



Society for Innovation & Development
an IISc initiative

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Request for Quote and Specifications for Electronic Grade Chemicals for use in CVD and device processing 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, Indian and Foreign, for these consumables as per the specifications below.
- Unlike capital equipment that is purchased at any one point in time, consumables need to be purchased routinely. In order to ensure that our supply chain is robust we also plan to buy and qualify consumables from at least two sources.
- For Indian **Producers** – **NOT** representatives of foreign producers – this tender is open without deadline. They are welcome to contact us. GEECI will strive to work with Indian producers to qualify your chemicals for device processing and on qualification place local orders.
- 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 30 days from the date of posting of this tender and by 5 pm on the 30th day or next weekday in case the 30th day falls on a weekend.
- Companies can even bid for individual chemicals. Typical quantities required have been listed in the table. GEECI plans to place a purchase order over a fixed period
- 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 technical response, corresponding to the wafer 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 (in MS excel format) of the files for further processing. Companies should **NOT** mail soft copies of the files unless specifically requested for.
- Detailed technical specifications of the wafer being offered should be included.
- 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.

Bids should be sent to Prof. Srinivasan Raghavan, CeNSE, IISc, Bangalore, 560012. Direct all questions concerning this acquisition to Prof. Srinivasan Raghavan at geeci.sid@iisc.ac.in

Sl.No	Material Spec	Quantity
1	Aluminium evaporation material, Granules 1-3 mm, Purity 99.99 %	500 gms.
2	Gold evaporation material, Granules 1-3 mm, Purity 99.99 %	200 gms.
3	Nickel evaporation material, Granules 1-3 mm, Purity 99.99 %	500 gms.
4	Platinum evaporation material, Granules 1-3 mm, Purity 99.99 %	300 gms.
5	Titanium evaporation material, Granules 1-3 mm, Purity 99.99 %	500 gms.
6	<p>Photoresist and relevant chemicals</p> <p>Type: Positive, Negative, Image Reversal (with minimum dark erosion)</p> <p>Wavelength(nm): UV (365,375,390, 405) and DUV(248nm) (with Absorption Spectra, Contrast Curve)</p> <p>Developer: TMAH based (for Residue free development)</p> <p>Bake Temperatures: 80 to 180C</p> <p>Thickness (um): 0.5 to 1.5 (with Spin Curve, Uniformity <3% on 4" wafer)</p> <p>Resist Profile:85 to 90 degrees (with a good control on angle)</p> <p>Adhesion: Self to Si, SiO2, Pt (i.e., resist should have good adhesion with Semiconductors, Insulators and metals)</p> <p>Primer: Self HMDS, LOR or any customized</p> <p>Removers/Strippers:Non-toxic Room temperature to <80C</p> <p>Etch Resistance: Dry Etch Selectivity (1:1) or better with F, Cl, O2 and Wet etch resistance compatibility</p> <p>Shelf Life: Minimum 6 Months (12 months preferred)</p> <p>Resolution(um): UV 0.5um to 1um, DUV (0.2 to 0.8)</p> <p>Exposure Dose: >5mJ/cm2</p> <p>Relevant Documents: MSDS, TDS</p>	<p>12 Litre(minimum supply capacity per year) for resist, primer</p> <p>60 Litre(minimum supply capacity per year) for each of Developers, Removers and Strippers</p>
7	<p>eBeam Resist and relevant chemicals</p> <p>Type: Positive, Negative; (with minimum dark erosion)</p> <p>Developer: TMAH based (for Residue free development)</p> <p>Bake Temperatures: 80 to 200C</p> <p>Thickness(um): 0.05 to 0.5 (with Spin Curve, Uniformity, <3% on 4" wafer)</p> <p>Resist Profile:85 to 90 degrees (with a good control on angle)</p> <p>Adhesion: Self to Si, SiO2, Pt (i.e., resist should have good adhesion with Semiconductors, Insulators, and metals)</p> <p>Primer: HMDS, LOR or any customized</p> <p>Removers/Strippers: Non-Toxic (Room temperature to <80C)</p> <p>Etch Resistance: Dry Etch Selectivity (1:1) or better with F, Cl, O2 and Wet etch resistance compatibility</p> <p>Shelf Life: Minimum 6 Months (12 months preferred)</p> <p>Resolution(um): 0.010um to 1um</p> <p>Exposure Dose: >100mJ/cm2</p> <p>Relevant Documents: MSDS, TDS</p>	<p>6 Litre(minimum supply capacity per year) for resist and primer.</p> <p>30 Litre (minimum supply capacity per year) for each of Developers, Removers, and Strippers.</p>

8	Electronic grade chemicals as per the list below:-	
A	Trimethyl Gallium	500 gm per year
B	Triethyl Gallium	500 gm per year
C	Trimethyl Aluminum	500 gm per year
D	Trimethyl Indium	500 gm per year
E	Bis(cyclopentadienyl)magnesium	500 gm per year
F	Ferrocene	500 gm per year
G	Silane	7 m ³ of Gas at STP
H	Silane (up to 5%) + Hydrogen mixtures	7 m ³ of Gas at STP
I	Ammonia	700 kg per year
J	Carbon Tetrabromide	500 gm per year
K	Ethylene	500 gm per year

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 and is being used.
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.