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Project Coordinator

**Ref.: PHY/2018/012/Stores**

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**Corrigendum Notification to Limited Tender No.: PHY/2018/012/Stores**

**Due Date: 25.03.2019, 5:00 PM**

## Annexure-I

### **SPECIFICATIONS FOR “Compact tube furnace with accessories”**

The furnace should have a 50 mm Outer Diameter (OD) ceramic processing tube with fiber plugs to be used in the synthesis of all types of new material **samples under various inert gas supply conditions**. The max. heating temperature is 1300°C with horizontal heating application. The temperature controller should have multiple segments with programmable high precision digital controller with an accuracy of +/-1 °C.

#### **INSTRUMENT SPECIFICATIONS:**

Working Temperature	✓ 1250 °C continuous
Heating Elements	High quality integrated heating elements
Structure of the Furnace	<ul style="list-style-type: none"><li>✓ Double layer textured stainless steel casing with air cooling.</li><li>✓ Cooling fans inside to keep case temperature &lt; 60°C.</li><li>✓ Dual shell housing for low external temperatures and high stability</li><li>✓ <b>Include high quality ceramic tube, flange, gauge &amp; valves.</b></li><li>✓ Safeguarded against fumes and splashing, and easy to replace</li><li>✓ Solid state relays provide for low-noise operation</li><li>✓ Several heating rate (temperature ramp) : 1°C/min or less</li></ul>

	<ul style="list-style-type: none"> <li>✓ Multi steps temperature programming with option to store several program for future access</li> </ul>
Power Consumption	Max. 1.5 kW
Input Voltage	Single Phase, 230V AC, 50 Hz
Thermocouple	High quality S-type
Temperature Accuracy	+/- 1° C
Heating Zone	<b>Single zone with heated length= 245 mm or above</b>
Constant Temperature Zone	80 mm within ± 5° C
Tube Materials	High purity ceramic, Purity > 99.99%
Temperature Controller	<p>Include very High quality temperature controller Proportional–integral–derivative control (PID control) and auto-tune function : Microprocessor based programmable PID temperature controller with LCD display</p> <ul style="list-style-type: none"> <li>✓ 5 programs</li> <li>✓ 4 segments programmed with ramping, cooling and dwelling steps</li> <li>✓ Heating rate (ramping rate): 1 deg. C/min. or less</li> <li>✓ Built-in over-temperature controller alarm and thermocouple failure alarm</li> <li>✓ +/- 1 °C temperature control accuracy</li> <li>✓ PC communication port</li> </ul>
Processing tube	<ul style="list-style-type: none"> <li>✓ Premier grade ceramic tube</li> <li>✓ 40mm (I.D) x 50 mm (O.D)</li> <li>✓ <u>Tube length= 445 mm or above and heated length=245 mm or above.</u></li> <li>✓ Support tube for 50 mm (OD) tubes to prevent the tube from bending under high temperature</li> </ul>
Manual Gas Supply System and Sealing Flanges	<ul style="list-style-type: none"> <li>✓ <b>Include Manual Gas Supply System only for non-flammable protective/reactive gas applications</b></li> <li>✓ <b>Include one pair sealing flange with high quality high-temperature O-ring</b></li> <li>✓ <b>Include spares for the smooth operation of the tube furnace in gas supply conditions.</b></li> </ul>

**N.B.: The successful bidder/vendor should be able to provide excellent life time technical support/service to the tube furnace.**

**Additional specifications for temp. controller:**

Status message: yes

Entering prog. names: yes

Real-time clock: yes

Operating hour counter: yes

All other terms and conditions remain the same.

Sincerely,

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