



***Request for Quotation (RFQ) for the supply and installation of an Environmental Chamber- for thermal cycling and humidity and associated infrastructure to the CSIR***

Date of issue:	Tuesday, 08 August 2017
Closing Date and Time:	Friday, 25 August 2017 at 16h30
RFQ Number:	9055/25/08/2017
Submission and Contact details:	For submission of quotations or any other enquiries: Email: <a href="mailto:tender@csir.co.za">tender@csir.co.za</a> (Please use RFQ No. as subject reference)

## 1 INVITATION FOR QUOTATION

Quotations are hereby invited for the supply of an Environmental Chamber to the CSIR.

## 2 QUOTATION REQUIREMENTS

Recommended Specifications but not limited to:

Item #	Description
1	Temperature and Humidity Chamber for PV module testing per IEC 61215-2 2016-03 Thermal Cycling (Module Quality Test (MQT) 11), Humidity Freeze (MQT 12), and Damp Heat (MQT 13).
1.a	Temperature performance of the chamber:
1.a.i	-70 C to 150 C air temp
1.a.ii	+/- 2 C temperature stability
1.a.iii	Ramp rate up to 200 C / hour with a 300 kg thermal mass inside. Recipe control interface should allow for inputs for a specific ramp rate, including a requirement for a controlled linear ramp rate
1.b	Humidity performance:

1.b.i	Capable of holding 85% relative humidity (+/- 5%) while the chamber is controlled to 85 C (+/- 2 C) for at least 1048 hours continuous
1.b.ii	Capable of holding 30% relative humidity (+/- 5%) while the chamber is controlled to 60 C for at least 24 hours
1.b.iii	Capable to target and hold any integer humidity level between 30% to 85% with a tolerance of +/- 5%, within the normal design constraints of temperature.
1.b.iv	Capable of holding 85 C / 85% RH conditions without continuous operation of the compressor/motor so that the energy consumption is relatively low during the Damp Heat 1000 hour test.
1.c	Chamber should be capable of running a minimum of 200 continuous thermal cycles without pause and 10 continuous humidity freeze cycles without pause, as per the IEC 61215 standard.
1.d	Minimum interior dimensions should allow for 10 PV modules to be loaded in a vertical orientation, walk in style.
1.d.i	Minimum interior dimensions required: Width = 1.2 meter, Depth = 1.5 meter, Height = 2.3 meters
1.e	Maximum Exterior Dimensions Required: Width = 1.5 meter, Depth = 3.5 meter, Height = 2.8 meters
2	Emergency power off button easily accessible to the operator
3	Two round cable ports 15 cm in diameter with plugs, one on each side, located in the centre of the side panel, as determined from the interior of the chamber
4	“Product temperature control” and “air temperature control” options where “product temperature control” monitors the module temperature and regulates air temperature according to the defined air temperature deviations allowed in the recipe
5	External relays that can be turned on/off in the recipe definition, allowing signals to be sent to an external control platform.
6	Software interface for writing recipes and saving data. Recipes should include the following capabilities, but not be limited to the following functionality:
6.a	Defining the product control targets, ramp rates, and dwell times for temperature and humidity profiles

6.b	Allow user specified deviations between air temperature and product temperature to enable faster ramp rates
6.c	Allow for controlled, linear ramp rates
6.d	Allow for the “soak control” option, preventing the recipe from progressing to the next step until the specified dwell time at a specified temperature (+/- 2C) is achieved.
7	Overcool/overheat protector with configurable limits between -70 and 150 C (additional temp sensor that shuts down equipment in case of thermal runaway)
8	Installation matting beneath the exterior floor of the chamber
9	Refrigeration silence package to realize less than 75 DBA at 1 meter
10	Two sets of stainless steel “U” channel (minimum 4 cm wide and 3 cm depth) welded vertically on each side panel of the interior, four channels total, location 10 cm from the back and 10 cm from the front, covering the full vertical span. These will be used to secure module support rails (not included in this RFQ).
11	All interior joints should be welded to provide a seamless surface to prevent any moisture seeping to the insulation within the walls, including area around cable ports and interior lights
12	One interior light, mounted in such that the light does not protrude in to the chamber useable area
13	Sealed, square viewing window mounted in the door and heated to prevent condensation. 40 cm x 40 cm. Must be welded on the inside to prevent moisture seeping in to the insulation.
14	5 year rust warranty for the interior of the chamber
15	5 year rust warranty for the exterior of the chamber
16	One year parts and labour warranty
17	Ambient operating temperatures between 5 C and 40 . Chamber will be installed in a warehouse type structure, not inside a temperature controlled environment
18	Transportation from factory to the test facility in Pretoria, South Africa
19	Installation, commissioning, and training

Additional terms and conditions will be expected during handover:

1. Electronic manuals, specs, wiring diagrams, parts lists, etc.
2. Factory acceptance test results with documentation
3. ISO 17025 accredited calibration of temperature and humidity sensors

### **3 EVALUATION CRITERIA**

- 3.1 Selection of suppliers will be based on the 80/20 preference point system.
- 3.2 Indicate valid B-BBEE status on quotation. No B-BBEE status will equal zero points. (RSA suppliers only)
- 3.3 Indicate CSD number (National Treasury Central Supplier Database) on quotation. If not registered yet on CSD, use [www.csd.gov.za](http://www.csd.gov.za) to register.
- 3.4 No order will be issued or no contract will be signed without a valid CSD number.

### **4 PRICING QUOTATION**

- 4.1 Price needs to be provided in South African Rand (excl. VAT), with details on price elements that are subject to escalation and exchange rate fluctuations clearly indicated.
- 4.2 Price should include additional cost elements such as freight, insurance until acceptance, duty where applicable, etc.
- 4.3 Payment will be according to the CSIR Payment Terms and Conditions.

### **5 OTHER TERMS AND CONDITIONS**

- 5.1 The supplier shall under no circumstances offer, promise or make any gift, payment, loan, reward, inducement, benefit or other advantage, which may be construed as being made to solicit any favour, to any CSIR employee or its representatives. Such an act shall constitute a material breach of the Agreement and the CSIR shall be entitled to terminate the Agreement forthwith, without prejudice to any of its rights.
- 5.2 A validity period of 90 days will apply to all quotations except where indicated differently on the quote.

**6 No goods and/or services should be delivered to the CSIR without an official CSIR Purchase order. CSIR purchase order number must be quoted on the invoice. Invoices without CSIR purchase order numbers will be returned to supplier.**

**7 Note: This is not a Purchase Order.**