



Indian Institute of Science, BANGALORE 560 012
Centre for Sustainable Technologies
Phone: 91-80-2334 8575 / 2293 2447
Email: chair.cst@iisc.ac.in / Website: cst.iisc.ac.in



Date: 23.09.2021

Dr. Souradeep Gupta
Assistant Professor, CST, IISc
Phones: 9538387317 | Email: souradeep@iisc.ac.in

Ref: IISC/CST/2021/RHE01

Tender notification for the procurement of a rheometer for measuring rheological properties of cement-based pastes and similar material

Last date of submission: 17 October 2021

Kindly send your best quotation for an “rheometer” with the technical specifications/general compliance mentioned below.

Quote should come only from **Indian Original Equipment Manufacturer (OEM)**. The quotations should be on FOR-IISc Bangalore basis in INR.

Procedure:

1. The tenderer should submit the technical and financial bids separately in sealed envelopes superscribing the envelopes as ‘Technical bid’ and ‘Financial bid’. Both these envelopes must be put into a single envelope, superscribed ‘TENDER FOR: RHEOMETER’. This should reach the following address by 4 PM on 17 October 2021.

Attn: Dr. Souradeep Gupta
Centre for Sustainable Technologies
Indian Institute of Science,
Bengaluru, Karnataka - 560 012
Contact: +91(80)2293 2447

Soft copies are to be mailed to souradeep@iisc.ac.in with the subject line ‘TENDER FOR: RHEOMETER’

2. The technical proposal should contain a technical compliance table with 4 columns.
 - a. The first column must list the technical requirements, in the order that they are given in the technical requirement below.
 - b. The second column should provide specifications of the instrument against the requirement (please provide quantitative responses wherever possible).

c. The third column should describe your compliance with a “Yes” or “No” only. Ensure that the entries in column 2 and column 3 are consistent.

. e. The fourth column can contain additional remarks. You can use this opportunity to highlight technical features, qualify response of previous columns, or provide additional details.

3. Vendors are encouraged to highlight the advantages of their tools over comparable tools from the competitors
4. In the commercial bid, please provide itemized cost of the system and required accessories, such as software, power supply, etc.

Terms and conditions:

1. The decision of the purchase committee is final.
2. The tenderer is required to carry out full testing and demonstration of the rheometer’s performance at Indian Institute of Science, along with training the representative(s) from the institute on the operation and some sample testing for acceptance. All guaranteed specifications will have to be demonstrated, upon request, in an active installation. Failure to demonstrate any promised specifications will be deemed as technical non-compliance.
3. The tenderer has a track record of supplying similar equipment to at least two other organizations, preferably in India. Relevant documents including user testimonial on product performance/maintenance shall be furnished.
4. Clarify if periodic (preventive) maintenance be done by a trained on-site engineer or requires a specialist from the OEM. The vendor should have qualified technical service personnel for the equipment based in India and must assure a response time of <2 business days after receiving a service request.
5. The lead-time for the delivery of the equipment should not be more than 3 months from the date of receipt of our purchase order.
6. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason.
7. The validity of the quotation shall be at least 12 weeks.

Technical specifications:

1. The rheometer should be able to characterize cementitious pastes with maximum solid particle size of 500 micron.
2. The equipment must be able to characterize cementitious materials with the following properties under static and dynamic shear
 - Yield stress may vary between 2 Pa to 300 Pa
 - Plastic viscosity would vary between 0.60 mPa-s to 10 mPa-s
3. A minimum shear rate of 0.01 s^{-1} should be achievable, while the maximum shear rate of at least 200 s^{-1} can be attained.

4. Concentric cylinder measuring cup and sand-blasted conical rotor are to be provided.
5. Peltier device (for example, circulator/jacket) to control temperature in the range of 30° C to 150°C is to be provided.
6. Under oscillation mode tests, the following functions shall be attained:
 - Torque or stress sweep, linear or logarithmic, at single frequency
 - Frequency sweep at single strain
 - Superimposition of stress oscillation under single shear
 - Temperature sweep at single torque/frequency
7. Under flow mode tests, the following functions shall be attained
 - Controlled stress/torque sweeps
 - Controlled rate (1/s) and speed (rad/s) sweeps
 - Equilibrium stress-stepped flow
8. The rheometer must be able to do zero-gap automatically
9. Air-water separator compressor is to be supplied with the machine.
10. Filter to separate oil, particulate matters or condensates is to be provided.
11. A computer system, compatible with the software system, for the rheometer and other associated accessories are to be provided.

Other requirement:

1. IISc required two (2) years complete warranty from the date of installation for all parts of the rheometer.
2. IISc will not pay additional for installation and training. All such costs are to be considered in the base price.
3. IISc will expect acceptance tests, post installation. These can be recorded in the presence of representatives of the OEM. Inability to pass these tests will be counted as a technical failure and breach of contract.
 - a. Testing with at least two cement paste samples for demonstration.
 - b. Demonstration of inputs in the software for accurate measurement of rheological properties
 - c. Demonstration of measurement of rheological properties under static shear and dynamic shear for flow sweep mode
 - d. Demonstration of measurement of rheological parameters under oscillation mode.

Thanking you,

Dr. Souradeep Gupta
Assistant Professor
Centre for Sustainable Technologies
T: +91 9538387317| E: souradeep@iisc.ac.in