


Invitation for tender Number of the invitation: 111565/2020	 UNIVERSITY OF EASTERN FINLAND
Name of the invitation for tender: Calcination reactor for powder material	
Buyer's contact details:	
Name of the unit at the University of Eastern Finland: Department of Environmental and Biological Sciences	
Contact people: Name, e-mail Prof Jorma Jokiniemi, jorma.jokiniemi@uef.fi	
Partial offers <input type="checkbox"/> partial offers are acceptable <input checked="" type="checkbox"/> partial offers are not acceptable	
Alternatives <input type="checkbox"/> alternative offers are accepted <input checked="" type="checkbox"/> alternative offers are not accepted	
Most important contract terms The price is requested without VAT.	
General contract terms to be followed General Terms of Public Procurement in Supply Contracts (Jyse 2014), applicable, (http://www.uef.fi/hankintainfo) We will accept shorter Warranty Time than mentioned in Jyse 2014 (Supplies)	
Specifications of product or service Position, amount, unit, product The purpose of the calcination reactor is to process powder form material so that e.g. metal sulphate or chloride powder reacts into metal oxides during the calcination process. The final product as metal oxides can be used e.g. as electrode materials in batteries. See attachment for further details.	

Technical specifications

See the attachment

Attachments and clarifications connected with the offer

- extract from the Register of Companies
 - clarification of the vendor's financial position
 - extract of the preliminary taxation
 - certificate of tax due
 - reference list
 - list of possible subcontractors
 - other clarification
- Clarifications are not needed at this stage, they will be asked later for

Selection criteria

The instrument will be evaluated and selected as the economically and functionally most advantageous tender(s) according to following criteria:

- 1. Price, counting 25 %
- 2. Delivery time, counting 5 %
- 3. Technical properties and use, counting 50 %
- 4. After-sales service and technical support, counting 20 %

Criteria 2-4 will be evaluated by scale 1-10, as 10 is the best value.

Sending quotation

Quotation to be received by email before 8th of May 2020 13:00 pm (local Finnish time), maximum attachment size 15MB:

kirjaamo@uef.fi

Subject of the offer and email (name/number): "111565/2020"

The tender should be valid at least 4 (four) months

University of Eastern Finland has the right to divide the procurement and the right not to accept any of the offers received. The university also has the right to refuse offers that do not fulfil the requirements of the invitation for tender. Offers arrived late are not accepted.

If the offer contains confidential information, it needs to be mentioned clearly.

Signature

Date: 21.04.2020

Markku Torvinen, Head of Procurement Services**Attachments**

Specification sheet

Appendix

University of Eastern Finland

Purpose:

Calcination reactor for powder material

The purpose of the calcination reactor is to process powder form material so that e.g. metal sulphate or chloride powder reacts into metal oxides during the calcination process. The final product as metal oxides can be used e.g. as electrode materials in batteries.

In the reactor powder is first dosed and fed into the reactor by screw feeder through a gas tight connection part. At the same time when the ash is fed into the reactor gases (air, N₂, N₂/H₂, max 5% H₂) are fed into the reactor from the opposite side i.e. a counter current flow. The reactor is a rotary kiln furnace with adjustable rotation speed and inclination angle.

Kiln specifications:

Indirect heated: electric.

Batch: 2 kg / 2 l.

Temperature: max. 1100 °C.

Corrosion resistance against sulphur/chloride compounds – a kiln drum made of Inconel alloy should be fine for this purpose.

3 heating zones.

About 1000 mm heating length.

100 mm ID of the reaction tube.

Inconel tube.

Option: tube with fines/lifters, which promote the material mixing and avoid clumping.

Screw feeding.

Particle size 1-30 µm.

Feed rate 0.1-0.5 kg/h.

Rotation speed 0-10 rpm alterable by frequency inverter.

Inclination 0-10 degrees.

Feed Material : metal sulphates, chlorides, nitrates Ni, Mn, Co, Li.

Material temperature measurement with a thermoelement(s) on the outside of the kiln drum.

Gas feeding system: air, oxygen, nitrogen.

Gas exhaust fan is not needed as the exhaust is connected to the existing bag house filter.

Purpose : calcination

Material collection on stainless steel bags.

Material need to be cooled at room temperature in the product storage vessel from where it is removed after a while.

Delivery, installation , user documentation and the operator training is required.