

COIR BOARD
CENTRAL COIR RESEARCH INSTITUTE
KALAVOOR P.O, ALAPPUZHA
(Ministry of Micro, Small and Medium Enterprises, Govt. of India)

TENDER NOTICE

No.CCRI/2016/SP/CHEM/4/8

Date:31.07.2017

Sealed tenders in two cover system and in the prescribed format are invited by the Director, RDTE, Central Coir Research Institute, Coir Board, Kalavoor P.O. Alappuzha - 688 522 from the Scientific Equipments manufacturers/authorized dealers for the supply of **Scientific Equipments for Chemistry Department at CCRI.**

Sl.No.	Description	Qty.	EMD in ₹
1	Toxicity Index Chamber (tester) as per NCD 1409	1 No.	5000/-
2	Equipment for Resistance to spread of flame as per UIC-564-2 Appendix 8 / ISO 3582	1 No.	

The tender form can be downloaded from the website of the Board www.coirboard.gov.in / www.ccriindia.org or from the Office of the Director, RDTE, Central Coir Research Institute, Kalavoor-688 522, Alleppey, Kerala, PhoneNo.0477-2258094, 2258480

The last date for issue of tender documents is 11.00 hrs on 22nd August, 2017. Tenders in sealed cover with EMD as stated above in the table (along with the technical bid) in the form of DD drawn in favour of **"The Secretary, Coir Board"** payable at Alappuzha or Bank Guarantee equivalent to the EMD amount will be received by the Director, RDTE, Central Coir Research Institute, Coir Board, Kalavoor up to 15.00 hrs. on 22nd August, 2017.

A Pre-Bid Meeting will be convened on 21st August, 2017 at 12.00 hrs. at Central Coir Research Institute, Kalavoor, Alappuzha-688522.

The Secretary, Coir Board, Kochi reserves the right to reject any or all tenders without assigning any reason whatsoever. For any clarification contact Central Coir Research Institute, Kalavoor-688 522, Alleppey, Kerala State, India PhoneNo.0477- 2258480, 2258094,-16. Ph.No.0484-2351788, 2351807.


DIRECTOR, RDTE
Central Coir Research Institute,
Kalavoor

COIR BOARD
CENTRAL COIR RESEARCH INSTITUTE
KALAVOOR P.O, ALAPPUZHA
(Ministry of Micro, Small and Medium Enterprises, Govt. of India)

TENDER SCHEDULE

From

The Director, RDTE,
Central Coir Research Institute (CCRI),
Coir Board, Kalavoor P.O,
Alappuzha -688 522

To

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The Central Coir Research Institute, Kalavoor invited sealed tenders for the supply of **Scientific Equipments for CCRI.**

Due date and time for issue of the tender : Till 11.00 hrs. on 22nd August, 2017

Due date and time for pre-bid conference : 12.00 hrs. on 21st August, 2017

Due date and time for receipt of completed tender : Till 15.00 hrs. on 22nd August, 2017

Due date for opening of Tender Technical Bid (First stage) : 15.30 hrs. on 22nd August, 2017

Due date for opening of Tender Commercial Bid (Price Bid) second stage : After finalization of first stage Tender

N.B: 1. Tenders received after the due date and time will not be accepted under any circumstances.

2. In case the above tender opening date happens to be a declared holiday, the tender shall be opened on the next working date at the same time.

1. Tender should be submitted to the Director, Central Coir Research institute, Kalavoor, Alappuzha-688 522.
 - 1-1 The Secretary, Coir Board reserves the right to accept or reject any tender without assigning any reason whatsoever
 - 1-2 Tenderer has to abide by the instructions, terms and conditions and specifications contained in the Tender document. Failure to furnish all information required in the Tender document or submission of a Tender not substantially responsive to the Tender document in any respect will be at the Tenderer's risk and may result in the rejection of his Tender.
 - 1-3 This Tender document is not transferable. Not more than one Tender against this Tender document shall be submitted. This will be the case even if they represent two principles as their agents/representative.

2. PREPARATION OF TENDER

Language of Tender

Tender prepared by Tenderers and all correspondence and documents relating to the Tender exchanged by Tenderer shall be in English. If any printed literature in any other language is furnished it shall be accompanied by an English translation, for the purpose of interpretation of tender the English translation shall govern. All particulars shall be legible, type written or printed.

3. DOCUMENTS COMPRISING TENDER

This Tender consists of two parts - Technical Bid (First Stage) and Commercial Bid or Price Bid (Second stage).

Technical Bid (First Stage) :

The technical bid prepared by Tenderers shall be labeled "FIRST STAGE TENDER".

It shall contain 2 parts, 'A' part and B' part. The 'A' part is pertaining to the details of the Manufacturer. The 'B' part is pertaining to the details of the Scientific Equipments with complete description and services the Tenderer intends to provide and shall comprise the following:

- i. Installation of Scientific Equipments.
 - ii. Trial run.
 - iii. Training to the Technicians and workers.
 - iv. Period of warranty with replacement of spares.(Minimum 1 year)
 - v. Warranty should be extended on expiry of the said warranty and rate for the warranty extension should be quoted separately
 - vi. Warranty starts only after installation and commissioning of the machine
- The format of the technical bid is given in ANNEXURE-1

b) Previous performances

1. Documentary evidence to tenderer's qualification to perform the contract if his tender is accepted, which shall establish to the satisfaction that: the tenderer has the financial, technical and production capacity necessary to perform the contract and in particular, has the experience of having designed, manufactured and supplied sufficient number of Scientific Equipments having the same like specifications and of the same or higher capacities and are in successful operation and also has the experience of having erected and for erection, start-up and commissioning. Relevant detail about experience in execution of similar works of Scientific Equipments should be furnished as per the format in Annexure-2
2. The documentary evidence of Scientific Equipments conforming to Tender Document may be in the form of literature, drawings and data, and the Tenderer shall furnish:
 - i. A detailed description of Scientific Equipments, essential technical and performance characteristics as per Tender specifications.
 - ii. Earnest Money Deposit as stated above in the table (along with the technical bid) should be enclosed in the form of D.D. drawn in favour of The Secretary, Coir Board taken from any of the Nationalised Bank or Bank Guarantee equivalent to the EMD amount.
 - iii. Tenderer shall furnish with the Tender, along with his PAN and the Sales Tax Registration Number of both Central and State with validity period.

4. Commercial bid or Price bid (Second Stage):

The second stage tender covers the price aspect of the Scientific Equipments. The price of the Scientific Equipments should be inclusive of transportation, after sale service and all type of taxes. The format of the commercial bid is given in Annexure-3. The prices should be for "F.O.R. SITE "at Central Coir Research Institute, Kalavoor P.O, Alappuzha-688 522.

5. Tender Form

5-1 As part of his First Stage Tender, - Technical Bid, Tenderer shall submit the Tender Form in the format furnished in the Tender Document, a detailed description of Scientific Equipments with technical specification with quality and production capacity. NO PRICE SHALL BE OFFERED IN THE TENDER FORM IN TECHNICAL BID.

5-2 'B' part of the Technical bid should be furnished separately for each Scientific Equipments.

5-3 As part of his Second Stage Tender (Price Bid) Tenderer shall submit the Tender Form, as per format (Price schedule) furnished in the Tender Document duly completed in all respects, which will include the unit price/total price for each Scientific Equipments and lump sum price for erection, start-up commissioning and servicing.

6. Payment and Delivery

6-1 The successful Tenderer should give a performance Guarantee of 5% of the quoted amount. All payments to successful Tenderer shall normally be made by means of "Account Payee" cheque.

- i. 30% of the payment will be released as advance against bank guarantee.
- ii. 40% of second installment after completing the fabrication and supply of the Scientific Equipments.
- iii. 25% after completion of installation and proper wiring.
- iv. 5% of the balance payment would be released on fulfillment of all terms and conditions and successful running of the Scientific Equipments
- v. Interest at the admissible rate will be charged for advance amount if any released.

6-2 Duties and Taxes

- i. The price quoted on F.O.R. site of beneficiaries concerned shall be inclusive of all taxes and levies. Tenderer shall be solely responsible for payment of these duties and taxes.
- ii. Excise Duty, Sales Tax, Entry Tax and other levies applicable such as additional taxes, surcharges on taxes and incidentals should be separately indicated in the tender. In respect of items which do not attract the levies, the fact should be specifically mentioned in the tender. If any of the item/parts are to be imported, the party may be informed well in advances since Central Coir Research Institute, Coir Board, Kalavoor is having Customs Duty and Central Excise Duty Exemption in terms of Government notification No. 51/96 and 10/97 respectively. This office does not have "C" form or "D" form

6-3 Delivery

The delivery of the Scientific Equipments ordered shall be completed within the time limit prescribed in the purchase order to enable completion of erection and commissioning within 3 months from the date of issue of purchase order. This aspect will be taken up for discussion during the evaluation of the technical bid.

7. Earnest Money Deposit

7-1 Every Tenderer shall furnish, along with Tender Document EMD as stated above in the table. It has to be furnished in the form of a Demand Draft from any Nationalised Bank in favour of The Secretary, Coir Board, payable at Alappuzha, Kerala or Bank Guarantee equivalent to the EMD amount. The EMD will carry no interest. It should remain valid for 45 days beyond the final bid validity period.

7-2 Tenders received without the EMD will be rejected.

7-3 SSI Unit having valid registration with NSIC is exempted for payment of EMD.

8. Period of validity of Tenders

- 8-1. The Tender will be valid for a period of 90 days after the date of opening of the Tender prescribed by the Central Coir Research Institute, Coir Board. Tenders with validity for a shorter period are liable for rejection by CCRI, Coir Board as non-responsive.
- 8-2. In exceptional circumstances Coir Board may solicit the Tenderers consent to an extension of the period of validity. The request and the responses thereto shall be made in writing.

9. Format and Signing of Tender

- 9-1. The copies of tenders shall be typed legibly and neatly. All pages of Tender schedule shall be signed by the person or persons signing Tender who shall be authorized signatory of the Tenderer.
- 9-2. Tender shall contain no interlineations, erasures or overwriting except as necessary to correct error made by the Tenderer, in which case such corrections shall be signed by the person or persons signing the Tender.
- 9-3. All pages of the Tender and the accompanying documents shall be with full signature at the lower right hand corner and signed wherever required by the Tenderers or persons holding the Power of Attorney, before submission of the Tender. Unsigned Tenders and Tenders which are incomplete, obscure, irregular and / or otherwise considered as defective and are liable for rejection.

10. TENDER SUBMISSION

- 10-1. The Tenderer shall submit the two Tenders namely, the First Stage Tender (Technical Bid) and Second Stage Tender (Price Bid) at the same time in two separate sealed covers superscribing the respective bids viz. First Stage Tender (Technical Bid) and Second Stage Tender (Priced Bid). Both the sealed covers will be put in an outer cover duly sealed and superscribed as **"TENDER FOR SUPPLY OF SCIENTIFIC EQUIPMENTS FOR CHEMISTRY LAB AT CCRI"**.
 - a. The inner and outer envelopes shall be superscribed as: The Director, RDTE, Central Coir Research Institute, Coir Board, Kalavoor P.O, Alappuzha-688 522 **and Shall** bear on the top left hand corner, **"TENDER FOR SUPPLY OF SCIENTIFIC EQUIPMENTS FOR CHEMISTRY LAB AT CCRI"**
 - b. The inner envelope shall, in addition, indicate the name and address of the Tenderer to enable the Tender to be returned unopened in case it is received late. If the outer envelope is not sealed and marked as required will not assume any responsibility for the Tender's misplacement or premature opening.
- 10-2. Tenders by cable, telegram, email, telex or tele-fax will not be considered.
- 10-3. On opening outer envelope if either the 1st stage Tender or 2nd stage Tender is missing, the Tender will be considered as invalid and rejected.

11. Due Date for Opening of Tenders

Central Coir Research Institute, Coir Board may at its discretion, extend this due time for submission of Tenders by amending the Tender document.

12. Late Receipt of Tenders

Any Tender received by Central Coir Research Institute, Kalavoor P.O, Alappuzha after the due time for submission of Tender prescribed by Central Coir Research Institute, Kalavoor P.O, Alappuzha will be rejected and / or returned unopened to the Tenderers.

13. Opening and evaluation of First Stage Tenders-Technical Bids (ANNEXURE- 1)

- 13-1. The Tenderer or his representative who will be able to comment on all issues pertaining to this Tender shall necessarily be present at the time of opening of this Tender. CCRI will open the First Stage Tenders in the presence of Tenderer's representative at 15.30 hrs on the date specified in the Tender document, in the presence of the Tender Opening Committee.

- 13-2 Changes and alterations which materially alter the Tendered prices are not permitted after the opening of the Tender document.
- 13-2 Name of Tenderers and such other details as CCRI, Coir Board as its discretion may consider appropriate will be read out at the time of opening.
- 14 Preliminary examination of First Stage Tenders – Technical Bid**
- 14-1 CCRI, Coir Board will examine the First Stage Tenders – Technical Bid to determine whether they are complete, whether all documentary evidences and EMD as required have been furnished, whether the documents have been properly signed, and whether tenders are generally in order.
- 14-2 Tenders that do not provide all the information required may be declared invalid and rejected.
- 15 Evaluation of First Stage Tenders – Technical Bid**
- 15-1 CCRI, Coir Board will proceed with a detailed evaluation of Tenders to determine whether the Technical proposals (without price schedule) comprising the Tender are substantially responsive to the requirement set forth in the Tender document. In order to reach such a determination CCRI, Coir Board will examine and compare the Technical aspects of the Tenders based on the information supplied by the Tenderers.
- 16. INTEGRITY PACT (IP) – Applicable for jobs above Rs.5.00 lakhs.**
Bidders are requested to sign & return our pre-signed IP document as per Annexure IV. This document is essential & binding. Bidder's failure to return the IP duly signed along with Technical Bid Document shall result in the bid not being considered for further evaluation.
- 17 Review of the Tenderer's qualification**
- 17-1 Central Coir Research Institute will then determine whether the Tenderers having submitted substantially responsive technical and commercial offers are qualified to satisfactorily perform the contract. Accordingly CCRI, Coir Board will examine the financial, technical, previous experience and production capability of each Tenderer to determine whether the minimum acceptable criteria have been met. Such determination shall be based on the information submitted by the Tenderers, as well as on any other information at CCRI, Coir Board may consider necessary to obtain and review in order to reach such determination.
- 17-2 The technical and production capability of each Tender will be assessed by the Tender Opening Committee on the basis of technical specifications and production capability of the Scientific Equipments assessed by the committee.
- 18 Notification of First Stage Technical Bid evaluation. (ANNEXURE-1)**
- 18-1 Coir Board will evaluate the tenders and reject the Tender/tenders which is/are substantially non-responsive or/and which are not meeting the minimum qualification/requirements.
- 18-2 Based on technical specification, financial and production capability, the First Stage Tender will be evaluated. The successful Tenderers will be notified. The second stage Tender (Price Bid) of the unsuccessful Tenderer in the first stage Tender will not be opened. Hence their second stage Tender will not be considered.
- 19 Notification for opening and evaluation of second stage tenders (Price bid).**
- 19-1 CCRI, Coir Board will examine the Second Stage Tenders to determine whether they are complete, whether any computational errors have been made, whether the documents have been properly signed, and whether the Tenders are generally in order.
- 19-2 The comparison of the rates offered shall be on the basis of the total rates offered inclusive of all taxes, after sale service etc.
- 19-3 In addition to the Tender Prices, suitability of the Scientific Equipments in the particular area of production will also be considered before arriving at a decision.

- 19-4 In respect of erection, startup commissioning, the comparison will be on the total lump sum price.
- 19-5 In order to secure the best possible procurement price negotiations with LI Tenderer shall be conducted, if the tender opening committee feels necessary.

20 AWARD OF CONTRACT

20-1 Award Criteria

Based on the detailed evaluation report prepared and accepted by the Tender Opening Committee, CCRI, Coir Board will award the contract to the successful Tenderer whose Tender has been determined to be substantially responsive provided further that the Tenderer is determined to be qualified to perform the contract satisfactorily.

- 20-2 The Secretary, Coir Board reserves the right to accept or reject any Tender, to annul the Tendering process and reject all Tenders at any time prior to award of contract, without assigning any reason.

- 20-3 The Secretary, Coir Board reserves the right to distribute the contract to more than one Tenderer/Contractor.

21 Notification of Award

- 21-1 Prior to the expiry of the period of Tender validity, CCRI, Coir Board will notify the successful Tenderer in writing by registered letter confirming the acceptance of the Tender.
- 21-2 The notification of award will constitute the formalizing or conclusion of the contract.

22 Signing of Contract

- 22-1 Along with the notification to the successful Tenderer that his Tender has been accepted, Coir Board will send the formal contract incorporating all the terms and conditions.
- 22-2 Within 10 days of receipt of the formal contract, the successful Tenderer shall sign the contract with the CCRI, Coir Board on a stamp paper of Rs.100/-.
- 22-3 Failure of the successful tenderer to comply with the requirement of this clause constitute sufficient grounds for the annulment of the award and forfeiture of the EMD, in which event CCRI, Coir Board may make award to the next rated tenderer or call for new tender.

23 Erection and supervision

- 23-1 The Scientific Equipments should be installed under the supervision of the supplier and trial run should be conducted.
- 23-2 The production capacity of the Scientific Equipments should be demonstrated and the 2 persons should be trained.
- 23-3 Performance guarantee should also be offered for a minimum period of two years.
- 23-4 The electrification of the Scientific Equipments should be done under the supervision of the supplier

24. Pre-Bid Conference

A pre-bid conference will be conducted at Central Coir Research Institute, Kalavoor, Alappuzha -Ph.0477-2258094, 2258933 for clarifying issues and clearing doubts, if any, about specification and other allied technical details.

25 Settlement of Disputes

Any dispute relating to this contract or on account of any other reason whatsoever shall be settled amicably by the parties hereto, through discussions and agreement, in a spirit of mutual goodwill and understanding. However, in the unlikely event of any dispute or disputes remaining unresolved even after mutual discussion, such dispute or disputes may be referred to an Arbitrator to be appointed by the Parties hereto by mutual agreement. If no such Arbitrator could be appointed by mutual consent, the matter may then be referred to the Chairman, Coir Board, for nominating an Arbitrator, the Arbitration proceedings being governed by the Arbitration and Conciliation Act 1996. The venue of Arbitration shall be at Cochin and the Courts in Cochin shall have exclusive jurisdiction over any application that may be filed by either party in this empanelment in relation to any dispute arising out of or in the course of or in connection with this contract and also in respect of any application under the provisions of Arbitration and Conciliation Act 1996.

26 General Terms and Conditions

1. The terms and conditions of the work will be interpreted in Indian Laws and will be under the jurisdiction of judicial court at Kochi, Kerala.
2. Conditional bidding of price and conditional offer of discounts will not be accepted and such offers can render the bids liable for rejection. The amount quoted should be written in words and figures. Any correction, over writings will have to be attested.
3. Bids shall be submitted in sealed cover only. Bids through fax, e-mail etc. will not be entertained.
4. The bidders should indicate their valid service tax registration number, Income tax PAN in the Tech bid.
5. Incomplete bids and unauthenticated bids and bids received after the stipulated time will be summarily rejected.
6. The invitation for Bids is not an offer and is issued with no commitment. Coir Board reserves the right to withdraw the invitation and change or vary any part thereof at any stage. Coir Board also reserves the right to disqualify a bidder, should it be so necessary at any stage.
7. Coir Board reserves the right to withdraw this invitation of Bids if it determines that such action is in the best interest of the Board.
8. Timing and sequence of events resulting from this invitation shall ultimately be determined by Coir Board.
9. The bidders shall have no claims whatsoever against Coir Board arising out of, or relating to this invitation of Bids or these procedures (other than those arising under a definitive service agreement with the bidder in accordance with the terms thereof).
10. Bidders, who are found to canvass, influence or attempt to influence in any manner the qualification or selection process shall be disqualified from the process at any stage.
11. By submitting a proposal, each bidder shall be deemed to acknowledge that it has carefully read all the conditions and limitations.
12. The Technical bid should include the terms and conditions of payment.
13. Coir Board reserves the right to short list the parties responding to this notice on the basis of the evaluation of the Technical Bids before opening of the price bids. Submission of more than one bid by the same party will be a disqualification.

14. The bidders will have the liberty to raise question on the tender procedures and the tender documents.

The successful tenderer should demonstrate the production for output guaranteed and also train the staffs of the unit to operate the Scientific Equipments.

Yours faithfully,



DIRECTOR, RDTE

I/We hereby read carefully the above terms and conditions of Tender and agree to abide by the terms and conditions laid down in the tender notice and shall execute the orders accordingly.

Signature:

Name :

Address :

Place:

Date :

FORMAT FOR FIRST STAGE TENDER-TECHNICAL BID

PART – A-1

1. **Name of the Tenderer** :
- 1.1 Full address with PIN Code :
- 1.2 Telephone Nos. :
- 1.3 email ID :
- 1.4 Fax Nos. :
- 1.5 Contact Person(s) :
2. **Company particulars**
- 2.1 Constitution/Company profile :
- 2.2 If the Company is Proprietary/Partnership
give the name and address
of Proprietor/ Partners/Directors. :
- 2.3 The State in which the Company is registered :
- 2.4 Company Registration No. :
- 2.5 Name & address of the Bankers :
- 2.6 No. of years in business :
- 2.7 ISO Certification No. :
- 2.8 MSME acknowledgement No. and date :
- 2.9 NSIC Registration :
- 2.10 Register with any other organization :
- 2.11 No. of employees :
- 2.12 Details of infrastructure available
(attach a separate sheet) :
3. **Financial Data:**
- 3.1 Sales turnover for the last three years :

3.2 Profit after tax for the last three years
(audited statement) :

3.3 Permanent Income Tax Account No. :

3.4 VAT Registration No. :

3.5 TIN :

3.6 Service Tax Registration No. :

Name

Date

Signature

Seal

Designation (Authorized Signatory)

Note:

1. All requisite information shall be given in the format with reference to the item specified. Where space is insufficient, additional pages may be added with reference to the related paragraph.
2. Wherever enclosures are specified in the questionnaire, the same shall be enclosed.
3. Coir Board reserves the right to verify any of the statements enclosed along with the technical bid. Any additional information/documents required shall also be furnished. False statement shall disqualify the Tenderer.

PART – B
(Separate form for each machine)

1. Product profile, Product range and
Production capacity - product wise :

2. Man power requirement. :

3. Detailed description of each Equipments :
 - a) Size :
Length :
Width :
Height :

 - b) No. of Motors. :
(with brand & KWA)

 - c) Technical details. :

4. Performance details :

5. Details of after sale services :

There would not be any change in the above mentioned specification. The terms and conditions stipulated by the Coir Board. are acceptable to me.

Signature:
Name :

(Seal)

COIR BOARD

(MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES,
GOVERNMENT OF INDIA)
P.B.No.1752, M.G.Road, Kochin-16.

FORMAT FOR SECOND STAGE TENDER-PRICED BID

Name of the Tenderer

Sl. No.	Name of the Scientific Equipments	Qty	Unit price	Total price including all types of taxes, insurance services etc.

Total amount should be mentioned in words and figure without correction and error.

TECHNICAL SPECIFICATIONS
FOR SCIENTIFIC EQUIPMENTS FOR CCRI

1. Scope of Work

This Specification covers the requirements of the fabrication and supply of Scientific Equipments to Central Coir Research Institute, Kalavoor P.O. Alappuzha -688 522 including design, manufacture, testing at vendor's shop floor, supply, unloading, erection and commissioning at the CCRI as per technical specification given and meeting the standards of inspection and performance as agreed to during placement of order. The technical requirements given here are only indicative and not descriptive and the supplier shall ensure that the Scientific Equipments supplied are complete in all respects for the smooth operation of the laboratory. The Scientific Equipments should be designed as per relevant standards and shall have necessary built-in systems for ensuring safe operation. There are two packages in this Tender and the tenderer shall quote for all the packages as per this tender document. The Purchaser reserves the right to reject those Tenders which are incomplete. The Scientific Equipments and all parts/accessories offered by the tenderer shall be new and unused.

2. Codes and Standards

All the Scientific Equipments design / manufacture, testing, installation and commissioning shall comply with the latest edition of Indian/ International Standards. All Scientific Equipments shall comply with the statutory requirements of the Govt. of India. The Scientific Equipments and installation shall conform to the provision of statutory and other regulations in force.

3. Toxicity Index Chamber (tester)

3.1 Specification for Toxicity Index Chamber (tester) as per NCD 1409

Overview: It is used to determine the toxicity index of the material from small specimens.

General Specifications:

1. Scientific Equipments Body: MS powder coated or better
2. Scientific Equipments should be compatible with Indian power supply with digital indicators for current and test voltage.
3. TOXICITY TESTER should perform the tests as per - NCD 1409 & RDSO Specification

Accessories:

1. Gas detection tubes as per NCD 1409
2. Pump for gas detection tubes
3. Other necessary items - Basic Spare parts Kit -4. Natural methane gas cylinder

Detailed Specifications

- Airtight enclosure of about 0.7m³ volume lined with opaque plastic sheeting having a hinged, fitted with a transparent plastic panel. The inner wall has the lining of polypropylene and with polycarbonate transparency window is provided.
- The chamber fitted with a vacuum pump forced air extraction system, which can be closed at the exit from the chamber when required.
- The chamber fitted with sampling positions such that the air tightness of the chamber is not impaired.

- The chamber containing a mixing axial fan inside the chamber at horizontally and centrally inside the chamber at roof level to ensure rapid mixing of combustion products capable of being switched on and off externally.
- Burner is to be capable of achieving a flame approximately 100 mm in height with 125mm overall height, 11mm bore burner tube, 5mm bore gas, air inlet tubes and having a temperature $1150^{\circ}\text{C} \pm 50^{\circ}\text{C}$, operating on natural methane gas having gross calorific value of approximately 40 MJ/m^3 . The burner is fitted at the center of the chamber. There is a provision is to be made for igniting and extinguishing the burner from outside the chamber. A digital temperature indicator is also mounted for the measurement of temperature of the flame of the burner.
- specimen support
The specimen support - an annulus cut from a sheet steel nominal thickness 2 mm of approximately 100 mm overall diameter with a 75 mm diameter hole carrying temperature resistance wires approximately 10 mm apart to form a lattice.
- Timing device
Accurate to $\pm 1 \text{ s}$
- Analytical Scientific Equipments
For the rapid detection and estimation of combustion gases.
- Gas sampling

3.2. Scientific Equipments for Resistance to spread of flame as per UIC-564-2 Appendix 8 / ISO 3582

Installation and commissioning of the machine & training of 02 persons must be included free of cost.

Scientific Equipments should be compatible with Indian power supply with digital indicators for current and test voltage.

Resistance to Spread of flame tester should perform the tests as per - UIC-564-2 Appendix 8 / ISO 3582

Specification for Scientific Equipments for Resistance to Spread of flame as per UIC-564-2 Appendix 8 / ISO 3582

Test chamber

- Constructed of non combustible materials for example insulating board on a steel frame, having inside dimensions 600mm ± 5 mm in length, 300mm ± 5 mm in height.
- The chamber may be designed so that the front panel containing the window is removable but, if so constructed provision shall be made for ensuring that draught-proof seal is obtained when the panel is in position
- The chamber shall be draught-free, yet permit normal thermal circulation of air past the test piece during burning.

Burner

- Internal diameter $9.5\text{mm} \pm 0.5\text{mm}$, connecting tubes should be provided along with the burner.
- Gaseous hydrocarbon fuel used
- Temperature around $1000^\circ\text{C} \pm 100^\circ\text{C}$ at a height of $13\text{mm} \pm 1\text{mm}$ above the burner top.

Wing top

- Having an opening of internal length $48 \pm 1\text{mm}$ and internal width $3\text{mm} \pm 0.2\text{mm}$

Support gauze

- 215mm long, 75mm wide and having 13mm of its length bent to form a right angle. it shall consist of 6.4 mm mesh gauze constructed from 0.8mm diameter stainless steel wire.

a minimum of four supports shall be available

Support gauze holder

- constructed from mild steel
- gauze is maintained with its long axis within 1° of the horizontal, and parallel to the 600 mm dimension of the test chamber
- nearest end of the test piece is $13\text{mm} \pm 1\text{mm}$ above the burner wing top
- the space between above and below of the test piece is unobstructed
- means is provided for positioning the burner in the correct position relative to the test piece
- the gauze is equidistant from the front, back and sides of the test chamber, and is $175\text{mm} \pm 25\text{mm}$ above the base of the test chamber

Timing device

- accurate to $\pm 1\text{ s}$

Measuring scale

- graduated in millimeters

Installation and commissioning of the machine & training of 02 persons must be included free of cost.

Tax and other levies if any, Packing and forwarding charges, Transit Insurance Transportation Charges, AMC charges for a minimum period of two years after warranty period. Any other expense if any