

## Technical Specifications of CHLORIDE TITRATOR

### 1.0 Bidder Eligibility Criteria:

I	<b>Bidder Eligibility Criteria-I (Public Procurement – Preference to Make in India)</b>	<b>Class I / Class II</b>	<b>Local Content value</b>	<b>Reference, Page No.</b>
I	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 <sup>th</sup> September 2020 and other subsequent orders issued therein.			
<b>2.0</b>	<b>Bidder Eligibility Criteria-II</b>	<b>Complied/Not Complied</b>	<b>Reference Page No.</b>	<b>Remarks, If any</b>
1	The supplier/vendor must be an original equipment manufacturer or an authorized agent/dealer/seller of the item. The vendor should have supplied at least 5 similar units at other IITs or NITs, or national laboratories and research centres (DRDO/CSIR/BARC/IGCAR), or R&D centres of reputed multinational companies, or globally recognized universities, in the last 5 years. PO copy, or performance certificate, along with contact details (for these organizations) needs to be submitted.			

### 3.0 Technical Compliance:

#### Equipment feature:

Sl.No.	Specifications	Complied/Not Complied	Reference Page No.
<b>A General</b>			
1	Device with the capability of analyzing the amount of chlorides present in a cementitious system. The system should have the following characteristics or better and should satisfy and demonstrate the performance criteria given in Section 2.		
<b>B Hardware</b>			
1.	Titration should be a standalone type with a touchscreen interface		
2.	Titration should have Live Titration Curve Display while conducting the titration for chlorides		
3.	The instrument should have the facility to generate pdf reports and store them in the USB memory stick connected to the instrument.		
4.	The instrument should have a facility for saving/storing at least 100 methods for titration.		
5.	Live data entries like sample weight, stop-criteria should be possible, when the titration is in progress.		

6.	The instrument should have the facility to connect an autosampler for handling at least 11 samples in the future if required.		
7.	The instrument should have ethernet and/or WiFi facility to send the data to a computer (PC) for easy data handling and storage.		
8.	Titration should have the capability and dedicated modes to perform all types of potentiometric titrations like acid-base, non-aqueous, argentometric, redox and complexometric titrations		
9.	The instrument should have a built-in magnetic stirrer with speed adjustments covering at least 120-1800 rpm		
10.	The instrument should have pH measurement with a calibration facility with automatic buffer recognition options.		
11.	The instrument should have motor driven piston burette, with a high burette resolution of 1/20,000 of burette volume or better.		
12.	The Burette resolution of the instrument should not be less than 20000 steps per cylinder volume.		
13.	The instrument should have the possibility of replacing burettes of volume 5, 10, 20 and 50 ml. Two burettes of each volume should be supplied.		
14.	Data Acquisition with at least 1,00,000 simultaneous/synchronized readings per second (current/voltage/auxiliary terminal)		
15.	Potential: $\pm 2000$ mV with $\pm 0.1$ mV resolution or better		
16.	pH: 0.0 to 14.0 pH with a resolution of $\pm 0.001$ pH or better		
17.	Polarization current: $\pm 120$ $\mu$ A with $\pm 0.01$ $\mu$ A resolution or better		
18.	Suitable combined silver ring electrodes and accessories such as String bar electrode holder and anti-diffusion tip required for the chloride analysis should be provided		

	<b>Warranty:</b>	Minimum 3 years.		
		Optional Quote-1: Additional 2 years warranty may be quoted separately.		
		Optional Quote-2: AMC beyond 3 Years Warranty period		
		(Optional quotes will not be taken up for price bid comparison)		

**Other Terms and Conditions**

1.	The system should be delivered within 14-16 weeks from the opening of the letter of credit or issue of the purchase order, whichever is later.		
2.	Costs and related information should be given only in the financial bid.		
3.	The cost should include all delivery costs up to IIT Madras.		
4.	The warranty shall commence only from the date of equipment installation at IITM.		
5.	Prices quoted should be valid for at least 120 days.		
6.	Item-wise break up of cost should be provided in the commercial bid for optional items and accessories.		
7.	IIT Madras reserves the right to exclude some items from the purchase. As part of tender technical evaluation, IIT Madras will approach the past end		

	users for feedback and in case of any adverse feedback the bidder will be technically disqualified.		
8.	The system should be installed and commissioned with no additional cost.		
9.	Training at IIT Madras should be provided with no additional cost.		
10.	System manual should be provided in CD or pen drive form.		
11.	Services and spares should be necessarily available within India		

	<b>Technical Bid should comprise of the following</b>	<b>Complied/Not Complied</b>	<b>Reference Page No.</b>
1.	Detailed Technical brochure		
2.	Detailed technical write up explaining how each of the Technical Specifications are complied with, indicating the location in the brochure		
3.	The vendor should guarantee round the clock technical support not only during the warranty period but even beyond through an annual maintenance contract. Demonstration of having provided such satisfactory technical support to customers shall be enclosed with the technical bid.		
4.	The manufacturer must have a well-qualified technical support team		

(Note: It is mandatory for the bidders to provide the compliance statement in tabular column format along with catalogue page number (comply/not comply) for the Above points with document proof as required. Failing which bidders will be technically disqualified)