



Request for quote and specifications for Metal-organic precursors and Specialty gases for use in CVD of III-nitride deposition technology

- The GEECI (Gallium Nitride Ecosystem Enabling Centre and Incubator) at SID-Indian Institute of Science is seeking bids from qualified industries for MOCVD precursors and speciality gases for production level tools like AIX G5+ C Planetary Reactor, Propel HVM GaN MOCVD System. The specifications for these consumables 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 21st 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.”
- 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 chemicals 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 MOCVD precursors, bubblers, gas cylinders and speciality gases being offered should be included. Specifications must include purity certificate and shelf life of the metalorganic precursors and speciality gases.
- 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.
- Vendors are encouraged to highlight the advantages of their MO precursors and bubblers over comparable chemicals and bubblers 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 MO precursors/bubblers. Vendors are encouraged to quote for as many add-ons as their portfolio permits.

Table 1: Technical Specifications for MOCVD precursors and Specialty gases

S. No.	Name of MO precursor	Bubbler specifications	Purity
1	Trimethyl Gallium (TMGa) CAS No. 1445-79-0	<ul style="list-style-type: none"> Stainless steel SS 316L Electropolished Orbital welded Helium leak checked < 4.5 x 10⁻⁹ mbar l/s Dual Valve with Standard VCR fittings Usable size for bubbler i.e., opening of the thermostat bath (WxLxD :150x130x160 mm, WxLxD :216x216x250 mm, WxLxD :300x350x200 mm and WxLxD :300x350x250 mm). Please include in the commercial bid the quote for maximum size of bubblers that can fit in all mentioned bath sizes. Outlet Connections 1/4" and 1/8" VCR male. Please include in the commercial bid the quote for both outlet connections. Inspection port 1/2" VCR male Refillable on request Flat bottom Please include details of the maximum mass of MO that can be filled in a bubbler that can fit in bath of the sizes given above. Please include in the commercial bid the reduction in price on increase in number of bubblers ordered in the same PO. 	Optoelectronic grade (Purity of 6N or more)
2	Trimethyl Aluminum (TMAI) CAS No. 75-24-1	<ul style="list-style-type: none"> Stainless steel SS 316L Electropolished Orbital welded Helium leak checked < 4.5 x 10⁻⁹ mbar l/s Dual Valve with Standard VCR fittings Usable size for bubbler i.e., opening of the thermostat bath (WxLxD :150x130x160 mm, WxLxD :216x216x250 mm and WxLxD :300x350x200 mm). Please include in the commercial bid the quote for maximum size of bubblers that can fit in all mentioned bath sizes. Outlet Connections 1/4" and 1/8" VCR male. Please include in the commercial bid the quote for both outlet connections. 	Optoelectronic grade (Purity of 6N or more)

		<ul style="list-style-type: none"> • Inspection port 1/2" VCR male • Refillable on request • Flat bottom • Please include details of the maximum mass of MO that can be filled in a bubbler that can fit in bath of the sizes given above. • Please include in the commercial bid the reduction in price on increase in number of bubblers ordered in the same PO. 	
3	<p>Trimethyl Indium (TMI)</p> <p>CAS No. 3385-78-2</p>	<ul style="list-style-type: none"> • Stainless steel SS 316L • Electropolished • Orbital welded • Helium leak checked < 4.5 x 10⁻⁹ mbar l/s • Dual Valve with Standard VCR fittings • Usable size for bubbler i.e., opening of the thermostat bath (WxLxD :150x130x160 mm and WxLxD :216x216x250 mm). Please include in the commercial bid the quote for maximum size of bubblers that can fit in both bath sizes. • Outlet Connections 1/4" VCR male • Inspection port 1/2" VCR male • Refillable on request • Flat bottom • Please include details of the maximum mass of MO that can be filled in a bubbler that can fit in bath of the sizes given above. • Please include in the commercial bid the reduction in price on increase in number of bubblers ordered in the same PO. 	<p>Optoelectronic grade (Purity of 6N or more)</p>
4	<p>Bis (Cyclopentadienyl) Magnesium (Cp₂Mg)</p> <p>CAS No. 1284-72-6</p>	<ul style="list-style-type: none"> • Stainless steel SS 316L • Electropolished • Orbital welded • Helium leak checked < 4.5 x 10⁻⁹ mbar l/s • Dual Valve with Standard VCR fittings • Usable size for bubbler i.e., opening of the thermostat bath (WxLxD :150x130x160 mm and WxLxD :216x216x250 mm). Please include in the commercial bid the quote for maximum size of bubblers that can fit in both bath sizes. 	<p>Optoelectronic grade (Purity of 6N or more)</p>

		<ul style="list-style-type: none"> • Outlet Connections 1/4" VCR male • Inspection port 1/2" VCR male • Refillable on request • Flat bottom • Please include details of the maximum mass of MO that can be filled in a bubbler that can fit in bath of the sizes given above. • Please include in the commercial bid the reduction in price on increase in number of bubblers ordered in the same PO. 	
5	<p>Bis (Cyclopentadienyl) iron (Cp₂Fe) or Ferrocene</p> <p>CAS No. 102-54-5</p>	<ul style="list-style-type: none"> • Stainless steel SS 316L • Electropolished • Orbital welded • Helium leak checked < 4.5 x 10⁻⁹ mbar l/s • Dual Valve with Standard VCR fittings • Usable size for bubbler i.e., opening of the thermostat bath (WxLxD :150x130x160 mm and WxLxD :216x216x250 mm). Please include in the commercial bid the quote for maximum size of bubblers that can fit in both bath sizes. • Outlet Connections 1/4" and 1/8" VCR male. Please include in the commercial bid the quote for both outlet connections. • Inspection port 1/2" VCR male • Refillable on request • Flat bottom • Please include details of the maximum mass of MO that can be filled in a bubbler that can fit in bath of the sizes given above. • Please include in the commercial bid the reduction in price on increase in number of bubblers ordered in the same PO. 	Optoelectronic grade (Purity of 6N or more)
6	Chlorine (Cl ₂)	<ul style="list-style-type: none"> • 50-liter cylinder 	100%
7	Ethylene (C ₂ H ₂)	<ul style="list-style-type: none"> • 50-liter cylinder 	100%



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Terms and conditions:

1. Vendors can quote for a subset of the chemicals above.
2. Shipping: On all the items the cost of shipping up to IISc. IISc will help the shipping company to take care of the customs clearance at Bangalore Airport. Please include your payment option. IISc would prefer payment after receipt of the chemicals.
3. References: Bidders should provide details of other locations/users across the globe where similar material was delivered.
4. The lead time for the delivery of the material should preferably be less than 4 weeks from the date of receipt of our purchase order. The smallest lead time will be appreciated. Else, the lead time should be specified.
5. The validity period of the quotation should be 90 days at least.
6. The vendor should be flexible with parts delivery. We may spread the entire requirement into 3 years and ask for delivery in lots.
7. In case of the metalorganics the use of these chemicals in III-nitride production environments elsewhere may be listed in the technical bid.
8. The quantity of bubblers and metalorganics to be purchased may change which is left to the discretion of the technical committee.