIREMENTS: Voltage requirements: 110 V 60 Hz

» Preferred language for manuals and software: Spanish

» FOR IAEA:

» RSA v1

» The UNDP is still available to assist IAEA's global freight forwarder and the Counterparts but shipping documents (AWB / Bill of Lading) must be "To Institute directly" due to new regulations from the Cuban government.

» SHIPPING REQUIREMENTS:

» An original copy of the shipping documents is required for the end-user (counterpart).

» A copy of the purchase order must be sent to the UNDP and the Permanent Mission of Cuba prior to the order being shipped!

» An Import Permit may also be necessary!

» Permanent Mission of Cuba, Kaiserstrasse 84, 1070 Wien, Fax: 877819830, Email: [secembajador@ecuaustria.at](mailto:secembajador@ecuaustria.at)  
[multilaterales@ecuaustria.at](mailto:multilaterales@ecuaustria.at)

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## INSTRUCTIONS FOR IAEA's GLOBAL FREIGHT FORWARDER

TC Shipment. Goods readiness and delivery (POD) notifications to be sent to [TC-Procurement.Contact-Point@iaea.org](mailto:TC-Procurement.Contact-Point@iaea.org)

### 1. ORDER CONFIRMATION

Upon receipt of the Purchase Order, the IAEA Global Freight Forwarder (GFF) shall confirm receipt of the Purchase Order and provide the relevant shipment/tracking reference to all parties.

### 2. SHIPMENT OF GOODS

The GFF shall:

- a) Co-ordinate with the Contractor for on-time readiness and collection of shipment(s);
- b) Ensure that all shipment paperwork and export documentation is complete, and shipment is suitably packed for export in compliance with any specific instructions in the "Country Shipping Instructions" provided in this Purchase Order. The GFF shall clarify with the Contractor whether a shipment is partial or complete;
- c) Upload shipment paperwork in the GFF's track and trace website and thereafter confirm Goods Available status. In the case of a split/partial shipment, the shipment shall be marked in the system as "Partial" and a separate shipment/tracking reference shall be set up for the remaining shipment(s);
- c) Arrange collection of goods from the Contractor once these are confirmed ready;
- d) Send all relevant shipment paperwork to the Ship To Party (End-User) and Consignee (including any other parties as detailed in the "Country Shipping Instructions") requesting green light to ship;
- e) Arrange delivery, in accordance with the designated Incoterms, once green light is confirmed;
- f) Send notices to the relevant stakeholders, in accordance with the GFF communication matrix, for the confirmation of shipment booking including Expected Time of Arrival (ETA); arrival in country; and customs clearance of the shipment indicating "Partial shipment" as applicable;
- e) Notify stakeholders of any other shipping events and/or issues, escalating issues as may be required, in accordance with the GFF communication matrix, to ensure swift delivery of the shipment(s).

### 3. SHIPMENT DETAILS, INCOTERMS AND TRANSPORTATION METHOD

The following information applies to the shipments under this Purchase Order:

- Pick up address or pickup place (supplier's warehouse): to be confirmed with Contractor;
- Gross Weight kg, Dimensions, Commodity: as per attached Contractor's offer or to be confirmed with Contractor;
- INCOTERMS 2010: FOR FREIGHT FORWARDER: DAT; GFF to clear customs at destination unless otherwise indicated in the relevant "Country Shipping Instructions";
- Mode of Transportation: AIR FREIGHT - GFF to check with IAEA for other transport modes for large/heavy shipments.

### 4. HANDOVER OF GOODS

The GFF shall, in accordance with the applicable Incoterms and "Country Shipping Instructions":

- a) Arrange the customs clearance of the goods or hand-over to designated broker, as applicable;
- b) Notify the End-User that goods are ready for collection at terminal;
- c) Ask the End-User to sign the Proof of Delivery (POD) template part of this Purchase Order and return the completed POD to the GFF;
- d) Upload the POD in the GFF's track and trace website and thereafter confirm the Goods Delivery status.

### 5. ISSUES/CLAIMS

The GFF shall assist with any issues/claims (e.g. missing/damaged goods) by providing relevant supporting documentation for insurance claims (e.g. shipment paperwork, POD, etc.).

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## INSTRUCTIONS FOR THE END-USER

### 1. PURCHASE ORDER CONTACT DETAILS

IAEA: The IAEA Contact details for the Technical Officer, Programme Management Officer (PMO) and Contracting Officer can be found at the bottom of the Purchase Order.

CONTRACTOR: The Contractor (e.g. Supplier) contact details can be found on the top left (first page) of this Purchase Order.

### 2. RECEIPT OF THE PURCHASE ORDER

Upon receipt of the Purchase Order, the End-User shall:

- a) Review the entire Purchase Order and familiarize themselves with the terms and conditions and in particular with the provisions under "INSTRUCTIONS FOR END-USER" and "COUNTRY SHIPPING INSTRUCTIONS" which indicates special requirements for shipment to the destination country;
- b) In case of any issues found or changes needed in the Purchase Order (e.g. new contact person), immediately contact the IAEA Contracting Officer;
- c) Use the Purchase Order number as reference in any related communication.

### 3. SITE READINESS

If required, the End-User shall:

- a) Confirm the site readiness indicating that all necessary arrangements have been completed in order to receive the equipment;
- b) Email the confirmation to the IAEA Contracting Officer with copy to the PMO.

### 4. END-USER STATEMENT/EXPORT LICENSE

If requested by the Contractor, the End-User shall respond to Contractor copying the IAEA Contracting Officer and:

- a) Complete any End-User statements as provided by the Contractor;
- b) Provide additional documentation as requested by the Contractor;
- c) Return the completed End-User statement(s) to the Contractor following the Contractor's instructions (e.g. signed, stamped, original copies, etc.).

### 5. APPROVAL TO SHIP – "GREEN LIGHT"

The End-User shall:

- a) Coordinate with UNDP and/or Local Authorities (as applicable) to obtain the tax exemption and import permit(s) – the IAEA Global Freight Forwarder will share all relevant shipping documents to facilitate this process once the shipment is confirmed ready for export;
- b) Email the tax exemption and import permit(s) and provide confirmation to proceed with the shipment e.g. "Green light" to the IAEA Global Freight Forwarder;
- c) Provide the IAEA Global Freight Forwarder with any additional information/documentation as required.

### 6. DATE OF DELIVERY

The date of delivery, as indicated on this Purchase Order, is the expected date that the item(s) will be collected from the Contractor's premises by the IAEA Global Freight Forwarder. The actual shipping and country arrival dates, as well as further shipping details will be provided by the IAEA Global Freight Forwarder once the shipment arrangements have been finalized after provision of "Green Light" by the End-User.

### 7. ORDER TRACKING

To track the status of shipments against this Purchase Order, the End-User should check the IAEA Global Freight Forwarder's tracking site using the tracking reference/link which shall be provided by the IAEA Global Freight Forwarder.

The End-User can additionally follow up directly with the IAEA Global Freight Forwarder.

Details of the IAEA Global Freight Forwarder tracking site and contact details are provided in the PO section "IAEA Global Freight Forwarder".

### 8. HAND-OVER AND COLLECTION OF GOODS

The IAEA Global Freight Forwarder will notify the End-User once the shipment has arrived in country and has been customs cleared (as applicable). The End-User shall then:

- a) Arrange immediate collection of goods from the relevant terminal;
- b) Pay for all in-land charges: e.g. transportation to the site, etc.
- c) Sign a Proof of Delivery (POD) on collection/hand-over of the shipment (template available at the end of this Purchase Order) and email a copy of the POD to the IAEA Global Freight Forwarder.

**INSPECTION OF THE SHIPMENT:** The End-User shall check the shipment against the packing list to ensure that the correct number of boxes/pallets were delivered. Look for any visible signs of damage. Make a note of any inconsistencies/damages on the POD and immediately inform the IAEA Global Freight Forwarder copying the IAEA Contracting Officer (including photos/videos where possible).

**OPTION 1 – For shipments NOT REQUIRING INSTALLATION by the Contractor**

Open the packages and inspect the contents against the packing list and PO. Immediately contact the IAEA Global Freight Forwarder with cc to the IAEA Contracting Officer in case of any missing/damaged items.

**OPTION 2 – For shipments REQUIRING INSTALLATION by the Contractor:**

- a) Store the shipment in a safe and dry location meeting any particular storage conditions required;
- b) Do not open the packages, this will be done by the Contractor's personnel installing the equipment;
- c) Contact the Contractor to arrange the installation and/or training date.

## 9. SERVICES

If any services have been ordered, the End-User shall:

- a) Arrange a suitable date to perform the services with the Contractor;
- b) After completion of the services, sign a CERTIFICATE OF COMPLETION to confirm the services were completed. The Certificate of Completion shall be signed by the named End-User contact point or any other authorized person. A template is attached to this Purchase Order in case the Contractor does not provide a form;
- c) Email the signed Certificate of Completion to TC-Procurement.Contact-Point@iaea.org copying the PMO and the IAEA Contracting Officer.

## 10. AFTER DELIVERY – CLAIMS/ISSUES/WARRANTIES

In the case of any delivery or warranty issues with any of the items of this Purchase Order, the End-User shall immediately email the IAEA Contracting Officer, copying the Contractor and PMO and provide the following information:

- a) Purchase Order reference number;
- b) Supporting information e.g. item description, product code, detailed description of the claim/issue;
- c) Photos/screenshots where possible/applicable.

## 11. FURTHER RESOURCES AND GUIDANCE MATERIALS

The End-User may refer to the following guidelines available in the TC Programme Reference Desk (PCMF) to support them during the delivery/completion phase of this Purchase Order:

- Counterpart Role and Responsibilities in the TC Procurement Process (Counterpart checklist)
- Practical Guidelines for Counterparts/End-Users on the Procurement Process for the Technical Cooperation Programme
- TC Procurement Process - Frequently Asked Questions - Key Information on Purchase Orders

Link to access documents: <https://pcmf.iaea.org/PCMFReferenceDesk.aspx>

The above documents can be found under the Section "Programme Implementation" and are available in English/French/Spanish/Russian.

## 12. FEEDBACK

The End-User may provide any feedback concerning the Purchase Order and the performance of the Contractor to the IAEA Contracting Officer. In case of any complaints please provide detailed information to be able to assess the issue fairly.

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## PROOF OF DELIVERY (POD)

The End-User shall complete the below proof of delivery (POD) confirmation and email a copy to the IAEA Global Freight Forwarder.

Should the IAEA authorize the Contractor to proceed with partial shipments, the POD confirmation should be submitted by the End-User for each shipment received against this Purchase Order.

# Installation Quote Calculator

IN1350

Cuba

18404

date

| Subs    | Daily Rate |
|---------|------------|
| £195.00 | £950.00    |

|                             |         |   |            |                          |
|-----------------------------|---------|---|------------|--------------------------|
| Airfare                     |         |   | £2,000.00  |                          |
| No Days travel at half cost | 2       |   | £950.00    |                          |
| Weekend days at half cost   | 2       |   | £750.00    |                          |
| No.Days on site             | 10      |   | £9,500.00  |                          |
| Subs+Accommodation          | 13      |   | £2,535.00  |                          |
| Taxi                        |         |   | £150.00    |                          |
| Car hire / Train ticket     | *       |   | £0.00      | * car hire @ £50 per day |
| Other                       |         |   | £250.00    |                          |
| <hr/>                       |         |   |            |                          |
| TOTAL                       |         |   | £16,135.00 |                          |
| Exchange rate € / \$        | 1.25000 | 0 | 20,168.75  |                          |



## SPECIFICATION

## Isotope Ratio Mass Spectrometer

## 1. Scope:

This specification describes the requirements for an Isotope Ratio Mass Spectrometer (IRMS) coupled to the following peripherals:

- Elemental Analyser

via interface(s) permitting on-line continuous-flow (CF) operation and the potential to upgrade with further peripherals such as a gas chromatography.

• This System shall be used by the Agency for Nuclear and Advanced Technologies (AENTA) of the Ministry of Science, Technology and Environment (CITMA), for analysing of  $^{13}\text{C}/^{12}\text{C}$ ,  $^{15}\text{N}/^{14}\text{N}$ ,  $^{18}\text{O}/^{16}\text{O}$ ,  $^{34}\text{S}/^{32}\text{S}$  and  $^2\text{H}/^1\text{H}$  in soil samples, and  $^{18}\text{O}/^{16}\text{O}$  and  $^2\text{H}/^1\text{H}$  in water samples.

## 2. Definitions, Acronyms, and Abbreviations

The following definitions, acronyms, and abbreviations shall apply throughout this Specification unless defined otherwise hereinafter:

IRMS = Isotope Ratio Mass Spectrometer

EA = Elemental Analyser

EQ = Carbon dioxide/hydrogen gas equilibration unit

PC = Personal Computer

## 3. Requirements 3.1. Functional and Performance Requirements

The System shall meet the following functional and performance requirements:

## 3.1.1. IRMS

Stable isotope ratio mass spectrometer with Faraday cup collectors, magnetic sector-field analyser, electron impact ion source and continuous-flow inlet.

The collector configuration shall permit analyses of the following gases and ions of the given mass-to-charge ratios ( $m/z$ ), with sufficient overlap of major and minor peaks:

- hydrogen ( $\text{H}_2$ ):  $m/z$  2, 3
- carbon dioxide ( $\text{CO}_2$ ):  $m/z$  44, 45, 46
- nitrogen ( $\text{N}_2$ ) and carbon monoxide ( $\text{CO}$ ):  $m/z$  28, 29, 30
- sulphur dioxide ( $\text{SO}_2$ ):  $m/z$  64, 66
- Mass resolution  $m/\Delta m \geq 100$  (10% valley definition).
- Sensitivity CF mode:  $\leq 1200$  molecules per  $\text{CO}_2^+$  ion (factory test results accepted).
- Relative isotope ratio dependence on sample size (linearity):  $\Delta R/R < 0.02 \text{ ‰}$  per nA ( $\delta^{13}\text{C}$ ).
- Relative isotope ratio dependence on sample size (linearity):  $\Delta R/R < 0.2 \text{ ‰}$  per nA ( $\delta^2\text{H}$ ).



- Precision

- Elemental performance (external precision,  $1\sigma$ ):  $< 0.1\%$  for C, N, S and O

- Isotope ratio performance (external precision,  $1\sigma$ ):

- $\delta^{13}\text{C}$ :  $0.1\%$
  - $\delta^{15}\text{N}$ :  $0.15\%$
  - $\delta^{34}\text{S}$ :  $0.2\%$
  - $\delta^{18}\text{O}$ :  $0.3\%$
  - $\delta^2\text{H}$ :  $2\%$

- $\text{H}^3+$  correction factor  $\leq 8\text{ppm} / \text{nA}$

- $\text{H}^3+$  stability  $\leq 0.03\text{ppm} / \text{nA} / \text{h}$

- Analysis time

- H:  $\sim 5\text{ min}$
  - OH/O:  $\sim 14\text{ min} - 15\text{ min}$
  - CNS:  $\sim 3 - 4\text{ min per element}$

### 3.1.2. Elemental Analyser

- $^{13}\text{C}/^{12}\text{C}$  (as  $\text{CO}_2$ ) combustion ( $1\sigma$ )  $\leq 0.1\%$  ( $n = 10$ )
- $^{15}\text{N}/^{14}\text{N}$  (as  $\text{N}_2$ ) combustion ( $1\sigma$ )  $\leq 0.15\%$  ( $n = 10$ )
- $^{34}\text{S}/^{32}\text{S}$  (as  $\text{SO}_2$ ) combustion ( $1\sigma$ )  $\leq 0.2\%$  ( $n = 10$ )
- $^{18}\text{O}/^{16}\text{O}$  (as  $\text{CO}$ ) High Temp conversion ( $1\sigma$ )  $\leq 0.3\%$  ( $n = 10$ )
- $^2\text{H}/^1\text{H}$  (as  $\text{H}_2$ ) High Temp conversion ( $1\sigma$ )  $\leq 2.0\%$  ( $n = 10$ )

### 3.2. Technical Requirements

The System shall meet the following technical requirements:

#### 3.2.1. Analyser

- The continuous-flow inlet should have an isolation valve.
- The analyser shall have a mass filter to allow hydrogen isotope analysis under high-helium background conditions (continuous flow with helium carrier gas). The filter shall be controllable from the instrument software.
- Computer controlled switching between two amplifier resistors on each ion-beam channel shall be possible allowing analysis of samples with highly enriched minor isotopes
- The amplifier shall offer a wide voltage range providing a 1000-fold working beam intensity for a large range of elemental ratios to be analysed during a single acquisition.
- Shall be able to achieve a  $m/z$  18 water background level of less than  $5 \times 10^{11} \text{nA}$  ( $200 \mu\text{A}$  trap current)
- Shall have automatic tuning for all reference gas species and permit manual tuning if required.

### 3.2.2. Elemental Analyser

- Capable of producing CO<sub>2</sub>, N<sub>2</sub> and SO<sub>2</sub> in standard mode for simultaneous measurement of  $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$  and  $\delta^{34}\text{S}$  from a single food sample combustion e.g. bovine muscle protein.
- Capable of producing H<sub>2</sub> and CO in standard mode for simultaneous measurement of  $\delta^2\text{H}$  and  $\delta^{18}\text{O}$  from a single food sample pyrolysis.
- Shall permit accurate analysis of oxygen isotopes from CO in nitrogen containing food samples e.g. bovine muscle protein. It shall be possible to provide complete baseline separation to avoid any isobaric interference at m/z 28.
- The pyrolysis furnace shall be capable of maintaining a constant temperature of  $\geq 1400^\circ\text{C}$ .
- A thermal conductivity detector is required
- Integrated PC-software control for unattended analysis of batches of samples
- Shall permit automated sample peak dilution.

### 3.2.3. PC, Software and printer

- PC with appropriate RAM and HD capacity for efficient routine operation
- PC Monitor of at least 17"
- Colour printer
- User-programmable data acquisition software for continuous flow measurements and off-line data manipulation
- Software shall provide automatic, multi-point isotopic calibration and output sample delta values with respect to internationally accepted reference scales
- Software shall permit automatic drift and blank corrections if required. Drift correction shall be possible between definable sample positions within a sequence
- Software shall permit multi-language support translations

### 3.2.4. Consumables kit

- Spare filament
- Spare reactors for EA-IRMS isotope analyses of  $^2\text{H}$ ,  $^{13}\text{C}$ ,  $^{15}\text{N}$ ,  $^{18}\text{O}$  and  $^{34}\text{S}$ .
- Reagents, catalysts and capsules
- Range of appropriate tools for IRMS and peripheral maintenance

### 3.2.5. Environmental impact

- The instrument shall be equipped with automatic standby functions for reduced impact on laboratory resources e.g. reduced helium carrier gas flows and monitoring of gas consumption.
- The instrument shall be equipped with "start-up" type functions including unattended instrument set-up to ensure that the instrument is ready for routine analysis at the start of the working day.
- Instrument noise shall be  $< 50\text{dB}$

## 4. Marking

The System shall have all safety markings in English or Spanish language.

## 5. Packing

The System, for the shipment by air to the End-User, shall be packed in accordance with international standards that are applicable for the shipment by air of this kind of equipment.

**6. Quality Requirements** 6.1. The System shall be manufactured, shipped and installed in accordance with the Contractor's ISO quality assurance system or an equivalent quality assurance system.

6.2. The Contractor shall document the compliance with this quality assurance system.

## 7. Testing and Acceptance

The System, prior to shipment, shall be tested for conformance of the System with manufacturer's performance specifications and the minimum requirements specified herein.

The System, after on-site installation, shall be tested by the Contractor together with the End-User to demonstrate that the performance meets the manufacturer's performance specifications and the minimum requirements specified herein as determined by the IAEA and the End-User.

The results of the testing of the System shall be documented by the Contractor in an acceptance protocol that shall be signed by the End-User.

## 8. Installation and Training

The Contractor shall install the System at the Agency for Nuclear and Advanced Technologies (AENTA) of the Ministry of Science, Technology and Environment (CITMA). The Contractor shall provide 5-day's training for up to three staff of the End-User in the operation and maintenance of the System immediately after the installation of the System or at a mutually agreeable time and location.

## 9. Deliverable Data Items

The Contractor shall provide at least two complete sets of operation and servicing manuals and technical drawings in the English or Spanish language.

## Certificate of Completion of Services

The signed completed form shall be emailed by the supplier to [TC-Procurement.Contact-Point@iaea.org](mailto:TC-Procurement.Contact-Point@iaea.org), the IAEA Contracting Officer, Technical Officer, Project Management Officer and End-user (contact details provided in the relevant Purchase Order or Contract)

| FOR THE SUPPLIER:                                                              |                                                                                                                                                                                                                                                           |                      |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--|
| IAEA Purchase Order Number (PO):                                               |                                                                                                                                                                                                                                                           | IAEA Project Number: |  |
| PO Description:                                                                |                                                                                                                                                                                                                                                           |                      |  |
| Supplier (as named on PO):                                                     |                                                                                                                                                                                                                                                           |                      |  |
| End-user (Institute/entity name):                                              |                                                                                                                                                                                                                                                           |                      |  |
| Services were provided at (location):                                          |                                                                                                                                                                                                                                                           |                      |  |
| The services were performed from:                                              | Start Date:                                                                                                                                                                                                                                               | End date:            |  |
| The following services have been provided in full:                             | Please select as many as applicable:<br><input type="checkbox"/> Installation<br><input type="checkbox"/> Commissioning<br><input type="checkbox"/> Training - <i>specify number of participants:</i><br><input type="checkbox"/> Other - <i>specify:</i> |                      |  |
| Supplier Comments/Recommendations:                                             | <i>[e.g. detail any recommendations for the continued use of the equipment installed/commissioned e.g. consumables required]</i>                                                                                                                          |                      |  |
| Attachments:                                                                   | <input type="checkbox"/> N/A<br><input type="checkbox"/> The following documents are attached <i>[Please list any attachments relevant to this certificate]</i>                                                                                           |                      |  |
| FOR THE END-USER:                                                              |                                                                                                                                                                                                                                                           |                      |  |
| We hereby certify that the services were completed in full and satisfactorily: | <input type="checkbox"/> Yes<br><input type="checkbox"/> No - <i>Please provide brief details/reasons/deviations</i>                                                                                                                                      |                      |  |
| Comments, if any:                                                              |                                                                                                                                                                                                                                                           |                      |  |

On behalf of the  
END-USER:  
[Name and position of  
authorized personnel]

DATE, PLACE:

SIGNATURE(S):  
STAMP:

On behalf of the  
SUPPLIER:  
[Name and position of  
authorized personnel]

DATE, PLACE:

SIGNATURE(S):



Sercon Ltd, Unit 3B Crewe Trade Park, Gateway  
Crewe, Cheshire CW1 6JT, UK  
Tel: +44 (0)1270 580008 Fax: +44 (0)1270 252310  
Company Registration No. 4290072 Vat No. 771 1100 74

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

[illegible]

### 3 - MACHINE SPECIFICATION

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| Ref No.                         | Product Description                                        | Required |
|---------------------------------|------------------------------------------------------------|----------|
| <b>HS2022 (continuous flow)</b> |                                                            |          |
| 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                     |          |
| <b>EA Units</b>                 |                                                            |          |
| 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                              |          |
| <b>Headspace Equilibration</b>  |                                                            |          |
| 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)                     |          |
| <b>GC Units</b>                 |                                                            |          |
| 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                                         |          |

### 3 - MACHINE SPECIFICATION

|                   |                        |       |            |
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| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| Ref No.                          | Product Description                                        | Required |
|----------------------------------|------------------------------------------------------------|----------|
| <b>GC Units</b> <i>continued</i> |                                                            |          |
| 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                                            |          |
| <b>ABCA2 Units</b>               |                                                            |          |
| 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 Analytica 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)         |          |
| <b>Integra2 Units</b>            |                                                            |          |
| 20802/4                          | Integra2                                                   |          |
| 70201-2                          | Integra2 analyser spares kit - Included                    |          |
| 70401-1                          | Integra-2 consumables (Inc. With Integra2)                 |          |
| <b>Trace Gas Systems</b>         |                                                            |          |
| 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                                    |          |
| <b>TOC Units</b>                 |                                                            |          |
| 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                                 |          |
|                                  |                                                            |          |
|                                  |                                                            |          |
| <b>GEO 20-22 (dual inlet)</b>    |                                                            |          |
| 10702                            | GEO 20-22 Water Equilibration System (D & 18O)             |          |
| 21802/1                          | GEO 20-22                                                  |          |
| 21802/2                          | GEO 20-22 + E-Mag                                          |          |

### 3 - MACHINE SPECIFICATION

|                   |                        |       |            |
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| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
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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            |
|------------------|---------------------------------------------------------------------------------|---------------------|
| <b>Upgrades</b>  |                                                                                 |                     |
| 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 ***                                                   |                     |
| <b>Specials</b>  |                                                                                 |                     |
| 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                                                         |                     |
| <b>ADDITIONS</b> |                                                                                 |                     |
| PC               | Windows 7 based PC System with Callisto Software                                |                     |
| Printer          | Printer                                                                         |                     |
| INST1            | Installation and start up training at customer's site by <b>Sercon</b> Engineer |                     |
| INST2            | Installation and start up training at customer's site by <b>Agents</b> 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:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

#### SPECIFICATION REQUIREMENTS

|           |                                                    |                                             |
|-----------|----------------------------------------------------|---------------------------------------------|
| Voltage   | Volts 50/60Hzs                                     |                                             |
| 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              |                                             |



Sercon Ltd, Unit 3B Crewe Trade Park, Gateway  
Crewe, Cheshire CW1 6YY, UK  
Tel: +44 (0)1270 580008 Fax: +44 (0)1270 252310  
Company Registration No. 4290072 Vat No. 771 1100 74

## 4 - LOG SHEET

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| Date     | Action Taken                                                                                                                   | By Whom     |
|----------|--------------------------------------------------------------------------------------------------------------------------------|-------------|
| 2/12/24  | the cable running from 25 Amp SSR to 30 Amp fuse to transformer has been changed to 48 Amp rated Cable. BS Number (516 - 7934) | Harry Rowe. |
| 02/12/24 | Gas Flow Sensor 2's (inside the Plumbing tray) Wired are BRV. Gas Flow Sensor 1's (inside Rear Compartment) wires are BRG      | Harry Rowe. |
|          | ⤴ Drawing Needs changing 3                                                                                                     |             |
| 28/12/24 | Standard mains switch 810344 has been changed to 813230 Earth mains switch                                                     | Harry Rowe  |
| 28/12/24 | Standard 2kVA 812725 transformer has been change to 3kVA 813229 transformer                                                    | Harry Rowe. |
|          | HIT SSR has moved from its original position to allow for better access to fuses and mains switch                              | Harry Rowe  |
| 19/12/24 | MS changed for Stock 2022 as position for all 3 species was impossible to achieve                                              | SM          |
|          | Magnet positioned seems better than previous                                                                                   | SM          |
|          | HD Tuned Peak + Stability good ✓<br>Ref gas precision - 0.3 ✓                                                                  | SM          |

## 4 - LOG SHEET

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
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| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| Date     | Action Taken                                                                                                                                                                                                                                                                                                                                                                                    | By Whom |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 19/12/24 | CO <sub>2</sub> Mode now loaded 14000<br>CO <sub>2</sub> Peak + Stability look good<br>CO <sub>2</sub> Ret gas - 0.03 ✓<br>180 - 0.02 ✓<br>CO <sub>2</sub> Ret gas linearity - 0.30 ✓                                                                                                                                                                                                           | SM      |
|          | N <sub>2</sub> Tuning.                                                                                                                                                                                                                                                                                                                                                                          |         |
| 20/12/24 | All GRIMBS SET                                                                                                                                                                                                                                                                                                                                                                                  | SM      |
| 9 Jan 25 | Pressure test pass for just Pyro - not with mass spec. loose fitting found on trapping loop iso Valve.<br>SO <sub>2</sub> Peak shape found & tuned but increasing SO <sub>2</sub> & N <sub>2</sub> upon trapped stability suggests leak or dead volume<br>After running ~ 5 Samples - Pressure test no longer reaches OML min while using auto sampler - test passes when auto sampler bypassed |         |
|          | Combustion tube glass brace at base fitting full of glass.                                                                                                                                                                                                                                                                                                                                      | SM      |
|          | Reduction tube also leaking<br>Sitting to high up                                                                                                                                                                                                                                                                                                                                               | SM      |
|          | Sampler back on Set to 0.85 Nm on torque                                                                                                                                                                                                                                                                                                                                                        | SM      |
|          | Blanked off at back drops to zero.<br>Pressure test 25 → 25 over 5 min. ✓                                                                                                                                                                                                                                                                                                                       | SM      |
|          | Connection to MS now back in                                                                                                                                                                                                                                                                                                                                                                    | SM      |
|          | Valve 9 closed also pressure test and flow drops to zero                                                                                                                                                                                                                                                                                                                                        | SM      |

## 4 - LOG SHEET

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| Date      | Action Taken                                                                                                                                         | By Whom  |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 9 Jan 25  | Good to try some samplers through                                                                                                                    | SM       |
| 10 Jan 25 | N <sub>2</sub> & CO <sub>2</sub> HT & Peak shape changed - N <sub>2</sub> needed<br>Retuning - Ret Specs Refan. Precision = 0.04<br>Linearity = 0.11 | HC       |
| 13/1/25   | NCS Batch Complete N <sub>2</sub> - 0.14 Due to<br>high blank CO <sub>2</sub> - 0.05 + SO <sub>2</sub> - 0.05 ✓                                      | SM       |
| 14/1/25   | Instrument changed over to pyrolysis<br>mode bottom fitting on set to 1400<br>reached temp still full flow.<br>HD tuning. → 0.3 net gas              |          |
| 15/1/25   | Cyclone precision<br>H <sub>2</sub> - 0.8 ✓<br>E <sub>80</sub> - 0.14 ✓                                                                              | SM<br>SM |
|           | Ingress Sampler set up and vectors<br>run the peaks at ms observed<br>needed High flow to improve<br>tailing on site                                 | SM       |
|           | Instrument cobbed ready to pack                                                                                                                      |          |

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

[illegible]

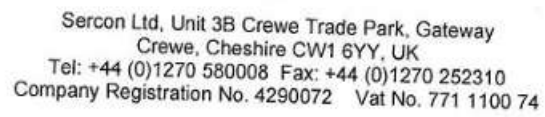
## 5 - FAULT REPORTING

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

[illegible]







## 5 - FAULT REPORTING

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

[illegible]

## 6 - TEST / ACCEPTANCE SPECIFICATION

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Customer:         | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| HS20-22                       |                    |      |      |   |
|-------------------------------|--------------------|------|------|---|
| Reference Gas Precision (n=5) |                    |      |      |   |
| <sup>13</sup> C               | (CO <sub>2</sub> ) | 0.06 | 0.03 | ✓ |
| <sup>15</sup> N               |                    | 0.06 | 0.04 | ✓ |
| <sup>18</sup> O               | (CO <sub>2</sub> ) | 0.06 | 0.02 | ✓ |
| <sup>34</sup> S               | (SO <sub>2</sub> ) | 0.1  | —    |   |
| <sup>2</sup> H                |                    | 0.4  | 0.3  | ✓ |

| Reference Gas Linearity |           |               |   |
|-------------------------|-----------|---------------|---|
| <sup>13</sup> C         | ≤0.02‰/nA | 0.3 STD Dev.  | ✓ |
| <sup>15</sup> N         | ≤0.02‰/nA | 0.11 STD Dev. |   |

| IsoEarth & IsoEarth+ |          |      |      |   |          |      |
|----------------------|----------|------|------|---|----------|------|
| Combustion (n=5)     |          |      |      |   |          |      |
| <sup>13</sup> C      | 100 µg C | 0.1  | 0.09 | ✓ | 10 µg C  | 0.8  |
| <sup>15</sup> N      | 100 µg N | 0.15 | 0.05 | ✓ | 10 µg N  | 1.5  |
| <sup>34</sup> S      | 25 µg S  | 0.3  | 0.19 | ✓ | 10 µg S  | 1.0  |
| Dual                 | 400 µg C | 0.1  | —    |   | 100 µg N | 0.15 |

| Integra2        |                     |            |  |
|-----------------|---------------------|------------|--|
| <sup>13</sup> C | 100 µg C            | 0.2        |  |
| <sup>15</sup> N | 100 µg N            | 0.3        |  |
| Dual            | 100 µg N & 400 µg C | 0.4 & 0.15 |  |
| <sup>34</sup> S | 30 µg S             | 0.5        |  |
| <sup>18</sup> O | 100 µg O            | 0.5        |  |

## 6 - TEST / ACCEPTANCE SPECIFICATION

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Customer:         | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| HT-EA           |                        |     |      |
|-----------------|------------------------|-----|------|
| Pyrolysis (n=5) |                        |     |      |
| <sup>18</sup> O | 100 µg O or 1 µl water | 0.3 | 0.14 |
| <sup>2</sup> H  | 200 µg H or 1 µl water | 1.0 | 0.80 |

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

| LC-I            |  |     |  |
|-----------------|--|-----|--|
| (n=5)           |  |     |  |
| <sup>13</sup> C |  | 0.2 |  |

## 6 - TEST / ACCEPTANCE SPECIFICATION

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Customer:         | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

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

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

## 6 - TEST / ACCEPTANCE SPECIFICATION

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Customer:         | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

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

## 6 - TEST / ACCEPTANCE SPECIFICATION

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Customer:         | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| Special tests |
|---------------|
|               |
|               |
|               |
|               |
|               |
|               |
|               |
|               |
|               |

|                                         |                       |
|-----------------------------------------|-----------------------|
| Sales Signature: <u><i>Jolanne</i></u>  | Date: <u>15/1/25</u>  |
| Test Signature: <u><i>S. Mosely</i></u> | Date: <u>15/01/25</u> |

## 7: ASSEMBLY AND TEST RECORD

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

PRODUCT:

MS2022

SERIAL NUMBER:

20402/4-2025/1350

 ASSEMBLED:  
 (Name)

Stune

Date:

7/10/24

 PRE-TEST  
 INSPECTION:  
 (Production name)

P. Hayes

Date:

7/10/24

 PRE-TEST  
 INSPECTION:  
 (Test name)

P. Hayes

Date:

7/10/24

 SYSTEM TEST:  
 (Name)

S. Mas

Date:

22/11/24

 PRE-DESPATCH  
 INSPECTION:  
 (Name)

P. Hayes

Date:

22/1/25

### P.A.T. Test results

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

Earth Continuity

0.056  $\Omega$ 

Insulation

7300  $M\Omega$ 

Earth Leakage Current

0.30 mA. @ 0.24 kVA.

Tested by:

[Signature]

Date:

7/10/24

# Works Order Picking List

Date: 26/07/2024

Time: 11:06:00

Works Order: WO02245  
 Stock Code: 20402/1  
 Description: HS2022 + P-Mag  
 Qty Required: 1.00 Each  
 Qty Outstanding: 1.00  
 Plan Period: WK25/2024  
 Due Date: 17/07/2024

Stock Code / Description      Qty to Pick    Unit    Location      Qty Picked / By

Manufacturing Instructions: IN1337 - SUERC - GEO HS2022

|                                                       |      |      |      |   |
|-------------------------------------------------------|------|------|------|---|
| SI11587<br>Blanking flange DN 63 CF                   | 1.00 | Each |      | 1 |
| SI2529<br>HP OFFICEJET PRO 6230 Colour InkJet Printer | 1.00 | Each |      |   |
| SI2626<br>G2G 2m USB 2.0 A/B Cable - Black            | 1.00 | Each |      |   |
| 70101/11<br>20-22 Head Amp Inverter PCB Cable         | 1.00 | Each | B-H1 |   |
| 70101/12<br>Source Cable                              | 1.00 | Each | B-H1 | 1 |
| SI0895<br>Blue Cat5e UTP patch lead, 2m               | 1.00 | Each | B-H1 | 1 |
| SI0896<br>Yellow Cat5e UTP patch lead, 2m             | 1.00 | Each | B-H1 | 1 |
| SI2288<br>Internal USB 4.5m                           | 1.00 | Each | B-H2 | 1 |
| SI2411<br>KVT 20 Split Cable Gland (inc locknut)      | 1.00 | Each | B-H2 | 1 |
| SI2412<br>KT 5 insert                                 | 1.00 | Each | B-H2 | 1 |
| SI0346<br>SPDT plug-in power Relay - 10A 24V DC coil  | 3.00 | Each | B-H3 | 3 |
| SI0347<br>SPCO Relay Base                             | 3.00 | Each | B-H3 | 3 |
| SI0355<br>DPCO Plug-in Relay, 10A 24V DC coil         | 1.00 | Each | B-H3 | 1 |
| SI0376<br>DPCO Relay Base                             | 1.00 | Each | B-H3 | 1 |
| SI0620<br>IEC Insulated Cover                         | 1.00 | Each | B-H4 | 1 |
| SI1328<br>Mains Filter                                | 1.00 | Each | B-H4 | 1 |

# Works Order Picking List

Date: 26/07/2024

Time: 11:06:00

Works Order: WO02245  
 Stock Code: 20402/1  
 Description: HS2022 + P-Mag  
 Qty Required: 1.00 Each  
 Qty Outstanding: 1.00  
 Plan Period: WK25/2024  
 Due Date: 17/07/2024

| <u>Stock Code / Description</u>                    | <u>Qty to Pick</u> | <u>Unit</u> | <u>Location</u> | <u>Qty Picked / By</u> |
|----------------------------------------------------|--------------------|-------------|-----------------|------------------------|
| SI0508<br>24V PSU                                  | 1.00               | Each        | B-H9            | 1                      |
| SI0534<br>3307 Telescopic Slide 457mm L 483mm      | 1.00               | Each        | B-H9            | 1                      |
| SI2512<br>3 Metre UK 13 amp Fused plug to IEC C 13 | 1.00               | Each        | B-I1            | 1                      |
| SI0847<br>IEC Cord - Socket                        | 2.00               | Each        | B-I2            | 2                      |
| SI0960<br>IEC Cord - Plug                          | 1.00               | Each        | B-I2            | 1                      |
| SI0048<br>Magnet Adjusting Screw                   | 3.00               | Each        | B-I3            | 3                      |
| SI0049<br>Big Magnet Adjusting Foot                | 1.00               | Each        | B-I3            | 1                      |
| SI0050<br>Magnet Foot                              | 2.00               | Each        | B-I3            | 2                      |
| SI0022<br>Capillary Crimp Parts A & B              | 7.00               | Each        | B-I4            | 7                      |
| SI1052<br>3 Way MOLEX Clip                         | 1.00               | Each        | B-J2            | 1                      |
| SI1481<br>4 WAY REF GAS MANIFOLD                   | 1.00               | Each        | B-J2            | 1                      |
| SI1554<br>3-Station Manifold - M5                  | 1.00               | Each        | B-J2            | 1                      |
| SI0366<br>Flow Meter PMFc3100V                     | 1.00               | Each        | B-J3            | 1                      |
| SI1244<br>Seal Kit                                 | 1.00               | Each        | B-J3            | 1                      |
| SI1245<br>SOL Cable                                | 6.00               | Each        | B-J3            | 6                      |
| SI1255<br>M5 Plug                                  | 2.00               | Each        | B-J3            | 2                      |
| SI1821<br>3 Port valve                             | 6.00               | Each        | B-J3            | 6                      |

# Works Order Picking List

Date: 26/07/2024

Time: 11:06:00

Works Order: WO02245  
Stock Code: 20402/1  
Description: HS2022 + P-Mag  
Qty Required: 1.00 Each  
Qty Outstanding: 1.00  
Plan Period: WK25/2024  
Due Date: 17/07/2024

| <u>Stock Code / Description</u>                      | <u>Qty to Pick</u> | <u>Unit</u> | <u>Location</u> | <u>Qty Picked / By</u> |
|------------------------------------------------------|--------------------|-------------|-----------------|------------------------|
| SI2289<br>Oil Mist Eliminator **requires SI2294**    | 1.00               | Each        | B-RACK R        | 1                      |
| SI2294<br>NW10 x 3/8" Bsp Adapter                    | 1.00               | Each        | B-RACK R        | 1                      |
| SI2579<br>20-22 Cabinet Wave Assy Rev 004            | 1.00               | Each        | C               |                        |
| SI2614<br>HS2022 Artwork                             | 1.00               | Each        | C               |                        |
| SI1580<br>Source Mounting Pillar                     | 2.00               | Each        | D-U2            |                        |
| SI0086<br>Ref Gas Bracket Mounting Bracket slot      | 4.00               | Each        | D-W3            |                        |
| SI0524<br>3 Way Socket Housing, 2.54mm Pitch         | 1.00               | Each        | D-W3            |                        |
| SI0777<br>Nylon Pillars Male-Female M4x25mm          | 4.00               | Each        | D-W3            |                        |
| SI0794<br>Female NiPt D Screwlock assembly, 13mm     | 2.00               | Each        | D-X             |                        |
| SI1196<br>Female NiPt D screwlock assembly, 8mm      | 6.00               | Each        | D-X             |                        |
| SI0385<br>25 Way Machine Cont Straight D Skt, 750Vac | 1.00               | Each        | D-X4            |                        |
| SI0387<br>9 Way Machine Cont Straight D Plug, 750Vac | 1.00               | Each        | D-X4            |                        |
| SI0388<br>9 Way Machine Cont Straight D Skt, 750Vac  | 1.00               | Each        | D-X4            |                        |
| SI0570<br>15 way Solder Contact ZD skt 5A 400 Vac    | 3.00               | Each        | D-X4            |                        |
| SI0631<br>9 Way D Hood                               | 2.00               | Each        | D-X4            |                        |
| SI0632<br>15 Way D Hood                              | 2.00               | Each        | D-X4            |                        |
| SI0900<br>25 Way D Hood                              | 1.00               | Each        | D-X4            |                        |

## 7: ASSEMBLY AND TEST RECORD

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

PRODUCT: PYROEANTH  
 SERIAL NUMBER: 10202/14-2025/1350  
 ASSEMBLED: [Signature] Date: 28-OCT-24  
(Name)  
 PRE-TEST INSPECTION: [Signature] Date: 28/10/24  
(Production name)  
 PRE-TEST INSPECTION: [Signature] Date: 28/10/24  
(Test name)  
 SYSTEM TEST: [Signature] Date: 15/01/24  
(Name)  
 PRE-DESPATCH INSPECTION: [Signature] Date: 22/1/25  
(Name)

### P.A.T. Test results

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

Earth Continuity 0.70  $\Omega$   
 Insulation 7300  $M\Omega$   
 Earth Leakage Current 0.60 mA. @ 40.05 kVA.  
 Tested by: [Signature]  
 Date: 28/10/24

# Works Order Picking List

Date: 31/07/2024  
Time: 09:51:55

Works Order: WO02254  
Stock Code: 10202/14  
Description: PyroEarth  
Qty Required: 1.00 Each  
Qty Outstanding: 1.00  
Plan Period: WK38/2024  
Due Date: 30/10/2024

Stock Code / Description Qty to Pick Unit Location Qty Picked / By  
Manufacturing Instructions: Sercon Analytical - PyroEarth

|                                                                                   |                 |                 |      |   |
|-----------------------------------------------------------------------------------|-----------------|-----------------|------|---|
| 10202/18 (Pete)<br>PyroEarth & HT-EA Ceramic Tube                                 | 1.00            | Each            |      |   |
| 70801-1<br>Pyrolysis Start Up Kit high temp for Solids                            | 1.00            | Each            |      |   |
| <del>SI2999</del><br><del>HT-EA fan and Bracket set</del>                         | <del>1.00</del> | <del>Each</del> |      |   |
| 70501-5<br>Simultaneous CNS Consumables Kit                                       | 1.00            | Each            | @    |   |
| SC0073<br>Scrubber Tube 6mmODx4mmIDx250mmLong (TG-II) Pk/1                        | 1.00            | Each            | A-B3 | 1 |
| SC0084 - on order<br>Scrubber Tube Water Threaded, Borosilicate Glass Pk/1        | 2.00            | Each            | A-B3 | 2 |
| SC0085 - on order<br>Cap Kit for Threaded Joints Caps & PTFE Backed Sil Seals pk2 | 3.00            | Each            | A-B3 |   |
| SC0082<br>GC Column for ANCA-SL/GSL Pk/1 (U shaped)                               | 1.00            | Each            | A-D2 | 1 |
| SC2010<br>Separation Column Oxygen 1m ANCA-SL/GSL                                 | 1.00            | Each            | A-D2 | 1 |
| SC2502<br>1m Hayesep Q 60/80 mesh Swagelok end fittings                           | 1.00            | Each            | A-D2 |   |
| SC0030<br>Thermocouple K-Type 1.5mm Pk/1                                          | 2.00            | Each            | A-G3 | 2 |
| SI2288<br>Internal USB 4.5m                                                       | 1.00            | Each            | B-H2 | 1 |
| SI2411<br>KVT 20 Split Cable Gland (inc locknut)                                  | 1.00            | Each            | B-H2 | 1 |
| SI2412<br>KT 5 insert                                                             | 1.00            | Each            | B-H2 | 1 |
| SI0346<br>SPDT plug-in power Relay - 10A 24V DC coil                              | 2.00            | Each            | B-H3 | 2 |
| SI0347<br>SPCO Relay Base                                                         | 2.00            | Each            | B-H3 | 2 |

## 8 - Serial Numbers Record Document

|                   |                        |       |            |
|-------------------|------------------------|-------|------------|
| Client:           | EMDICT, CUBA C/O: IAEA |       |            |
| Quotation Number: | 18404                  | Date: | 12/09/2024 |
| Job Number:       | IN1350                 | Date: | 08/10/2024 |

| Units               | S/N    |
|---------------------|--------|
| MS/ABCA             |        |
| Integra 2           |        |
| Prep Unit 1         |        |
| Prep Unit 2/Misc    |        |
| Electronics Upgrade |        |
| CETAC               |        |
| Gas Box             |        |
| Autosampler         | 42706. |
| BCR                 |        |
| Dual Heater Block   |        |

| Pump Kit and Optics | S/N                |
|---------------------|--------------------|
| Turbo pump S        | 240627496          |
| Turbo pump A        | 240640538          |
| Rotary Pump         | 240644308          |
| Voltage             | 110 / 240          |
| Gauge S             | 240646796          |
| Gauge A             | 240646797          |
| Source              | 20102 HS-247 (240) |
| Collector 1         | 20301-158          |
| Collector 2         | 20501-043          |
| Magnet              | #145               |

| Parts   | S/N |
|---------|-----|
| Fan PSU |     |
| 24V PSU |     |

| PCBs             | S/N      |
|------------------|----------|
| Electronics Box  | 20240017 |
| Prep PCB         |          |
| VFC PCB          | 22004    |
| Watchdog PCB     |          |
| Head Amp PCB 1   | 24024    |
| Head Amp PCB 2   | 24028    |
| Electromagnet RP |          |

| Furnaces   | S/N |
|------------|-----|
| Combustion |     |
| Reduction  |     |
| HT-EA      |     |
| GC Oven    |     |
| Furnace 1  |     |
| Furnace 2  |     |

| PC      | S/N     |
|---------|---------|
| PC      | 3HHFX14 |
| Monitor | 92MQG14 |
| Printer |         |

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

### Additional System Info:

liquid Autosampler S/N 222401.

## Packing List

**Customer Reference:** 202408234-DD

**Shipper / Exporter:**

Sercon Limited  
Unit 3B Crewe Trade park  
Gateway  
Crewe  
CW1 6JT  
UK

**Consignee:**

EMIDICT  
Calle 16 No. 102 esq 1ra  
La Habana, Cuba

Ship to:  
Centro de Proteccion e Higiene da las  
Radiaciones (CPHR)(540403)  
Calle 20, No. 4113, e/41 y 47  
Miramar Playa  
Direccion Postal A.P. 6195  
CIUDAD DE LA HABANA  
Cuba  
cphr@cphr.edu.cu

Contact: Joanne O'Connor  
Tel: +44 (0)1270 580008

Reference: IN1350

Contact Name: Jose peralta Vital  
peralta@cphr.edu.cu  
secembajador@ecuaustria.at  
Contact Tel Number: 0053 7 682 4891  
Marking: CUB5024

### BOX: 1

| Quantity | Product Code | Product Description | Serial Number: if available |
|----------|--------------|---------------------|-----------------------------|
| ✓ 1      | 20402/4      | HS2022              | 20402/4-2025/1350           |

Packed by:

P. Hayes

Date:

22/1/25

Claims for damage or shortages must be made within 3 days

## Packing List

**Customer Reference:** 202408234-DD

**Shipper / Exporter:**

Sercon Limited  
Unit 3B Crewe Trade park  
Gateway  
Crewe  
CW1 6JT  
UK

**Consignee:**

EMIDICT  
Calle 16 No. 102 esq 1ra  
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CIUDAD DE LA HABANA  
Cuba  
cphr@cphr.edu.cu

Contact: Joanne O'Connor  
Tel: +44 (0)1270 580008

Reference: IN1350

Contact Name: Jose peralta Vital  
[peralta@cphr.edu.cu](mailto:peralta@cphr.edu.cu)  
secembajador@ecuaustria.at  
Contact Tel Number: 0053 7 682 4891  
Marking: CUB5024

### BOX: 2

| Quantity                              | Product Code | Product Description | Serial Number: <i>if available</i> |
|---------------------------------------|--------------|---------------------|------------------------------------|
| <input checked="" type="checkbox"/> 1 | 10202/14     | PyroEarth           | 10202/14-2025/1350                 |

Packed  
by:

P. Mayo

Date:

22/1/25

**Claims for damage or shortages must be made within 3 days**

## Packing List

**Customer Reference:** 202408234-DD

**Shipper / Exporter:**

Sercon Limited  
 Unit 3B Crewe Trade park  
 Gateway  
 Crewe  
 CW1 6JT  
 UK

**Consignee:**

EMIDICT  
 Calle 16 No. 102 esq 1ra  
 La Habana, Cuba

Ship to:  
 Centro de Proteccion e Higiene da las  
 Radiaciones (CPHR)(540403)  
 Calle 20, No. 4113, e/41 y 47  
 Miramar Playa  
 Direccion Postal A.P. 6195  
 CIUDAD DE LA HABANA  
 Cuba  
 cphr@cphr.edu.cu

Contact: Joanne O'Connor  
 Tel: +44 (0)1270 580008

Reference: IN1350

Contact Name: Jose peralta Vital  
 peralta@cphr.edu.cu  
 secembajador@ecuaustria.at  
 Contact Tel Number: 0053 7 682 4891  
 Marking: CUB5024

### BOX: 3

| Quantity                               | Product Code             | Product Description                                                                                                    | Serial Number: if available |
|----------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <input checked="" type="checkbox"/> 1  |                          | Electro-Magnet and feet                                                                                                | #145                        |
| <input checked="" type="checkbox"/> 1  |                          | Rotary pump with filter fitted.                                                                                        | 240644308                   |
| <input checked="" type="checkbox"/> 1  |                          | PC.                                                                                                                    | 3HHFX14                     |
| <input checked="" type="checkbox"/> 1  |                          | Windows recovery drive (In PC box)                                                                                     |                             |
| <input checked="" type="checkbox"/> 1  |                          | Software back up drive.                                                                                                |                             |
| <input checked="" type="checkbox"/> 1  |                          | Electronic manuals on software back up drive.                                                                          |                             |
| <input checked="" type="checkbox"/> 1  |                          | Autosampler.                                                                                                           | 42706                       |
| <input checked="" type="checkbox"/> 1  | 70201-1                  | Analyser spares kit                                                                                                    |                             |
| <input checked="" type="checkbox"/> 1  | 70501-8                  | Dangerous goods SC0027 X 12                                                                                            |                             |
| <input checked="" type="checkbox"/> 1  |                          | 16-amp PyroEarth cable                                                                                                 |                             |
| <input checked="" type="checkbox"/> 1  | 70501-5                  | Simultaneous CNS con kit                                                                                               |                             |
| <input checked="" type="checkbox"/> 12 | <b>2 Boxes</b><br>SC0027 | Vanadium Pentoxide Fine Powder 10g<br>UN2862 - Cl:6.1 - Dangerous goods in excepted quantities                         |                             |
| <input checked="" type="checkbox"/> 1  | SC2667                   | EMASorb II A Granular 20-30 mesh 25g<br>UN1823 - Cl: 8 Dangerous goods in excepted quantities                          |                             |
| <input checked="" type="checkbox"/> 1  | SC2668                   | EMASorb II B Granular 1.6-3mm 8-20 mesh CO2 25g<br>UN1823 - Cl:8 - Dangerous goods in excepted quantities              |                             |
| <input checked="" type="checkbox"/> 4  | SC0182                   | Magnesium Perchlorate Gran 0.7to1.2mm H2O<br>Absorbent 25g<br>UN1475 - Cl:5.1 - Dangerous goods in excepted quantities |                             |

Packed by: P. Mayo

Date: 22/1/25

**Claims for damage or shortages must be made within 3 days**

## Packing List

**Customer Reference:** 202408234-DD

**Shipper / Exporter:**

Sercon Limited  
Unit 3B Crewe Trade park  
Gateway  
Crewe  
CW1 6JT  
UK

**Consignee:**

EMIDICT  
Calle 16 No. 102 esq 1ra  
La Habana, Cuba

Ship to:  
Centro de Proteccion e Higiene da las  
Radiaciones (CPHR)(540403)  
Calle 20, No. 4113, e/41 y 47  
Miramar Playa  
Direccion Postal A.P. 6195  
CIUDAD DE LA HABANA  
Cuba  
cphr@cphr.edu.cu

Contact: Joanne O'Connor  
Tel: +44 (0)1270 580008

Reference: IN1350

Contact Name: Jose peralta Vital  
peralta@cphr.edu.cu  
secembajador@ecuaustria.at  
Contact Tel Number: 0053 7 682 4891  
Marking: CUB5024

### BOX: 3 (inside)

| Quantity                              | Product Code | Product Description                        | Serial Number: if available |
|---------------------------------------|--------------|--------------------------------------------|-----------------------------|
| HTA BOX                               |              |                                            |                             |
| <input checked="" type="checkbox"/> 1 |              | Liquid Autosampler needle                  |                             |
| <input checked="" type="checkbox"/> 1 |              | Liquid Autosampler bolts                   |                             |
| <input checked="" type="checkbox"/> 1 |              | RJ45 to USB                                |                             |
| <input checked="" type="checkbox"/> 1 |              | To mass spec D-type cable                  |                             |
| <input checked="" type="checkbox"/> 1 |              | Alignment plate                            |                             |
| <input checked="" type="checkbox"/> 1 |              | Autosampler PSU                            |                             |
| <input checked="" type="checkbox"/> 1 |              | Tube furnace glass tube.                   |                             |
| Box 1                                 |              |                                            |                             |
| <input checked="" type="checkbox"/> 1 |              | PyroEarth Liquid Auto plate                |                             |
| <input checked="" type="checkbox"/> 1 |              | PyroEarth Liquid sampler mount plate       |                             |
| <input checked="" type="checkbox"/> 1 |              | Furnace bottom fitting reduction           |                             |
| <input checked="" type="checkbox"/> 1 |              | HT Furnace bottom fitting for ceramic tube |                             |
| <input checked="" type="checkbox"/> 1 |              | HT Furnace glass tube fitting              |                             |
| <input checked="" type="checkbox"/> 2 |              | Scrubber tubes                             |                             |
| <input checked="" type="checkbox"/> 2 |              | 30 thou tube with 1/16 nuts                |                             |

*P. Hays*  
22/1/25

## Packing List

**Customer Reference:** 202408234-DD

**Shipper / Exporter:**

Sercon Limited  
Unit 3B Crewe Trade park  
Gateway  
Crewe  
CW1 6JT  
UK

**Consignee:**

EMIDICT  
Calle 16 No. 102 esq 1ra  
La Habana, Cuba

Ship to:  
Centro de Proteccion e Higiene da las  
Radiaciones (CPHR)(540403)  
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cphr@cphr.edu.cu

Contact: Joanne O'Connor  
Tel: +44 (0)1270 580008

Reference: IN1350

Contact Name: Jose peralta Vital  
peralta@cphr.edu.cu  
secembajador@ecuaustria.at  
Contact Tel Number: 0053 7 682 4891  
Marking: CUB5024

### BOX: 4

| Quantity                               | Product Code | Product Description                                                          | Serial Number: if available |
|----------------------------------------|--------------|------------------------------------------------------------------------------|-----------------------------|
| <input checked="" type="checkbox"/> 1  | SI2743       | Liquid Sampler                                                               | 222401                      |
| <input checked="" type="checkbox"/> 1  |              | Monitor                                                                      | 92MQG14                     |
| <input checked="" type="checkbox"/> 1  | 70801-6      | Pyrolysis kit high temp                                                      |                             |
| <input checked="" type="checkbox"/> 1  | 70501-3      | Sample prep kit                                                              |                             |
| <input checked="" type="checkbox"/> 1  | 71501-3      | Liquid sampler con kit                                                       |                             |
| <input checked="" type="checkbox"/> 1  | 70501-8      | Simultaneous CNS Consumables Kit (approx. 5000 samples)                      |                             |
| <input checked="" type="checkbox"/> 20 | SC0162       | Magnesium Perchlorate Gran 0.7to1.2mm H2O<br>Absorbent 25g                   |                             |
| <input checked="" type="checkbox"/> 5  |              | UN1475 - Cl:5.1 - Dangerous goods in excepted quantities<br>USA Mains cables |                             |

Packed by:

*P. Hays*

Date:

*22/1/25*

**Claims for damage or shortages must be made within 3 days**



## COLLECTION NOTE

Job Number: **IN1350**  
Customer: **EMDICT, CUBA C/O: IAEA**  
Contact: **Jose peraita Vital**

Collection on  
Date:

250225

No.  
of boxes:

4

By:  
Company:

NG TRANSPORT

Vehicle

Reg No. NV21 LXE

Signature:

[Signature]

Print:

BARNES

# Works Order Picking List

Date: 07/11/2024

Time: 10:31:41

Works Order: WO02315  
Stock Code: 70801-6  
Description: Pyrolysis Kit High Temp 5000 Sample  
Qty Required: 1.00 Each  
Qty Outstanding: 1.00  
Plan Period: WK45/2024  
Due Date: 07/11/2024

Stock Code / Description      Qty to Pick    Unit    Location      Qty Picked / By  
Manufacturing Instructions: IN1350 - EMIDICT - CUBA - PyroEArth

|                                                                                                   |       |      |      |    |
|---------------------------------------------------------------------------------------------------|-------|------|------|----|
| SC2332<br>Ceramic Tube with Molybdenum Foil Liner                                                 | 3.00  | Each | A-B2 | 3  |
| SC0085<br>Cap Kit for Threaded Joints Caps & PTFE Backed Sil Seals pk2                            | 2.00  | Each | A-B3 | 2  |
| SC2495<br>Scrubber Tube 220mm                                                                     | 5.00  | Each | A-B3 | 5  |
| <del>SC1421</del> SI2469 MODIFIED<br>Seal Viton Chamfered Square Profile-upper reaction tube Pk/5 | 2.00  | Each | A-B4 | 2  |
| SC0039<br>Glassy Carbon Chips Eurovector 2-3mm 100g                                               | 3.00  | Each | A-C3 | 3  |
| SC0182<br>High Purity Carbon Granular 0.3 to 0.85mm 5g                                            | 1.00  | Each | A-C4 | 1  |
| SC0035<br>Silver Capsules Pressed 6 x 4mm Pk/250 - 6mm high x 4mm diam                            | 10.00 | Each | A-D2 | 10 |
| SC0037<br>Silver Capsules Pressed 9 x 5mm Pk/250 - 9mm high x 5mm diam                            | 10.00 | Each | A-D2 | 10 |

All items picked and packed as marked:

Date: 13/12/24 Signed: PLI

Stock Allocated, Issued, Completed:

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Signed: \_\_\_\_\_

# Works Order Picking List

Date: 07/11/2024

Time: 10:28:45

Works Order: WO02312  
Stock Code: 70501-3  
Description: Sample Preparation Kit  
Qty Required: 1.00 Each  
Qty Outstanding: 1.00  
Plan Period: WK45/2024  
Due Date: 28/11/2024

Stock Code / Description      Qty to Pick    Unit    Location      Qty Picked / By  
Manufacturing Instructions: IN1350 - EMIDICT - CUBA - PyroEArth

|                                                            |      |      |       |   |
|------------------------------------------------------------|------|------|-------|---|
| SC0127<br>Micro spatula 154mm long Pk/1                    | 1.00 | Each | A-B10 | / |
| SC0128<br>Mirror Tiles 6in x 6in Pk/1                      | 1.00 | Each | A-B10 | / |
| SC1605<br>Forceps Stainless Steel Curved Points Pk/1 125mm | 1.00 | Each | A-B10 | / |
| SC1606<br>Forceps Stainless Steel Straight Points Pk/1     | 1.00 | Each | A-B10 | / |
| SC1630<br>Cell Well 96 Flat Bottom Pk/1                    | 1.00 | Each | A-B10 | / |
| SI0709A<br>Syringe Model SK-10F 10ul Pk/1                  | 1.00 | Each | B-K4  | / |

All items picked and packed as marked:

Date: 22 / 11 / 24    Signed: Per

Stock Allocated, Issued, Completed:

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_    Signed: \_\_\_\_\_

# Works Order Picking List

Date: 18/11/2024

Time: 13:50:51

Works Order: WO02317  
Stock Code: 71501-3  
Description: HT-EA Sensitivity Start Up Kit for O &  
Qty Required: 1.00 Each  
Qty Outstanding: 1.00  
Plan Period: WK47/2024  
Due Date: 09/12/2024

Stock Code / Description      Qty to Pick    Unit    Location      Qty Picked / By  
Manufacturing Instructions: IN1350 - EMIDICT - CUBA - PyroEarth

|                                                                        |      |      |                |   |
|------------------------------------------------------------------------|------|------|----------------|---|
| SC0694<br>Ceramic Tube For Hekatech HT-O HE 468110 Pk/1                | 1.00 | Each | A-B2           | / |
| SC0974<br>Glassy Carbon Tube Eurovector E12529 Pk/1                    | 1.00 | Each | A-B2           | / |
| SC1421<br>Seal Viton Chamfered Square Profile-upper reaction tube Pk/5 | 1.00 | Each | A-B4           | / |
| SC0151<br>Nickel Wool Fine Wires 2g                                    | 1.00 | Each | A-B7           | / |
| SC0039<br>Glassy Carbon Chips Eurovector 2-3mm 100g                    | 1.00 | Each | A-C3           | / |
| SC0288<br>Nickelised Carbon 50% Ni Granular 0.85 to 1.7mm 5g           | 1.00 | Each | A-C4           | / |
| SC0035<br>Silver Capsules Pressed 6 x 4mm Pk/250 - 6mm high x 4mm diam | 4.00 | Each | A-D2           | / |
| SC1478<br>O-Ring Sample Drop Block 773-913 Pk/1                        | 1.00 | Each | A-F2           | / |
| SI1745<br>HT-EA End Stop Sample Guide and Bottom Fitting               | 1.00 | Each | B-L5           | / |
| SI0022<br>Capillary Crimp Parts A & B                                  | 1.00 | Each | Carousel 1 Q-2 | / |

All items picked and packed as marked:

Date: 10/12/24 Signed: Py

Stock Allocated, Issued, Completed:

Date: / / Signed:

# Works Order Picking List

Date: 07/11/2024

Time: 10:31:10

Works Order: WO02314  
 Stock Code: 70501-8  
 Description: Simultaneous CNS Consumables Kit  
 Qty Required: 1.00 Each  
 Qty Outstanding: 1.00  
 Plan Period: WK45/2024  
 Due Date: 28/11/2024

Stock Code / Description      Qty to Pick    Unit    Location      Qty Picked / By  
 Manufacturing Instructions: IN1350 - EMIDICT - CUBA - PyroEarth

|                                                                        |       |      |       |    |
|------------------------------------------------------------------------|-------|------|-------|----|
| SC0012<br>Reaction/Reduction Tube Transparent Heavy Wall Pk/1          | 20.00 | Each | A-B2  | 20 |
| SC0011<br>Quartz Liner Sleeve Insert Open Both Ends 15x180mm Pk/1      | 10.00 | Each | A-B3  | 10 |
| SC0073<br>Scrubber Tube 6mmODx4mmIDx250mmLong (TG-II) Pk/1             | 10.00 | Each | A-B3  | 10 |
| SC0085<br>Cap Kit for Threaded Joints Caps & PTFE Backed Sil Seals pk2 | 5.00  | Each | A-B3  | 5  |
| SC1410<br>O Ring Schott Type Silicone/PTFE 29013603 Pk/10              | 5.00  | Each | A-B3  | 5  |
| SC2495<br>Scrubber Tube 220mm                                          | 10.00 | Each | A-B3  | 10 |
| SC0047<br>Small Silicone O-Rings 10mm OD x 6mm ID Pk/10                | 5.00  | Each | A-B4  | 5  |
| SC1421<br>Seal Viton Chamfered Square Profile-upper reaction tube Pk/5 | 5.00  | Each | A-B4  | 5  |
| SC0006<br>Quartz Wool Very Fine 10g                                    | 10.00 | Each | A-B7  | 10 |
| SC0010<br>Tin Capsules Pressed Std Wt 6 x 4mm Pk/500                   | 5.00  | Each | A-B7  | 5  |
| SC0009<br>Tin Capsules Pressed Std Wt 8 x 5mm Pk/250                   | 10.00 | Each | A-B8  | 10 |
| SC0018<br>Tin Capsules Pressed Std Wt 12.5 x 5mm Pk/200                | 5.00  | Each | A-B9  | 5  |
| SC0004<br>Quartz Chips Granular 50g                                    | 30.00 | Each | A-C1  | 30 |
| SC0024<br>Chromosorb W 30-60 Mesh Acid Washed 10g                      | 5.00  | Each | A-C3  | 5  |
| SC0162<br>Magnesium Perchlorate Gran 0.7to1.2mm H2O Absorbent 25g      | 20.00 | Each | A-C3@ | 20 |
| SC0008<br>Copper Wires for S Analysis High Purity Reduced 40g          | 20.00 | Each | A-C4  | 20 |

# Works Order Picking List

Date: 11/10/2024

Time: 12:48:56

Works Order: WO02277  
 Stock Code: 20402/4  
 Description: HS2022 + Hd Collector + E-Mag + Tr  
 Qty Required: 1.00 Each  
 Qty Outstanding: 1.00  
 Plan Period: WK36/2024  
 Due Date: 24/10/2024

| <u>Stock Code / Description</u>                    | <u>Qty to Pick</u> | <u>Unit</u> | <u>Location</u> | <u>Qty Picked / By</u> |
|----------------------------------------------------|--------------------|-------------|-----------------|------------------------|
| Manufacturing Instructions: STOCK 2022 4           |                    |             |                 |                        |
| SI1754 - on order.<br>Emag Drive Panel with Cable  | 1.00               | Each        |                 |                        |
| 70101/11<br>20-22 Head Amp Inverter PCB Cable      | 1.00               | Each        | B-H1            |                        |
| 70101/12<br>Source Cable                           | 1.00               | Each        | B-H1            |                        |
| 70101/13<br>Standard Head Amp Cable                | 1.00               | Each        | B-H1            |                        |
| SI2512<br>3 Metre UK 13 amp Fused plug to IEC C 13 | 1.00               | Each        | B-I1            | 1                      |
| SI2579<br>20-22 Cabinet Wave Assy Rev 004          | 1.00               | Each        | C               |                        |
| SI2614<br>HS2022 Artwork                           | 1.00               | Each        | C               |                        |
| SI1052<br>3 Way MOLEX Clip                         | 1.00               | Each        | Carousel 1 M-1  | 1                      |
| SI1255<br>M5 Plug                                  | 2.00               | Each        | Carousel 1 M-1  | 2                      |
| SI1548<br>4A Fuse, Anti Surge 5x20mm               | 1.00               | Each        | Carousel 1 M-1  | 1                      |
| SI2285<br>Mag Terminal Cover Black                 | 4.00               | Each        | Carousel 1 M-3  | 4                      |
| SI0687<br>1/8" PTFE Ferrules - Blank               | 1.00               | Each        | Carousel 1 P-1  | 1                      |
| SI0701<br>1/4" PTFE Ferrules Pk/1                  | 2.00               | Each        | Carousel 1 P-1  | 2                      |
| SI0710<br>VALCO Tee - 1/16                         | 2.00               | Each        | Carousel 1 P-1  | 2                      |
| SI1900<br>Dowty Seal - M5                          | 20.00              | Each        | Carousel 1 P-1  | 20                     |
| SI1244<br>Seal Kit                                 | 1.00               | Each        | Carousel 1 P-2  | 1                      |

# Works Order Picking List

Date: 11/10/2024

Time: 12:48:56

Works Order: WO02277  
Stock Code: 20402/4  
Description: HS2022 + Hd Collector + E-Mag + Tr  
Qty Required: 1.00 Each  
Qty Outstanding: 1.00  
Plan Period: WK36/2024  
Due Date: 24/10/2024

| <u>Stock Code / Description</u>                      | <u>Qty to Pick</u> | <u>Unit</u> | <u>Location</u> | <u>Qty Picked / By</u> |
|------------------------------------------------------|--------------------|-------------|-----------------|------------------------|
| SI0777<br>Nylon Pillars Male-Female M4x25mm          | 4.00               | Each        | D-W3            |                        |
| SI1004<br>Right-Angled Bracket 25mm                  | 2.00               | Each        | D-W3            |                        |
| SI0794<br>Female NiPt D Screwlock assembly, 13mm     | 2.00               | Each        | D-X             |                        |
| SI1196<br>Female NiPt D screwlock assembly, 8mm      | 6.00               | Each        | D-X             |                        |
| SI0385<br>25 Way Machine Cont Straight D Skt, 750Vac | 1.00               | Each        | D-X4            |                        |
| SI0387<br>9 Way Machine Cont Straight D Plug, 750Vac | 1.00               | Each        | D-X4            |                        |
| SI0388<br>9 Way Machine Cont Straight D Skt, 750Vac  | 1.00               | Each        | D-X4            |                        |
| SI0570<br>15 way Solder Contact ZD skt 5A 400 Vac    | 3.00               | Each        | D-X4            |                        |
| SI0631<br>9 Way D Hood                               | 2.00               | Each        | D-X4            |                        |
| SI0632<br>15 Way D Hood                              | 2.00               | Each        | D-X4            |                        |
| SI0900<br>25 Way D Hood                              | 1.00               | Each        | D-X4            |                        |
| SI1482<br>34 Way IDC Bump Polarised Socket, 1A       | 1.00               | Each        | D-X4            |                        |
| SI1794<br>37 Way IDC D Socket - Metal                | 1.00               | Each        | D-X4            |                        |
| SI1795<br>37 Way IDC D Plug - Metal                  | 2.00               | Each        | D-X4            |                        |
| SI0005<br>20-20 H/D Flight Tube Assembly             | 1.00               | Each        | D-Z             |                        |
| 20102<br>HS Source Assy                              | 1.00               | Each        | MARKS OFFICE    |                        |
| 20301<br>Standard Collector Assy                     | 1.00               | Each        | MARKS OFFICE    |                        |

# Works Order Picking List

Date: 11/10/2024

Time: 12:48:56

**Works Order:** WO02277  
**Stock Code:** 20402/4  
**Description:** HS2022 + Hd Collector + E-Mag + Tr  
**Qty Required:** 1.00 Each  
**Qty Outstanding:** 1.00  
**Plan Period:** WK36/2024  
**Due Date:** 24/10/2024

| <u>Stock Code / Description</u>                           | <u>Qty to Pick</u> | <u>Unit</u> | <u>Location</u> | <u>Qty Picked / By</u> |
|-----------------------------------------------------------|--------------------|-------------|-----------------|------------------------|
| SI1797<br>Fuse Holder Insulation Cover                    | 2.00               | Each        | Stores A-5      | 2                      |
| SI2304<br>Screwdriver bayonetcap fuseholder 5x20mm        | 2.00               | Each        | Stores A-5      | 2                      |
| SI0630<br>80mm Fan Guard                                  | 6.00               | Each        | Stores A-6      | 6                      |
| SI0793<br>80mm DC Fan                                     | 6.00               | Each        | Stores A-6      | 6                      |
| SI1418<br>80mm Fan Screen Filter                          | 6.00               | Each        | Stores A-6      | 6                      |
| SI3126<br>Traco Power 24volt PSU                          | 1.00               | Each        | Stores A-7      | 1                      |
| SI0373<br>34 Way IDC Terminal Block                       | 1.00               | Each        | Stores A-8      | 1                      |
| SI0508<br>24V PSU                                         | 1.00               | Each        | Stores A-8      | 1                      |
| SI0534<br>3307 Telescopic Slide 457mm L 483mm             | 1.00               | Each        | Stores A-8      | 1                      |
| SI1236<br>Levelling Foot - M10x38mm                       | 5.00               | Each        | Stores A-8      | 5                      |
| SI0112<br>NW10/16 Clamping Ring Stainless Steel - Edwards | 1.00               | Each        | Stores B-1      | 1                      |
| SI0113<br>NW10/16 Adapt/Cent Viton? SS - Edwards          | 1.00               | Each        | Stores B-1      | 1                      |
| SI2289<br>Oil Mist Eliminator **requires SI2294**         | 1.00               | Each        | Stores B-1      | 1                      |
| SI2294<br>NW10 x 3/8" Bsp Adapter                         | 1.00               | Each        | Stores B-1      | 1                      |
| SI0346<br>SPDT plug-in power Relay - 10A 24V DC coil      | 3.00               | Each        | Stores B-2      | 3                      |
| SI0347<br>SPCO Relay Base                                 | 3.00               | Each        | Stores B-2      | 3                      |
| SI0355<br>DPCO Plug-in Relay, 10A 24V DC coil             | 1.00               | Each        | Stores B-2      | 1                      |

# Works Order Picking List

Date: 11/10/2024

Time: 12:48:56

Works Order: WO02277  
Stock Code: 20402/4  
Description: HS2022 + Hd Collector + E-Mag + Tr  
Qty Required: 1.00 Each  
Qty Outstanding: 1.00  
Plan Period: WK36/2024  
Due Date: 24/10/2024

| <u>Stock Code / Description</u>           | <u>Qty to Pick</u> | <u>Unit</u> | <u>Location</u> | <u>Qty Picked / By</u> |
|-------------------------------------------|--------------------|-------------|-----------------|------------------------|
| 70201-1<br>Analyser spares kit - Included | 1.00               | Each        | Z               |                        |

All items picked and packed as marked:

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Signed: \_\_\_\_\_

Stock Allocated, Issued, Completed:

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Signed: \_\_\_\_\_

## 11 – Installation Report

|                   |           |       |            |
|-------------------|-----------|-------|------------|
| Client:           | CPHR Cuba |       |            |
| Quotation Number: |           | Date: |            |
| Job Number:       | IN1350    | Date: | 17/11/2025 |

|                |                     |              |   |
|----------------|---------------------|--------------|---|
| Contact:       | Reinaldo Gil        |              |   |
| Date of Visit: | 17 November 2025    | No. of Days: | 6 |
| Engineer:      | Henry Connell Cooke |              |   |

### Details of visit:

#### Day 1

- PyroEarth and HS20-22 are unboxed and lifted onto benches. Both boxes look scuffed as if they have taken a hit on transit
- Pyro furnace top bracket has come loose, with the screws both found inside the back compartment of the PyroEarth and rescrewed. Combustion tube was tested and still fit cleanly through the furnace after rescrewing, but this is further evidence that the boxes were not shipped smoothly
- Electrician arrives to install the female 16A connection (brought in bootstock) to the mains of the lab, and tested it for electrical safety once installed
- PC set up and software connected to both instruments
- Source removed, old filament looked good but still replaced with a new one, with the idea of teaching the customer how to condition the filament on a future day. Customer shown how to change a filament, and what to look out for in the source (loose connections, cracking ceramics, continuity etc)
- Customer shown how to put the source back into the flight tube, with lots of practice taking place
- Customer shown how to change oil in rotary pump and reattach it to the system
- Pumps switched on but pump speed only reaches 20 krpm
- Source refitted, collectors tightened, but still pump speed only reaches 20 krpm

#### Day 2

- Many different things tested in attempt to find the cause of the problem. Power supply to the rotary was found to be 250 V, higher than expected but shouldn't stop pumps turning on; no leaks found when reseating source, HD collector or rotary pumps. A vent valve blank was used to blank the vent of each turbo pump, one at a time, and this did not have an effect on the pumping speed
- Different sections of Flexihose tubing between rotary and turbo pumps were bypassed, and tested by hand to feel that vacuum was being drawn, no problems found
- Customer was aided in installing their gas lines, with He flow set up for Pyro and HS20-22, compressed air line installed into pyro, and solid autosampler was fired successfully
- Customer was given an introduction to the software including the bitmap, methods, sample lists and reprocessor

#### Day 3

- Rotary pump was left pumping by itself for 30 minutes before connecting the turbos, unfortunately this did not get the pumps to climb beyond 20 krpm
- Reseating the final flanges, NCS collector and vacuum gauges did not fix the problem, and it was decided that parts needed to be shipped out to help fix the problem
- Customers were shown how to make tubes for all furnaces and traps used in NCS combustion
- Customer was shown how to install these tubes and pressure test the system. Pressure test passed when closing V9 of trapping loop but not with V10. Flow was passing through V10 to the pigtail even when it was supposed to be shut. V10 was replaced and flow now drops to 0 when it is closed
- Customer shown how to heat furnaces

#### Day 4

- Customer heated furnace to operating temperatures, and pressure test passed once again
- Since there is no functioning mass spec, no samples can be run, but samples were dropped to show the customer how the method works, and what to check for when watching the samples burn
- Customer given further information, and practice creating samples lists, altering methods and using the bitmap

## 11 – Installation Report

|                   |           |       |            |
|-------------------|-----------|-------|------------|
| Client:           | CPHR Cuba |       |            |
| Quotation Number: |           | Date: |            |
| Job Number:       | IN1350    | Date: | 17/11/2025 |

- Furnaces cooled down and solid autosampler is replaced with liquid. Combustion tube removed and customer shown how to prepare high sensitivity pyrolysis tube for liquid samples, along with CO2 trap
- Customer was helped with installing CO2 and N2 gas lines into the back of the HS 20-22
- When plugging the liquid autosampler into the wall, large sparks came out of the plug socket. A different plug socket was used without incident, and the electrician was called to check the socket at fault
- Liquid autosampler installed onto the system and software opened, but was not correctly displaying the virtual screen by the end of the day

### Day 5

- IP address for liquid autosampler changed to 10.0.0.1 and virtual screen loaded correctly
- Initial setup of autosampler resulted in 'Plunger Error' despite a brand new syringe being installed
- Problem was skipped at first and then did not reappear when the test was repeated later. A different plunger error appeared when attempting the first trial sample run, during the 'pull up strokes' section of the sample run. This action was moving the plunger with great speed and force, likely causing the problem. It was removed from the sequence and replaced with solvent and sample washes, which increase runtime but are safer for the syringe and should result in consistent sampling. The customer had input into how they would like the sampling process to take place, and were taken through the use of the liquid sampler software in great detail
- GC box was baked out since only 9 mL/min was coming out of back of the pyro, despite 60 entering the CO2 trap and no leaks being found anywhere
- Customer given the chance to play around with the software, creating sequences in Callisto and HTA software, and altering methods

### Day 6

- Over the weekend it became apparent that the package to help the pumping problem would arrive in the timespan of the visit, so the visit was cut short from 10 to 6 days, with the plan to return once the package arrives
- Electrician arrives to check the faulty plug socket from day 4, redid some wiring in the room
- High sense liquid column removed, and customer was shown how to make up the standard pyrolysis tube

### Recommendations:

Please contact me at [henry.cooke@sercongroup.com](mailto:henry.cooke@sercongroup.com) or [service@sercongroup.com](mailto:service@sercongroup.com) if you need any further guidance or have any questions

### Faults and Shortages:

- HS20-22 cannot reach full pumping speed to draw a vacuum.

### Follow up:

- Pumping packing is being sent to Havana and I will return once the package arrives.

Engineer: Henry Connell Cooke

Date: 17/11/25

Signed:

Customer:

Date: 17/11/25