



Indian Institute of Technology Madras

I.I.T.P.O., MADRAS-600 036

STORES & PURCHASE SECTION

Form for Inviting Quotations

Ref.No.

Date: 27 November 2018

CHE	2018	AKC	glovebox
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Under Certificate of Posting

Dear Sirs,

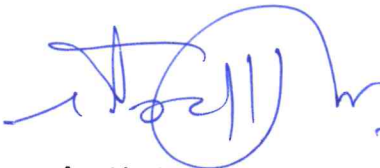
UE DATE: 7th December 2018, 3 PM

1. Quotations are invited in duplicate for the various items shown below /overleaf/ enclosed list. Quotation should contain two separate parts, a technical offer and a commercial offer, enclosed in a sealed envelopes.
2. The quotations duly sealed and superscribed on the envelope with the reference no. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D rate contract no. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the rate contract price (please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms : Quotations should be for free delivery to this Institute. If quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of GST and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for GST will be admitted at any stage and on any ground whatsoever.

The taxes leviable should take into consideration that we are entitled to have concessional GST applicable to non-Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.

9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment : Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later

Yours faithfully,



27/11/18



Dr. ARAVIND KUMAR CHANDIRAN
Assistant Professor
Department of Chemical Engineering
Indian Institute of Technology Madras
Chennai - 600 036, India

Aravind Kumar Chandiran
Assistant Professor
CHL 206A, Chemical Engineering Laboratory
Department of Chemical Engineering
Indian Institute of Technology
Chennai-600036.
aravindkumar@iitm.ac.in

Technical Specification for an Inert Atmosphere Glove Box with Weighing Balance

IIT MADRAS is looking to procure an inert atmosphere glove box with a weighing balance. On top of the standard fittings and components, the quoted product should satisfy the following basic requirements/specifications. The bidder should be an Indian company who supplied at least one such system to IIT Madras in the last 5 years. The bidding company should have service engineer stationed in Chennai/Bangalore or nearby area. A detailed technical compliance statement should be provided along with the technical bid. IIT-M reserve rights to disqualify the bid, if no suitable technical compliance statement is submitted.

1. Glove Box.

- The glove box dimension should be 180 cm(Length)×85 cm(Depth)×80 cm(Height)
- The box should be made of corrosion resistant stainless steel, preferably SS304 or better, with appropriate sheet metals, frames and connectors.
- The front side of the box should have transparent and rigid polycarbonate material with provisions to attach three (8 inch each) gloves
- All the three ports should be connected with butyl gloves with sufficient length to handle materials inside the chamber.
- Butyl gloves should have low permeability to water and oxygen.
- Shelves made of stainless steel should be provided on back and side walls of the box.
- 2 Nos. of electrical ports each with 3 points carrying 15A 230V should be provided inside the chamber.
- Provision for insertion of two gas lines should be provided.
- Entire glovebox should be supported by rigid metal frames from floor level.

2. Ante Chambers.

Two Ante Chambers should be provided as per following specifications.

- Big Ante Chamber
Dimensions – 35cm(D)×50cm(L)
Material- Stainless steel with aluminum door.
Sensors- Should be fitted with a pressure gauge which measures both positive and negative pressure
Connections- Should have connection to vacuum pump with suitable valve. One other connection should be there with glove box with suitable valve.
Accessories- A SS tray should be provided for loading and unloading of materials.
- Small Ante Chamber
Dimensions – 15cm(D)×20cm(L)
Material- Stainless steel with aluminum door.
Sensors- Should be fitted with a pressure gauge which measures both positive and negative pressure.
Connections- Should have connection to vacuum pump with suitable valve. One other connection should be there with glove box with suitable valve.
Accessories- A SS tray should be provided for loading and unloading of materials.



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3. Air Purification Unit.

The glove box should be connected to an air purification system to maintain the O₂ and H₂O concentration inside the box to less than 0.1%. Air purification system should consist of following:

- HEPA Filters should be provided at inlet of the glove box.
- To remove the O₂ from the gas, 5 kg of copper catalyst should be provided. The catalyst should be Q₅ (13% CuO in Alumina Matrix)/BASF made R3-11G or equivalent.
- 5kg of molecular sieves to remove the moisture from the gas. Suitable molecular sieves that can only trap water, should be provided.
- Solvent Trap (Activated Carbon) followed by a carbon trap should be provided in purification line. Suitable heating arrangement and a vacuum connection should be provided to reactivate the carbon.

4. Regeneration Unit

To regenerate the copper catalyst and molecular sieves provision should be made to pass H₂+N₂ gas. While process of regeneration Glove box should be completely isolated, suitable valves should be provided. Heating arrangement for H₂+N₂ gas and molecular sieves should be provided.

5. Foot Switch arrangement.

A foot Switch should be provided to maintain the barometric pressure inside the Glove box.

6. Sensors.

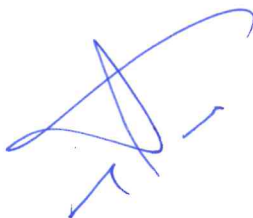
- Pressure gauges should be provided one each to glove box and two ante chambers. Pressure gauges should be capable of measuring both positive and negative pressure.
- A temperature sensor should be provided inside the glove box.
- Oxygen analyzer and humidity Sensors should be attached to the glove box.
- Suitable type of valves should be provided at suitable locations as per requirement of process.

The specifications of all the sensors and valves should be mentioned in the offer.

7. Blower and Chiller.

- Blower should be selected so as to maintain the suitable flow of gas to keep the O₂ and H₂O concentration inside the box less than 0.1%. Same has to be provided with the glove box.
- A chiller of suitable capacity has to be provided to maintain the temperature of gas inside the glove box to 25°C.

8. Vacuum Pump.

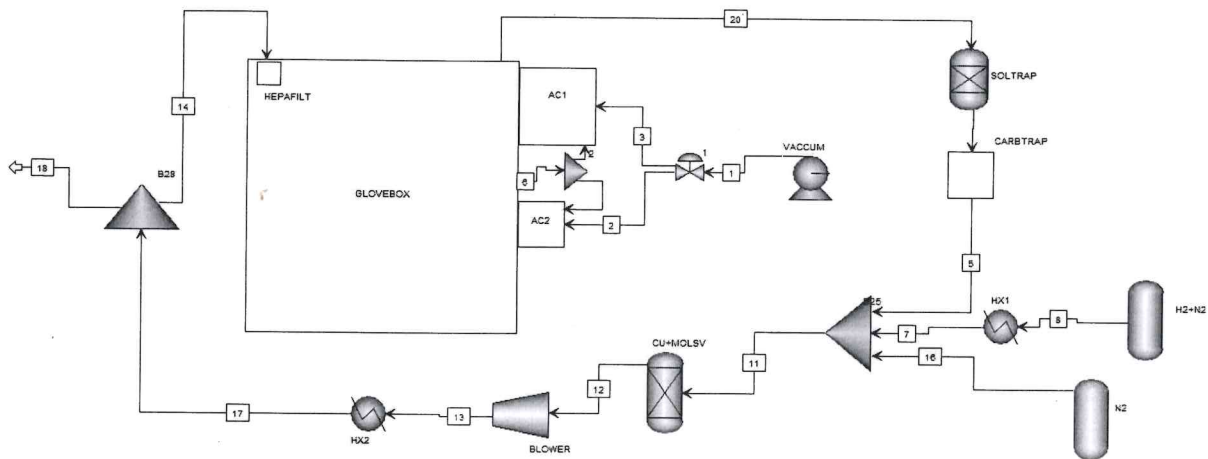


A vacuum Pump of suitable specifications and capacity should be provided with the glove box for operation.

9. Digital Display.

A digital display panel should be provided showing temperature, pressure and concentration values of O₂ and H₂O inside the glove box.

10. All the components/parts mentioned from points 1 through 9, should be assembled as per the attached diagram (or closest equivalent), with ultralow water and oxygen ingress to maintain the oxygen and humidity level to less than 0.1%.



11. Weighing Balance.

A digital weighing balance having least count of 0.1mg (preferably Satorius or Mettler Toledo made), with top and side covers that encloses the weighing pan, should be provided along.

12. Warranty: The product should come with standard one year warranty from the date of commissioning the glove box at IIT-Madras.

13. Vendor/Manufacturer should have supplied a similar inert atmosphere glove box to IIT-Madras in the last five years. The name of the customer in IIT-Madras should be provided. IIT-Madras reserve right to inquire the bidder's IIT-M customer about the prior experience about their products and service. If the quality of the product and service received by IIT-M customer, found dissatisfactory, the bidder may be disqualified under technical grounds.

14. The service engineer for the product should preferably be available in South India, and most preferably in Chennai or Bangalore area.

15. Optional items to be quoted.

- Hot Plate and Spin Coater of suitable size and specifications should be quoted along with the rest.

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