



Request for quote for procurement of a Scrubber for use in CVD deposition

- The GEECI (Gallium Nitride Ecosystem Enabling Centre and Incubator) at SID-Indian Institute of Science is seeking bids from qualified industries for Scrubber System. The specifications for the Scrubber are listed in Table 1.
- Companies need to submit two bids, a technical bid and a commercial bid, in two separate sealed envelopes. The bids should be submitted no later than 21 days from the date of posting of this tender, as listed on the website date/time stamp, and by 5 pm on the 15th day or next weekday in case the 21st day falls on a weekend or a national holiday.
- Both technical and commercial bids should be addressed to “The Chief Executive, SID, IISc, Bangalore 560012.” GST # 29AAATS5333E1ZJ”
- All quotation should be CIF Bangalore.
- Cost of last mile transportation, including any insurance, from port of shipment to IISc has to be quoted as an option. This would be the DAP option.
- In case of courier shipment maximum permissible weight would be 70kgs.
- The envelopes should be addressed to “Prof. Srinivasan Raghavan, CeNSE, IISc, Bangalore, 560012” and submitted to the office at CeNSE, IISc in Room No. GF 15 between 9 am and 5 pm.
- All questions regarding this tender should be addressed to Prof. Srinivasan Raghavan at the email address sraghavan@iisc.ac.in
- Post such submission all vendors should send an email to sraghavan@iisc.ac.in with the subject line: “GEECI_Bidder’s name_Tool Name” to intimate him of the submission within one day.
- Deviations from the technical specifications requested are allowed. Such deviations must be highlighted and justified. Their acceptance or rejection will be left to the discretion of the technical committee.
- The Scrubber sought will be used at the Centre for Nano Science and Engineering (CeNSE), Indian Institute of Science (IISc). IISc is India’s No. 1 institution on higher learning and the Centre for Nano Science and Engineering is home to one of the best academic fabs in the world.
- The technical response, corresponding to the tool being offered, should be in the form of a compliance table with at least 5 columns. Serial number in column 1. Each of the numbered technical items below should be addressed in a separate row of the table in column 2. Compliance to this requirement, in Yes/No, deviation from it and justification should be provided in the neighbouring columns 3-5. Post the opening of a hard copy of the technical bid the committee will request for a soft copy of the files for further processing. Companies should NOT mail soft copies of the files unless specifically requested for.
- Detailed technical specifications of the Scrubber being offered should be included.
- Any additional capabilities or technical details, that you would like to bring to the attention of the purchase committee, can be listed at the end of the technical table.
- If multiple systems can fulfil the requirements, vendors can submit multiple bids.
- Vendors are encouraged to highlight the advantages of their Scrubbers from the competitors
- The commercial bid should be broken up to the maximum extent possible into separate items with a cost against each to enable better comparison of price for various configurations across the bidders. As an option, please provide itemized cost for any suggested accessories/add-ons that may enhance the usability, capability, accuracy or reliability of the Scrubber. Vendors are encouraged to quote for as many add-ons as their portfolio permits only 1.

Table 1: Technical Requirements

1.	Primary application	<ul style="list-style-type: none"> System should be based on a dry Chemisorption media and capable of handling multiple semiconductor process gases (hazardous, toxic and flammable) The media should bind the gases in an irreversible reaction and no further scrubbing action should be necessary
2.	Secondary application	<ul style="list-style-type: none"> Interface with the facility control software Should offer PLC based system control
3.	Tool capability	<ul style="list-style-type: none"> Absorb and form stable solid by-products with various toxic, hazardous and flammable gases as per list provided in the Gas flow column Should not require any other processes: like heating, moisturization
4.	Tools to be connected to the scrubber	<ul style="list-style-type: none"> MOCVD, ALD
5.	Expected Gas flows from MOCVD and ALD tool	<ul style="list-style-type: none"> Nitrogen : 220 SLPM Hydrogen : 200 SLPM Oxygen TMGa (Trimethylgallium) : traces TMAI (Trimethylaluminum) : traces TMIn (Trimethylindium) : traces Cp2Mg : traces CP2Fe : traces SiH4 (Silane) NH3 (Ammonia) : 38 SLPM Cl2 (Chlorine) C2H4 (Ethylene) TiCl4 (Titanium tetrachloride) : traces DEZ : (Diethylzinc) TDMAH (Tetrakis(dimethylamino)hafnium): traces TEMAH (Tetrakis(ethylmethylamino)hafnium) traces BDEAS (Bis(diethylamino)silane) Si2Cl6 (Hexachlorodisilane)
6.	Tool requirements	<ul style="list-style-type: none"> Should be able to neutralize Cl2 based by products coming from MOCVD/ALD systems Warning, systems should be available indicating the end of lifetime for the absorbing media Over pressure release valves and warning systems should be available All gas flows will be limited as per Row 5.
7.	Footprint& weight	<ul style="list-style-type: none"> The system should be compatible with placing in the clean corridor area outside the main cleanroom. Please specify the total footprint in cm x cm, and weight. Real estate is valuable, a compact system preferred.
8.	Periodic Maintenance	<ul style="list-style-type: none"> The system should require only minimal maintenance. Mention the recommended preventive maintenance schedule for the system. Any accessories needed for periodic preventive maintenance for 3 years e.g., O-rings, should be mentioned in separately the itemized quote. Can the preventive maintenance be done by a trained on-site engineer or requires a specialist from the OEM? If the latter, please provide cost of a 3-year AMC with required kit/consumables.

		<ul style="list-style-type: none"> The system should be supported by a trained local representative and should have a 48hour window of response Absorbing media should locally available, and refilling should be possible in India
9.	Installation and Training	<ul style="list-style-type: none"> Installation and training at customer site, by the experts from principals should be part of the package. During the installation all the specifications of the tool should be verified for acceptance by the customer. If periodic maintenance can be done by the on-site engineer, please include the cost of training the engineer.
10.	Power& utilities	<ul style="list-style-type: none"> The instrument should work with Indian standards Mention the power requirement. Mention any utility requirement (water, air, exhaust, etc.)
11.	Safety	<ul style="list-style-type: none"> Mention any special safety requirement of the tool The tool must come with a complement of interlocks to prevent common user errors. Sensors should be provided to detect ppb levels of gas leaks and utility failures Any malfunction should have an audible alarm system. Flashing lights during emergencies should also be an option
12.	Recommendation	<ul style="list-style-type: none"> The system must submit references from at least 3 previous installations where the system has been connected to absorb gases specified in Row 5. The names and contact addresses of the referees must be submitted with the proposal, so the purchase committee can contact them independently.

<p>Common Terms and Conditions: A separate table to be included for each of the items below in the technical bid</p>
<p>SEMI Standards: The technical bid should include details of the SEMI standards the tool confirms to.</p>
<p>Clean Room Compatibility: The system should be compatible with better than class 1000 cleanroom environment.</p>
<p>Shipping: On all systems the cost of shipping up to IISc should be included. IISc will help with customs clearance at Bangalore Airport. Please include your payment option. IISc would prefer to retain at least 20% of payment till instruments have been commissioned and successfully demonstrated.</p>
<p>Tool Training: The bid should include as an option the cost of training personnel on site before shipment and post installation at IISc.</p>
<p>Tool footprint and utilities: A floor plan should be part of the technical bid. A list of utility requirements should be part of the technical bid. The system should be compatible with 240±10V, 50 Hz single phase or 415±20V, 50 Hz 3 phase supplies. The MINIMUM set of utility requirements needed are provided in Table 1. If there are additional utility requirements, please include them in the technical bid. Please list connector types for all utilities.</p>
<p>Cost of Ownership and supply of spares: The quote should include a listing of spares that need to be replaced periodically to ensure that the system is in operation in a stable fashion – the stability parameters being defined by the vendor and agreed to by the client – the cost of such items, the ability to guarantee their availability at this cost for a period of 5 years from the time of procurement. The aim of this exercise is to compare cost of ownerships between reactors.</p>
<p>Maintenance: The cost of an annual maintenance contract and cost of emergency technical support that may involve an engineer being on site should be quoted for in the commercial bid and addressed in the technical bid. The</p>



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availability of trained engineers in India for servicing the system will be preferred and should be described in the technical bid.
Maintenance: On all systems a set of basic tools required -non-standard screw or spanner head that is required for routine tool maintenance should be mentioned- for performing routine maintenance should be included.
Maintenance: System operation, process and troubleshooting manuals and detailed drawings are a must. Their inclusion must be indicated in the technical bid.
Online support: System should have the capability for online diagnostics from a remote location in case of tool problems.
Post sales service and Indian Presence: Bidders should provide details of after sales service and support available in India. If not India, the nearest geographical location should be specified. Please provide details of the number of trained personnel in India who can service the machine, the number of tools sold in India and the corresponding number in the southern region or in Bangalore.
Shipping: On all systems the cost of shipping up to IISc should be included. IISc will help with customs clearance at Bangalore Airport.
Payment Terms and Conditions: On all systems the payment terms should be specified in the technical and commercial proposal and is subject to negotiation. Please include your payment option. IISc would prefer to retain at least 20% of payment till instruments have been commissioned and successfully demonstrated.
References: Bidders should provide details of other locations in India with similar tool installations.
References: Bidders should provide details of at least 3 other locations globally where similar tool installations have been deployed for device fabrication in a clean room preferably for production purposes.
Company financials: Bidder shall have to submit audited accounts of financial year 2017-18, 2018-19 and 2019-20. Audited statement must be signed and stamped by qualified chartered accounted. Income Tax return for assessment year – 2017-18, 2018-19 and 2019-20.
The following documentation should be provided. ISO9001 quality certification. CE marking confirmation. Must confirm to SEMI standards to be specified in the technical quoted.