



**हिंदुस्तान ऑर्गेनिक केमिकल्स लिमिटेड HINDUSTAN ORGANIC CHEMICALS LTD**  
**(भारत सरकार का उद्यम A Government of India Enterprise)**  
**अंबलमुगल, कोची AMBALAMUGAL, COCHIN – 682 302**  
**दूरभाष Phone: (0484) 2720911**

**MAT/PUR/33094/23**

**28.07.2023**

Dear Sirs,

**SUB:- WATER TREATMENT CHEMICALS**

**REF:- TENDER NO.MAT/PUR/33094/23 DT. 28.07.2023**

Hindustan Organic Chemicals Ltd. is a Govt. of India Undertaking manufacturing Phenol, Acetone & Hydrogen Peroxide at its plant at Kochi, Kerala, India. HOCL invites e-tender for finalizing the contract for the supply of chemicals and monitoring of cooling water treatment and boiler water treatment for a period of 2 years in two bid system. Detailed specification and scope of work is given in the tender documents

You may submit your offer on Two bid system online before the due date and time specified.

Thanking you,

Yours faithfully,

For Hindustan Organic Chemicals Ltd.

**बी बालचन्द्रन B. BALACHANDRAN**

**महा प्रबन्धक (सामग्री) General Manager (Materials)**

**हिंदुस्तान ऑर्गेनिक केमिकल्स लिमिटेड**

**HINDUSTAN ORGANIC CHEMICALS LIMITED**

**(भारत सरकार का उद्यम A Govt.of India Enterprise)**

**अंबलमुगल, कोची, केरल Ambalamugal, Kochi, Kerala-682302**

**Tel:0484-2727346.**



**HINDUSTAN ORGANIC CHEMICALS LIMITED**  
**(A GOVERNMENT OF INDIA ENTERPRISE)**  
**AMBALAMUGAL, ERNAKULAM DISTRICT, PIN – 682 302**  
**PHONE: (0484) 2720911, FAX No. (0484) 2720893**

Hindustan Organic Chemicals Ltd. is a Govt. of India Undertaking manufacturing Phenol, Acetone & Hydrogen Peroxide at its plant at Kochi, Kerala, India. HOCL invites e tenders for finalizing the contract for the supply of chemicals and monitoring of cooling water treatment and boiler water treatment for a period of 2 years in two bid system.

**Cooling Water & Boiler Water Treatment Chemicals**

Item Number	Item Title	Item Description	Item Quantity	Unit of Measure
1	Corrosion Inhibitor for cooling water treatment	Corrosion Inhibitor for cooling water treatment	24	LOTS
2	Bio-Dispersant for cooling water treatment	Bio-Dispersant for cooling water treatment	24	LOTS
3	Mineral Dispersant for cooling water treatment	Mineral Dispersant for cooling water treatment	24	LOTS
4	Antiscalant for cooling water treatment	Antiscalant for cooling water treatment	24	LOTS
5	Antifoulant for cooling water treatment	Antifoulant for cooling water treatment	24	LOTS
6	Non Oxidising Biocide-1 for cooling water treatment	Non Oxidising Biocide-1 for cooling water treatment	24	LOTS
7	Non Oxidising Biocide-2-45% glutaraldehyde	Non Oxidising Biocide-2-45% glutaraldehyde	24	LOTS
8	Chemical for ClO <sub>2</sub> generation	Chemical for ClO <sub>2</sub> generation	24	LOTS
9	Chlorine for ClO <sub>2</sub> generation <b>(Chlorine will be provided by HOCL)</b>	Chlorine for ClO <sub>2</sub> generation <b>(Chlorine will be provided by HOCL and the Unit Rate is Rs.11)</b>	24	LOTS
10	Caustic Soda for cooling water treatment <b>(Caustic Soda will be provided by HOCL)</b>	Caustic Soda for cooling water treatment <b>(Caustic Soda will be provided by HOCL and the Unit Rate is Rs.48.90)</b>	24	LOTS
11	Anti scalant, corrosion inhibitor & sludge Conditioner for boiler water treatment	Anti scalant, corrosion inhibitor & sludge Conditioner for boiler water treatment	24	LOTS
12	Oxygen Scavenger for Boiler Water Treatment	Oxygen Scavenger for Boiler Water Treatment	24	LOTS
13	Condensate line protection for boiler water treatment	Condensate line protection for boiler water treatment	24	LOTS
14	Feed Water Ph Booster (Volatile) for boiler water treatment	Feed Water Ph Booster (Volatile) for boiler water treatment	24	LOTS

1 Lot = Quantity required for 1 Month which is to be confirmed by the Vendor.

**Contingency Chemicals to be mentioned for Cooling Water Treatment**

- Hydrocarbon ingress into system
- Chlorination failure
- pH fluctuation
- Lube Oil/ Grease ingress in to system
- High Iron Content
- High Turbidity of Make Up water
- High Chloride in Make Up Water

**BOQ :**

Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable .If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders.

- In the BOQ the quantity shown as 24 Lots where 1 Lot indicates the quantity required for 1 Month for treatment. (Contract period is 2 Years. Hence 1 Month requirement is considered as 1 lot) (For Example: The Corrosion Inhibitor required quantity as per the dosage quoted is 250 KG for 1 Month. You should enter the Lot rate as 250 x Unit rate per KG of your chemical.)
- Please note that Chlorine and caustic Soda required for treatment will be provided by HOCL and the rate applicable for Chlorine shall be Rs.11/- (including GST)per KG and that of Caustic Soda will be Rs.48.90/-(including GST)per KG . Bidder has to confirm the quantity of Chlorine and Caustic Soda required in the technical Bid and rate shall be entered in the BOQ as the rate provided by HOCL for the particular chemicals multiplied by the confirmed Quantity.(For Example: The Chlorine quantity required for 1 month is 200 KG. Per lot rate in the BOQ shall be entered as 200XRs.11.00(TAX Inclusive))
- Please note that Chlorine and Caustic Soda rates are added in BOQ only for comparison purpose and these items shall not be invoiced on placement of Contract.

**Note:**

- Since the quantity of chemicals, unit rate for chemicals both has to be confirmed by Bidder this contract will be processing via Custom bid feature available in GeM Portal. Hence the bidder has to quote their value in lump-sum i.e., the total rate for 14 chemicals as per the attached BoQ format for 24 months (2 year) all inclusive of GST, P&F, Freight, etc.
- HOCL will issue separate Purchase Order for the supply of water treatment chemicals for each year separately. Issue of PO for the second year will be based on the performance evaluation as mentioned in the tender T&C.
- Successful bidder has to submit their invoices for payment process outside GeM portal (Through offline) against HOCL Purchase Order. Payment updation shall be done in GeM Portal only after the completion of entire contract i.e., only after 2 years.
- Bidder has to upload the financial document as per the attached format in PDF / Excel format showing the detailed price split up.
- Separate Financial document shall be uploaded for the Contingency Chemicals as per the attached format in PDF / Excel format showing the detailed price split up.
- Bidder should upload the both financial documents for water treatment chemicals & for contingency chemicals in PDF format as a single document. The rates mentioned in the Financial document should be final and will be valid for a period of two years.

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## **PART A - COOLING WATER TREATMENT**

### **ANNEXURE -I**

#### **SCOPE OF WORK**

The work involves the detailed study of the cooling water system of our No.1 cooling tower and the supply of various water treatment chemicals for the pre-cleaning, passivation and regular treatment of the cooling water of No.1 cooling tower in our plant at Ambalamugal. Presently we are using the water treatment chemicals supplied by M/s. Chembond Water Technologies Ltd. Please note that in case of a changeover of the chemicals to a new one, we'll not be able to stop the cooling tower and the required water treatment has to be done in continuation to the existing ones. The programme shall be based on corrosion inhibitors, scaling inhibitors, fouling Inhibitors, with minimum 2 broad spectrum non oxidizing biocide, chlorine, bio-dispersants and other mineral dispersants. In no cases, the stoppage of system/cooling tower is possible. The programme including flushing, passivation etc shall be implemented on line i.e. without varying the load of the cooling tower, heat exchangers etc.

The circulation of the No1 Cooling Tower is around 5100 M<sup>3</sup>/hr and the holdup capacity is (sump) + (Piping) is 3750 M<sup>3</sup> and side stream filter having capacity of 50 M<sup>3</sup>. Average consumption of makeup water is 55 M<sup>3</sup>/Hr. The design bleed off (Blow down + Drift loss) is 22M<sup>3</sup>/Hr.

The specification detail of Cooling Tower is given in Annexure IV and make up water analysis is given in Annexure V. The vendors are free to verify these values using their facilities at their cost.

The parameters to be controlled in the system have to be specifically mentioned in the offer and should be adhered during the treatment programme. The dosage of the chemicals offered / recommended should be strictly adhered, to maintain the required parameters. At any cost, there should not be any deviation in the consumption of chemicals recommended for the treatment to maintain the specified parameters; especially the consumption should not go high with respect to recommended dosage. The chemicals actually consumed in excess of the quantity specified in your offer shall be borne by the party.

### Corrosion Coupon

- a) Corrosion evaluation shall be done every month. The corrosion on MS Coupon shall not exceed 3MPY.
- b) The corrosion coupons should be free from inorganic & biological fouling, deposit corrosion & pitting corrosion.
- c) The installation & evaluation of corrosion coupon shall be in accordance with ASTM D-2688-1992.

### Microbiological Analysis

- A. TVC to be less than  $1 \times 10^5$ /Ml
- B. SRB to be less than 60 Col/100ml
- C. Iron Bacteria to be less than 5 org/100ml

Service personnel have to be posted at site to stabilize the treatment programme and to monitor it daily. Service Personnel shall visit our site on daily basis as a part of monitoring the treatment programme and for recommendation of dosage. Service Personal shall visit our site during shut-down for evaluating the performance of the treatment.

Weekly report has to be submitted to the Engineer-in-charge by the Service Personnel. In addition a Monthly report has to be submitted to the Engineer-in-charge. The reports are to be submitted as per special instruction (Annexure–III) & Checklist.

Technical Assistance shall be offered till such time the ordered quantity of chemicals is fully used (consumed) or 2 years whichever is more.

Vendor are advised to visit the plant site and submit their proposal only after extensive plant survey, ascertaining quality of makeup water, circulating water, equipment metallurgy etc.

Service personal shall visit our site during shutdown for evaluating the performance of treatment.

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**PART A - COOLING WATER TREATMENT**

**ANNEXURE - II**

**DETAILS THAT ARE TO BE INDICATED IN PART I – TECHNICAL BID**

- A. System details and Water analysis
- B. Chemical Treatment Programme
- C. Chemical Consumption on PPM basis, daily, monthly & yearly consumption of each chemical for evaluation purpose.
- D. Control Parameters.
- E. Technical Services offered shall be as per our (ANNEXURE I & ANNEXURE III Clause6).
- F. Qualifying Requirements
- G. Compliance to attached special instructions(ANNEXURE-III)
- H. MSDS, specification and functions & shelf life of each product
- I. Priced Bid Format PART C (ANNEXUREV)

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## **PART A - COOLING WATER TREATMENT**

### **ANNEXURE - III**

#### **Special Instructions**

Following details shall be clearly mentioned in the Technical Bid.

1. The procedure for change over from the present treatment system to your system without stoppage of cooling towers.
2. The type of chemicals indented to be used for the following and its dosage to be given in Technical Bid.
  - Corrosion Inhibitor
  - Dispersant
  - Antiscalant
  - Bio dispersent
  - Non-oxidizing biocides (2 Nos.) minimum out of which one should be 45% glutaraldehyde + Chemicals for generating ClO<sub>2</sub>(oxidizing biocide)
  - Chemicals/biocides required in the absence of Chlorination
3. Copy of MSDS of all chemicals offered. All the chemicals shall be biodegradable and non hazardous. The function of each chemical, specification, shelf life and safe handling procedure to be given in MSDS of each product/chemical.
4. Caustic soda and chlorine for ClO<sub>2</sub> dosing (apart from to 2 non oxidizing biocides) required for the treatment will be supplied by HOCL at free of cost. Vendor shall specify the dosages of caustic soda and chlorine very clearly in the technical bid which shall be a parameter for evaluation of the offer. The cost of the above chemical consumed in excess of the specified dosages shall be to the vendor's account.
5. Contingency plan has to detailed in the technical bid for the following
  - a) Hydrocarbon ingress into system
  - b) Chlorination failure
  - c) pH fluctuation
  - d) Lube Oil/grease ingress into system
  - e) High iron content
  - f) High turbidity of Makeup water
  - g) High Chloride of Makeup water
6. Services to be provided by the vendor till such time the ordered quantity of chemicals are fully used or 2 years whichever is more. Charges for the services to be included in the prices of chemicals. No additional charges will be given by HOCL.

- a. Your service representative shall be available on daily basis to monitor the programme (for corrective, preventive actions & routine analysis). The vendor should ensure the skill of service representative in condition base analysis and resolve the unexpected incidents in the operating systems.
- b. Your expert technical personnel shall be made available within 24 hrs, as and when required.
- c. You shall supply and maintain all the monitoring equipments, dosing equipments and kits/aids for monitoring, dosing, controlling and reporting the treatment programme. The details of such items to monitor corrosion, fouling monitor, deposit monitor, microbiological analysis and complete laboratory test kits including all testing reagents and all glass wares for daily monitoring of all control parameters of makeup and circulating cooling water etc. shall be detailed in your technical bid. Ensure the periodical service and evaluation of fouling monitor, deposit monitor and other test kits.
- d. All control parameters of circulating and make up water to be analyzed by you at site on daily basis to control the parameters and to optimize the chemical consumption and for trouble shooting. The procedure/ method for analysis of above parameters are to be given to us.
- e. Microbiological analysis for TVC, SRB & Iron Bacteria to be done by you fortnightly. (First fortnight sample shall be tested using Microbe detection test slides at HOCL and second fortnight sample shall be done through outside approved laboratories)
- f. Vendors shall monitor the cooling water flow rates using Ultra Sonic Flow measurement for all the 46 heat exchangers as Annexure III A.
- g. Reports to be submitted
  - Daily monitoring shall include, monitoring of all the control parameters of circulating cooling water and make up water and control measures / corrective actions to be adopted and quantity of chemicals to be added.
  - Weekly reports shall contain the average of control parameters, chemical stock position (stock at site & at Stores), deviation if any, corrective/preventive actions made, suggestion if any.
  - Monthly reports shall contain trends of all control parameters, measurement of COC (cycles of concentration), corrosion study calculation/details, microbiological study, performance of deposit monitor & Bio fouling monitor, actual consumption including chlorine & caustic vs. projected consumption, chemical stock, analysis, deviation, corrective/preventive actions and improvements including identification and arresting the system leakages to maintain/improve the cycle of concentration, cause analysis of deviations in any of the parameters & reporting of key performance indicators and all exchanger flow rate measurements.
- h. Training on general water treatment and subjects specific to this programme shall be arranged.

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### ANNEXURE – III A

1	WSN TREATMENT COOLER	WSN TREATMENT COOLER	03.E.001
2	OXIDISER FEED COOLER	OXIDISER FEED COOLER	06.E.001
3	EXTRACTOR FEED COOLER	EXTRACTOR FEED COOLER	07.E.001
4	C-001 OVERHEAD CONDENSER	C3-C4 COLUMN-OVERHEAD CONDENSER	101-E-002
5	C 002 OVERHEAD CONDENSER	C3-C3 COLUMN-OVERHEAD CONDENSER	101-E-004
6	C3-C4 STREAM COOLER-A	C3-C4 STREAM COOLER-A	101-E-006A
7	HEAD CONDENSOR	HEAD CONDENSOR	28.E.003
8	COOLING TRAP	COOLING TRAP	28.E.006
9	DEPROPANISER OVERHEAD CONDENSER	DEPROPANISER OVERHEAD CONDENSER	E-2004
10	L.P.G PRODUCT COOLER	L.P.G PRODUCT COOLER	E-2005
11	DRAG BENZENE COOLER	DRAG BENZENE COOLER	E-2007
12	RECYCLE COLUMN TRIM CONDENSER	RECYCLE COLUMN TRIM CONDENSER	E-2009
13	CUMENE COLUMN BOTTOM COOLER	CUMENE COLUMN BOTTOM COOLER	E-2011
14	CUMENE COLUMN PRODUCT TRIM COOLER	CUMENE COLUMN PRODUCT TRIM COOLER	E-2013A
15	CUMENE COLUMN PRODUCT TRIM COOLER	CUMENE COLUMN PRODUCT TRIM COOLER	E-2013B
16	COMPRESSOR AFTER COOLER	COMPRESSOR AFTER COOLER	E-2501
17	OXIDISER VENT GAS CONDENSOR	OXIDISER VENT GAS CONDENSOR	E-2506A
18	OXIDISER VENT GAS CONDENSOR	OXIDISER VENT GAS CONDENSOR	E-2506B
19	EVAPORATOR PRE-FLASH CONDENSER	EVAPORATOR PRE-FLASH CONDENSER	E-3002
20	EVAPORATOR FLASH CONDENSER	EVAPORATOR FLASH CONDENSER	E-3003A
21	EVAPORATOR FLASH CONDENSER	EVAPORATOR FLASH CONDENSER	E-3003B
22	EVAPORATOR FLASH CONDENSER	EVAPORATOR FLASH CONDENSER	E-3003C
23	EVAPORATOR OVERHEAD CONDENSER	EVAPORATOR OVERHEAD CONDENSER	E-3004A
24	EVAPORATOR OVERHEAD CONDENSER	EVAPORATOR OVERHEAD CONDENSER	E-3004B
25	EVAPORATOR BOTTOM COOLER	EVAPORATOR BOTTOM COOLER	E-3005
26	CONDENSER VENT CONDENSER	CONDENSER VENT CONDENSER	E-3006
27	CLEAVAGE REACTOR COOLER	CLEAVAGE REACTOR COOLER	E-3501A
28	CLEAVAGE REACTOR COOLER	CLEAVAGE REACTOR COOLER	E-3501B
29	DIRECT NEUTRALISATION FEED COOLER	DIRECT NEUTRALISATION FEED COOLER	E-4001A
30	DIRECT NEUTRALISATION FEED COOLER	DIRECT NEUTRALISATION FEED COOLER	E-4001B
31	DIRECT NEUTRALISATION PRODUCT COOLER	DIRECT NEUTRALISATION PRODUCT COOLER	E-4002A
32	DIRECT NEUTRALISATION PRODUCT COOLER	DIRECT NEUTRALISATION PRODUCT COOLER	E-4002B
33	C.A.C OVERHEAD CONDENSER	C.A.C OVERHEAD CONDENSER	E-4502
34	FAC BOTTOM COOLER	FAC BOTTOM COOLER	E-4505A
35	FAC BOTTOM COOLER	FAC BOTTOM COOLER	E-4505B
36	ACETONE PRODUCT COOLER	ACETONE PRODUCT COOLER	E-4506
37	F.A.C OVERHEAD CONDENSER	F.A.C OVERHEAD CONDENSER	E-4507A

38	F.A.C OVERHEAD CONDENSER	F.A.C OVERHEAD CONDENSER	E-4507B
39	TAR COLUMN OVER HEAD CONDENSOR	TAR COLUMN OVER HEAD CONDENSOR	E-4510
40	A M S COLUMN OVERHEAD CONDENSOR	A M S COLUMN OVERHEAD CONDENSOR	E-4512
41	PHENOL COLUMN OVERHEAD CONDENSER	PHENOL COLUMN OVERHEAD CONDENSER	E-4517
42	HYDROGENATION PRODUCT CONDENSER	HYDROGENATION PRODUCT CONDENSER	E-5003
43	RETURN COLUMN CONDENSER	RETURN COLUMN CONDENSER	E-5502
44	STRIPPER COLUMN CONDENSER	STRIPPER COLUMN CONDENSER	E-5504
45	HOT OIL PUMP OUT COOLER	HOT OIL PUMP OUT COOLER	E-6001
46	AMMONIA CONDENSOR	AMMONIA CONDENSOR	W-2502

**Monthly reports shall contain the above exchanger flow rates measurement reports.**

## **PART A - COOLING WATER TREATMENT**

### **ANNEXURE – IV – SPECIFICATION OF THE COOLING TOWER NO.1**

Circulation rate	5100M <sup>3</sup> /Hr
Hold up volume (sump)+(Piping)	3750M <sup>3</sup>
Hot water temp.(Design)	42 degree C
Cold water temp.(Design)	32 degree C
Delta T degree C(design)	10 degree C
System Metallurgy	SS/Carbon Steel
Evaporation loss	33 M3/Hr (approx)
Cycles of concentration	1.7 to 2.2
Design Blow down +Drift Loss (Total Bleed Off)	22 M <sup>3</sup> /Hr
Average Make up water quantity	55M <sup>3</sup> /Hr

- Side stream filter provided
- Chlorination facility provided

**PART A - COOLING WATER TREATMENT**

**ANNEXURE – V**

**SOURCE OF COOLING WATER MAKE UP**

**I. (PTP WATER)**

PH	: 6.5 – 7.5
M-alkalinity	: 15.5 ppm
Hardness	: 17ppm
Chloride	: 10ppm
Iron	: 0.2 ppm
TDS	: 67ppm

III. PARAMETER TO BE MAINTAINED BY THE VENDOR			
1. Cooling Water - PO <sub>4</sub> <sup>3-</sup>	8 - 12	2. Cooling water - P <sup>H</sup>	6.5 - 7.2
(Other Control Parameter is to be given by the vendor based on their study of the system and feed water details)			

**II. ANOTHER SOURCE OF COOLING WATER MAKE UP  
(POND WATER)-(Sparingly used)**

	<u>Min.</u>	<u>Max.</u>
PH	4.0	7.5
TDS	730 PPM	925 PPM
* Fe	0.13 PPM	4.0 PPM
Chloride	75 PPM	105 PPM
Hardness	28 PPM	100 PPM
Turbidity	1.2 NTU	8.1 NTU
Conductivity	936µmhos/cm	1250µmhos/cm
COD	8 PPM	30PPM

Sulphate	200 PPM	537 PPM
Nitrate	1PPM	5PPM

\* During some period **Fe** content is found to be on higher side (up to 4 PPM). Accordingly dosage may be recommended as a contingency plan.

**This may please quote separately. However same will not be considered for comparison purpose**

**CHECK LIST FOR COOLING WATER TREATMENT ANNEXURE VI**  
**QUALIFYING REQUIREMENTS TO BE SUBMITTED ALONG WITH TECHNICAL BID**

**Page 1 of 7**

Sl. No.	Description	Submitted by Vendor	Deviation if Any
Relevant documents / purchase order copies to be provided for all Qualifying requirements listed below:			
1.	Start up experience in a large chemical / petrochemical plant of cooling towers of minimum similar capacity. A minimum of two references are required		
2.	Experience in treating low hardness and low alkalinity water.		
3.	Vendor should have full-fledged manufacturing and R&D set up on India and service support facility at Kochi and carryout servicing directly by the company.		
4.	There should be at least one order for cooling water treatment with a minimum value of Rs. 7.5 Lakhs, in the last three financial years.		
5.	Annual turnover details for the supply of water treatment chemicals for the last three financial years		
6.	ISO certified company (preferred)		
7.	Concurrent commitments of the vendor		
9.	Technical data sheet, write up and material safety and data sheet of the offered chemicals.		
10	Vendors shall have experience in supplying cooling water treatment chemicals and effectively treating/Monitoring of treatment program for cooling towers that operates with low hardness and low alkalinity Makeup/circulation water systems of not		

	<p>less than 5000 M3/Hr or more for not less than two years of operation in the last five years. Vendors shall submit successful experience/Completion /Performance certificate along with documentary evidence for work order as a proof of carrying out the treatment program.</p>		
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Vendors having their own manufacturing facilities with all obligatory certifications like ISO 9001,14001, and OH-SAS 45001for the integrated Quality management System shall be preferred.

Page 1 of 7

Signature of vendor:

Date:

**DETAILS THAT ARE TO BE INCLUDED IN THE IN TECHNICAL BID**

**Page 2 of 7**

Sl. No	Description	Offer from Vender	Deviation if Any
1.	System details and water analysis after the vendor's study.		
2.	Chemical treatment programme details		
3.	Chemical consumption, daily, monthly and yearly. The recommended dosage in PPM to be given separately for each chemical Including calculation details.		
4.	The procedure for change over from the present treatment system to new system without stoppage of cooling tower.		
5.	Exact quantity of extra chemicals required for smooth change over to the new system		
6.	The treatment shall have the following 1. Corrosion Inhibitor 2. Bio-Dispersant 3. Mineral-Dispersant 4. Anti-scalant & Antifoulant 5. Non-oxidizing biocides (2 Nos.) minimum out of which one should be 45% glutaraldehyde 6. Chemicals required for generation of ClO <sub>2</sub> generation 7. Chemicals/biocides required in the absence of ClO <sub>2</sub> dosing.		

**Page 2 of 7**

Signature of vendor:

Date:

**DETAILS THAT ARE TO BE INCLUDED IN THE IN TECHNICAL BID**

**Page 3 of 7**

Sl. No.	Description	Offer from Vender	Deviation if Any
7.	All Cooling water Control Parameters shall be specified. The parameters to be controlled in the system have to be specifically mentioned in the offer and should be adhered during the Treatment programme.		
8.	Contingency plan has to be detailed in the technical bid for the following		
	a) Hydrocarbon ingress into system		
	b) Chlorination failure		
	c) pH fluctuation		
	d) Lube Oil/grease ingress into system		
	e) High iron content		
	f) High turbidity of Makeup water.		
	g) High Chloride in Makeup water.		
9.	Vendor shall specify the dosages of caustic soda and chlorine very clearly. Caustic soda and Chlorine required for the treatment will be supplied by HOCL free of cost.		
10.	The cost of Caustic soda and Chlorine consumed in excess of the specified dosages shall be to the vendor's account.		

**Page 3 of 7**

Signature of vendor:

Date:

**REQUIREMENTS TO BE AGREED BY VENDOR IN TECHNICAL BID**

Sl. No.	Description	Agreement by Vender	Deviation if Any
1.	All services and technical assistance shall be Provided by the Vendor till such time the ordered quantity of chemicals is fully used or 2 years whichever is more.		
2.	a) Service personnel have shall be posted at site to stabilize the treatment programme		
	b) Your service representative shall visit the cooling tower on daily basis to monitor the programme (for corrective, preventive actions & routine analysis) and recommendation dosage.		
3.	Your expert technical personnel from head quarters shall be made available within 24 hrs. as and when required.		
4.	You shall supply and maintain all dosing equipments (minimum 3 dosing pumps) and aids for dosing, controlling the treatment programme.		
5.	You shall supply and maintain all the monitoring equipments and kits / aids for daily monitoring, controlling and reporting the treatment programme and for monitoring of all control parameters of makeup and circulating cooling water. The items shall include		
	1. Corrosion monitor		
	2. Fouling monitor		
	3. Deposit monitor		
	4. ClO <sub>2</sub> generator using chlorinated water.(Party shall visit site to ascertain the existing chlorination system for compatibility with your ClO <sub>2</sub> generation.)		
	5. Chemical analysis Kits including all reagents and Microbe detection test slides		
	6. All Glass Ware		

Signature of vendor:

Date:

**REQUIREMENTS TO BE AGREED BY VENDOR IN TECHNICAL BID**

**Page 5 of 7**

Sl. No.	Description	Agreement by Vender	Deviation if Any
6.	All control parameters including ORP of circulating and make up water shall be analyzed by the vendor at site on daily basis to control the parameters and to optimize the chemical consumption and for troubleshooting.		
7.	The procedure / method for analysis of above parameter shall be given.		
8.	a) Microbiological analysis shall be done fortnightly. Microbiological analysis for TVC, SRB & Iron Bacteria shall be done fortnightly. (First fortnight sample shall be tested using Microbe detection test slides at HOCL and second fortnight sample shall be done through outside approved laboratories)		
	b) Corrosion evaluation shall be done monthly.		
9.	Daily monitoring shall include, monitoring of all the control parameters of circulating cooling water and make up water and control measures to be adopted and quantity of chemicals to be added.		
10.	There shall be no deviation in the consumption of chemicals recommended for the treatment to maintain the specified parameters; especially the consumption should not go high with respect to recommended dosage. The chemicals actually consumed in excess of the quantity specified in your offer shall be borne by the vendor.		
11.	Training (class room lecture) on general Water treatment and subjects specific to this programme is to be arranged at site.		

**Page 5 of 7**

Signature of vendor:

Date:

**REQUIREMENTS TO BE AGREED BY VENDOR IN TECHNICAL BID**

**Page 6 of 7**

Sl. No.	Description	Agreement by Vender	Deviation if Any
12.	All the parameters to be controlled in the system should be adhered during the treatment programme. The dosage of the chemicals offered / recommended should be strictly adhered, to maintain the required parameters.		
13.	Following Reports shall be submitted		
	a) Weekly reports shall contain the average, maximum, minimum of all control parameters, consumption of chemicals, stock position(stock at site & at Stores), deviation if any, corrective / preventive actions made, suggestion if any.		
	b) Monthly reports shall contain trends of all control parameters (Tabular form and graphical), measurement of COC (cycles of concentration), corrosion evaluation, ORP study, calculation / details, microbiological study (Results of TVC, SRB & Iron Bacteria), actual consumption vs. projected consumption, chemical stock, analysis, deviation, corrective / preventive actions and improvements including identification and arresting the system leakages to maintain/improve the cycle of concentration & key performance indicators and all exchanger flow rate measurements.		

**Page 6 of 7**

Signature of vendor:

Date:

**REQUIREMENTS TO BE AGREED BY VENDOR IN TECHNICAL BID**

Sl. No.	Description	Agreement by Vender	Deviation if Any
14.	Guarantee		
	a) The corrosion on MS Coupon shall not exceed 3MPY.		
	b) The corrosion coupons shall be free from inorganic & biological fouling, deposit corrosion & pitting corrosion.		
	c) The installation & evaluation of corrosion coupon shall be in accordance with ASTM D-2688-1992.		
	d) TVC to be less than $1 \times 10^5$ / MI		
	e) SRB to be less than 60 Col / 100 ml		
	f) Iron Bacteria to be less than 5 org/ 100 ml		
	g) All the control parameters will be maintained within limits with the recommended dosages of respective chemicals.		

PARAMETER TO BE MAINTAINED BY THE VENDOR			
1. Circulating Water -P <sup>H</sup> -	6.8 - 7.2	Circulating Water - PO <sub>4</sub> <sup>3-</sup>	8.0 - 12.0
(Other Control Parameters are to be given by the vendor based on their study of the system and Make Up water details)			

Signature of vendor:

Date:

**ANNEXURE VII (1 of2)**  
**CHEMICAL REQUIREMENTS FOR COOLING WATER TREATMENT AND THE**  
**DOSAGE OF CHEMICALS TO BE SUBMITTED ALONG WITH TECHNICAL BID**

Sl. No.	Description	Name of Chemical	Recommended Dosage (PPM)	Daily Requirement / Basis of Addition (Calculation to be as specified below)
Regular Chemicals				<u>(Daily Requirement in kG)</u>
	a) Corrosion Inhibitor			
	b) Bio-Dispersant			
	c) Mineral- Dispersant			
	d) Antiscalant			
	e) Antifoulant			
	f) Non-oxidising biocide - 1			
	g) Non-oxidising biocide – 2 (shall be glutaraldehyde 45%)			
	h) Chemical required for generating ClO <sub>2</sub> using chlorinated water			
Contingency Chemicals				<u>(Basis of Addition)</u>
	(a) Hydrocarbon ingress			
	(b) Chlorination failure			
	(c) pH fluctuation			
	(d) Lube Oil / grease ingress			
	(e) High iron content			
	(f) High Turbidity in Make up			
	(g) High Chloride in Make up			

THE BASIS OF CALCULATION SHALL BE BASED ONLY ON TOTAL BLEED-OFF: 22 M<sup>3</sup>/HR. AND HOLD UP VOLUME OF 3750 M<sup>3</sup>.

Signature of vendor:

Date:

**ANNEXURE VII ( 2 of2)**

**QUANTITY OF CHEMICALS TO BE SUBMITTED ALONG WITH TECHNICAL BID**

Sl. No.	Description	Name of Chemical	Recommended Dosage(PPM)	Daily consumption	Monthly consumption	Yearly consumption
	Regular Chemicals					
	a) Corrosion Inhibitor					
	b) Bio-Dispersant					
	c) Mineral-Dispersant					
	d) Antiscalant					
	e) Antifoulant					
	f) Non-oxidising biocide - 1					
	g) Non-oxidising biocide – 2 shall be glutaraldehyde 45%					
	h) Chemical required for generating ClO <sub>2</sub> using chlorinated water					
	i)Caustic Soda (Will be supplied by HOCL)					
	j) Chlorine (Will be supplied by HOCL) –Chlorinated water for use in ClO <sub>2</sub> generator		Reqd. Flow (Kg/Hr)	No. of Hrs Reqd.		

(Vendor shall specify the dosages of caustic soda and chlorine (for use in ClO<sub>2</sub> generator) which shall also be a parameter for evaluation of the offer.)

Signature of vendor:

Date:

## **PART B - BOILER WATER TREATMENT CHEMICALS**

### **ANNEXURE -I**

#### **SCOPE OF THE WORK**

The work involves detailed study of the boiler water system and supply of conventional boiler water treatment chemicals and treatment of Boiler water in our plant at Ambalamugal. Presently we are using the water treatment chemicals supplied by M/s. Chembond Water Technologies Ltd. Please note that in case of a changeover of the chemicals to a new one, we'll not be able to stop the Boiler and the required water treatment has to be done in continuation to the existing ones. The details of our Boiler are given in ANNEXURE IV enclosed herewith.

The vendor shall specify the parameters to be controlled in the Boiler system.

- a) In the event of placing order, the vendor shall ensure adherence to these parameters during the contract period. The dosage of the chemicals offered/ recommended shall be strictly adhered to. The chemicals & instruments supplied shall be accompanied with test and calibration certificates. The containers of chemicals to be properly identified with item description, quantity, date of manufacture, date of expiry, Batch number etc. The quantity of chemicals required for wet preservation shall be considered separately.
- b) Any higher requirements of chemicals to maintain the boiler water parameters in control as compared to the originally recommended dosage of the chemicals shall be to the vendors account.
- c) A performance bank guarantee has to be furnished for maintaining the Boiler water parameters in control using the recommended dosage of the chemicals. (Refer clause no: 8 of GENERAL TERMS & CONDITIONS in Annexure.)
- d) Service personnel as required are to be posted by the vendor in site to stabilize the boiler water treatment programme and to monitor it daily and maintain the parameters.
- e) Regular analysis of boiler feed water, boiler water, DM water and Condensate will be done by HOCL. (The standard water parameters analyzed by HOCL are given in Annexure V).
- f) Reports have to be submitted to the Engineer in charge indicating the treatment parameters, chemical stock position at site, deviations if any and corrective / preventive action to be taken (See AnnexureII).
- g) The details that are to be indicated in Technical Bid are given in a consolidated format as Annexure – II & III. These formats have to be filled up and signed by the vendor and enclosed along with the Technical Bid.
- h) The chemical requirements are to be given by the vendor in the format given in ANNEXURE VII. This is to be enclosed in the Technical Bid.

Interested vendors can visit our site on any working day to collect any further details required prior to submitting the bids.

**PART B - BOILER WATER TREATMENT CHEMICALS**

**ANNEXURE II**

**DETAILS THAT ARE TO BE INDICATED IN PART I – TECHNICAL BID**

- a. System details and water analysis after your study.
- b. Chemical treatment programme.
- c. Chemical Consumption / recommended dosage per day.
- d. Boiler water Control Parameters
- e. Technical services offered. (Such as training, optimization of dosage, expertise in monitoring and control.)
- f. Qualifying Requirements as listed below
- g. Technical data sheet and Material safety data sheet of all offered chemicals.
- h. Chemical supplied to be accompanied with Test Certificate & all containers of chemicals to be properly identified with item description, quantity, date of manufacture, date of expiry, batch No. etc.
- i. Training on general water treatment to be arranged by you.
- j. Monthly monitoring of reports to be submitted to Engineer-in-charge
- k. Weekly monitoring of system to be done by you.
- l. Priced Bid Format PARTC (ANNEXUREV)

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**PART B - BOILER WATER TREATMENT CHEMICAL**  
**ANNEXURE - III**

**SPECIAL INSTRUCTIONS**

Following details shall be clearly mentioned in the Technical Bid.

1. The procedure for change over from the present treatment system to your system without stoppage of BOILERS.
2. The type of chemicals indented to be used for the following and its dosage to be given in Technical Bid.
  - Antiscalant, Corrosion inhibitor & sludge Conditioner
  - Oxygen Scavenger
  - Condensate line protection
  - Feed Water PH Booster (volatile)
3. Copy of MSDS of all chemicals offered. All the chemicals shall be bio degradable and non hazardous. The function of each chemical, specification, shelf life and safe handling procedure to be given in MSDS of each product/chemical.
4. Services to be provided by the vendor till such time the ordered quantity of chemicals are fully used or 2 years whichever is more. Charges for the services to be included in the prices of chemicals. No additional charges will be given by HOCL.
  - a. Your service representative shall be available on daily basis to monitor the programme (for corrective, preventive actions & routine analysis).
  - b. Your expert technical personnel shall be made available within 24 hrs, as and when required.
  - c. The details of complete laboratory test kits including all testing reagents and all glass wares for daily monitoring of all control parameters of Feed Water, Boiler Water and Condensate Water etc. shall be detailed in your technical bid. **Colloidal Silica in feed water shall be analyzed twice in a month.**
  - d. All control parameters of circulating and make up water to be analyzed by you at site on daily basis to control the parameters and to optimize the chemical consumption and for trouble shooting. The procedure/ method for analysis of above parameters are to be given to us.
  - e. Reports to be submitted
    - Daily monitoring shall include, monitoring of all the control parameters of boiler water and condensate. Control measures to be adopted and quantity of chemicals to be added.
    - Weekly reports shall contain the average of control parameters, chemical stock position (stock at site & at Stores), deviation if any, corrective/preventive actions made, suggestion if any.

- Monthly reports shall contain trends of all control parameters, measurement of COC (cycles of concentration), calculation / details, actual consumption vs. Projected consumption, chemical stock, analysis, deviation, corrective / preventive actions and improvements including cause analysis of deviations in any of the parameters & reporting of key performance indicators.
- f. Training on general water treatment and subjects specific to this programme shall be arranged.

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**PART B - BOILER WATER TREATMENT CHEMICALS**

**ANNEXURE IV**

**SPECIFICATION OF BOILERS**

No .of Boilers	: 3 Boilers (2 main Boilers of which one is standby + 1 Package Boiler
Type	: BI drum, natural circulation, oil fired, Water Tube Boilers
Capacity	: 24.25T/Hr
Pressure	: 20Kg/cm <sup>2</sup>
Steam Quality	: Dry saturated
Makeup	: De-mineralized water and condensate.

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**PART B - BOILER WATER TREATMENT**

**Annexure – V**

I. STANDARD BOILER WATER PARAMETERS ANALYSED BYHOCL

Boiler Drum Water	Boiler Feed Water	DM Water	Condensate
p <sup>H</sup>	p <sup>H</sup>	p <sup>H</sup> (5 -6.8)	p <sup>H</sup>
Conductivity (Mhos)	Conductivity (Mhos)	Conductivity (0.7 - 1.57) (Mhos)	Conductivity (Mhos)
Total Phosphate as PO <sub>4</sub> PPM	-	-	-
Iron as Fe PPM	Iron as Fe PPM	Iron (0.02) PPM	Iron as Fe PPM
Silica as SiO <sub>2</sub> PPM	Silica as SiO <sub>2</sub> PPM	Silica (0.21) as SiO <sub>2</sub> PPM	-
Hydrazine N <sub>2</sub> H <sub>4</sub> PPM	Hydrazine as N <sub>2</sub> H <sub>4</sub> PPM	-	-
P Alkalinity as CaCO <sub>3</sub> PPM	-	-	-
M Alkalinity as CaCO <sub>3</sub> PPM	-	-	-
TDS PPM	-	-	-
TH as CaCO <sub>3</sub> PPM	TH as CaCO <sub>3</sub> PPM	-	-

\* Regular analysis of boiler feed water, boiler water, DM water and condensate will also be done by HOCL. (As given above) in addition to youranalysis.

\* Condensate utilisation 40% (only in case of MainBoilers)

\* Average Steam generator - 13MT/hr

\* Average Feed Water Consumption - 15MT/hr

II. PARAMETER TO BE MAINTAINED BY THE VENDOR			
1. Feed Water - P <sup>H</sup> -	8.5 - 9.5	5. Condensate - P <sup>H</sup>	8.0 - 9.0
2. Boiler Drum Water - P <sup>H</sup>	10.0 - 11.0	(Other Control Parameter is to be given by the vendor based on their study of the system and feed water details)	
3. Boiler Drum Water - PO <sub>4</sub>	25.0 - 40.0		
4. Boiler Drum Water - Hydra-zine	0.1 - 1.0		

**CHECK LIST FOR BOILER WATER TREATMENT ANNEXURE VI**

**QUALIFYING REQUIREMENTS TO BE SUBMITTED ALONG WITH TECHNICAL BID**

**Page 1 of 7**

Sl. No.	Description	Submitted by Vender	Deviation if Any
Relevant documents / purchase order copies to be provided for all Qualifying requirements listed below:			
1.	Start up experience in a large chemical / petrochemical plant of BOILERS of minimum similar capacity. A minimum of two references are required		
2.	Vendor should have fully fledged manufacturing and R&D set up on India and service support facility at Kochi and carryout servicing directly by the company.		
3.	There should be at least one order for Boiler water treatment with a minimum value of Rs. 2 Lakhs, in the last three financial years.		
4.	Annual turnover details for the supply of water treatment chemicals for the last three financial years		
5.	ISO certified company (preferred)		
6.	Concurrent commitments of the vendor		
7.	Technical data sheet, write up and Material safety and data sheet of the offered chemicals.		

**Page 1 of 7**

Signature of vendor:

Date:

**DETAILS THAT ARE TO BE INCLUDED IN THE IN TECHNICAL BID**

**Page 2 of7**

Sl. No.	Description	Offer from Vender	Deviation if Any
1.	System details and water analysis after the vendor's study and control parameters to be specified.		
2.	Chemical treatment programme details		
3.	Chemical consumption, daily, monthly and yearly. The recommended dosage in PPM to be given separately for each Chemical Including calculation details.		
4.	The procedure for change over from the present treatment system to new system.		
5.	The containers of chemicals to be properly identified with item description, quantity, date of manufacture, date of expiry, batch No. etc.		

**Page 2 of7**

Signature of vendor:

Date:

**DETAILS THAT ARE TO BE INCLUDED IN THE IN TECHNICAL BID**

**Page 3 of 7**

6.	All Control Parameters of FEED WATER, BOILER WATER and CONDENSATE shall be specified. The parameters to be controlled in the system have to be specifically mentioned in the offer and should be adhered during the treatment programme. Colloidal Silica in feed water shall be analyzed twice in a month.		
7.	Higher requirements of chemicals to maintain the control parameters shall be to the vendor's account		
8.	Performance bank guarantee for maintaining the Boiler water control parameters using the recommended dosage of the chemicals has to be furnished by the vendor.		
9.	The treatment shall have the following 1. Antiscalant, Corrosion inhibitor & sludge Conditioner 2. Oxygen Scavenger 3. Condensate line protection 4. Feed Water PH Booster (Volatile)		

**Page 3 of 7**

Signature of vendor:

Date:

**REQUIREMENTS TO BE AGREED BY VENDOR IN TECHNICAL BID**

**Page 4 of 7**

Sl. No.	Description	Agreement by Vender	Deviation if Any
1.	All services and technical assistance shall be Provided by the Vendor till such time the ordered quantity of chemicals is fully used/consumed or 2 years whichever is more.		
2.	c) Service personnel have shall be posted at site to stabilize the treatment programme		
	d) Your service representative shall visit the boilers on daily basis to monitor the programme (for corrective, preventive actions & routine analysis) and recommendation dosage.		
3.	Your expert technical personnel from head quarters shall be made available within 24 hrs. as and when required.		
4.	You shall supply all the kits / aids for daily monitoring, controlling and reporting the treatment programme and for monitoring of all control parameters of feed water, Boiler water and condensate water		
6.	All control parameters of Feed Water, Boiler Water and Condensate water shall be analyzed by the vendor at site on daily basis to control the parameters and to optimize the chemical consumption and for troubleshooting.		

**Page 4 of 7**

Signature of vendor:

Date:

**REQUIREMENTS TO BE AGREED BY VENDOR IN TECHNICAL BID**

**Page 5 of 7**

Sl. No.	Description	Agreement by Vender	Deviation if Any
7.	The procedure / method for analysis of above parameter shall be given.		
8.	Daily monitoring shall include, monitoring of all the control parameters of Feed Water, Boiler Water and Condensate water and the necessary control measures to be adopted and quantity of chemicals to be added.		
9.	There shall be no deviation in the consumption of chemicals recommended for the treatment to maintain the specified parameters; especially the consumption should not go high with respect to recommended dosage. The chemicals actually consumed in excess of the quantity specified in your offer shall be borne by the vendor.		
10.	Training (class room lecture) on general water treatment and subjects specific to this programme is to be arranged at site.		

**Page 5 of 7**

Signature of vendor:

Date:

**REQUIREMENTS TO BE AGREED BY VENDOR IN TECHNICAL BID**

Sl. No.	Description	Agreement by Vender	Deviation if Any
11.	All the parameters to be controlled in the system should be adhered during the treatment programme. The dosage of the chemicals offered / recommended should be strictly adhered, to maintain the required parameters.		
12.	Following Reports shall be submitted		
	c) Weekly reports shall contain the average, maximum, minimum of all control parameters, consumption of chemicals, stock position (stock at site & at Stores), deviation if any, corrective / preventive actions made, suggestion if any.		
	d) Monthly reports shall contain trends of all control parameters (Tabular form and graphical), including but not limited to measurement of COC (cycles of concentration), Calcium and Magnesium hardness, Silica, Colloidal Silica in feed water (fortnightly), corrosion evaluation, study, calculation / details, actual consumption vs. projected consumption, chemical stock, analysis, deviation, corrective / preventive actions and improvements including identification & reporting of key performance indicators.		

Signature of vendor:

Date:

**REQUIREMENTS TO BE AGREED BY VENDOR IN TECHNICAL BID**

**Page 7 of 7**

THE FOLLOWING PARAMETERS SHALL BE MAINTAINED			
1. Feed Water - PH -	8.5 - 9.5	5. Condensate - PH	8.0 - 9.0
2. Boiler Drum Water - PH	10.0 - 11.0	(Other Control Parameter shall be given by the vendor based on their study of the system and feed water details)	
3. Boiler Drum Water - PO4	25.0 - 40.0		
4. Boiler Drum Water - Hydrazine	0.1 - 1.0		

**Page 7 of 7**

Signature of vendor:

Date:

**QUANTITY OF CHEMICALS TO BE SUBMITTED ALONG WITH TECHNICAL BID**

Chemical Requirement Boiler Water Treatment							
SL.NO	Purpose	Basis of Calculation	Product Name	Dosage	Qty/day	Qty/Month	Qty/year
1	Antiscalant, Corrosion inhibitor & sludge Conditioner	Feed water Consumption 15 Mt/hr.					
2	Oxygen Scavenger	Feed water Consumption 15 Mt/hr.					
3	Condensate line protection	Steam generation 13 Mt/hr					
4	Feed Water PH Booster(Volatile)	Feed water Consumption 15 Mt/hr.					
1. Antiscalant & Corrosion inhibitor sludge conditioner (To be Calculated based on feed water consumption)							
2. Oxygen Scavenger (To be Calculated based on feed water consumption)							
3. Condensate line protects (To be Calculated based on steam generation)							
4. Feed Water P <sup>H</sup> booster (Volatile). (To be Calculated based of Feed water Consumption)							

Signature of vendor:

Date:

## **PART C ANNEXURE-I**

### **GENERAL INSTRUCTIONS TO BIDDERS FOR E BID SUBMISSION**

Please submit your e-bids under the two bid system conforming to the specifications and the terms and conditions attached as per instructions given below:-

1. Quotations shall be submitted online on or before the due date and time of closing the tender. The Techno commercial bid containing the Technical specification of the Products and Proof of satisfactorily meeting the Qualifying requirements and all commercial terms should be uploaded as per instructions given in Annexure I A. EMD should be submitted by bank transfer as per details given in clause no 3 Annexure IV .EMD may also be submitted by way of Bank Guarantee from any scheduled banks. The Price bid should be submitted in the attached formats.
2. Techno commercial bid shall be opened electronically on specified date and time given in NIT. Bidders can witness the electronic opening of bid .The date and time of opening of the price bids will be intimated to the technically qualified bidders after evaluation of the Technical bids via email alerts through the valid email confirmed.
3. The bid shall contain as integral part of the same the following compliance statement: “We have read understood and accepted the terms and conditions of purchase and related documents forming part of this enquiry and agree to supply the goods in compliance with the same.”
4. The bids shall be neatly typed in English language with pages consecutively numbered and shall be signed on all pages by authorized persons. Bids shall be free from over writing and all corrections shall be duly attested by the bidder.
5. Bidders should carefully study the documents of this enquiry. All terms and conditions set out there in the enquiry shall be binding on the bidders unless conflicting with any terms and conditions expressly stated by HOCL while accepting any bid, in the event of such acceptance.
6. HOCL reserves the right, without assigning any reason whatsoever, to accept or reject any or all bids in part or in full or cancel this enquiry.
7. HOCL reserves the right to extend without giving any reason(s) the closing date/time of the enquiry.
8. Bids shall be valid for a minimum of 60 days from the due date for receipt and opening of the bids.
9. Purchase Preference to Central Public Sector Enterprises of Govt of India and MSMEs shall be as per Govt. of India policy in vogue.

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**ANNEXURE- I A**  
**Instructions for Online Bid Submission**

**REGISTRATION**

1) Bidder participating through the GeM Portal should ensure that their GST details got registered and updated in GeM portal to avoid any technical issues during the financial bid opening and L1 evaluation.

**PREPARATION OF BIDS**

1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.

2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats.

**SUBMISSION OF BIDS**

1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

2) The bidder has to upload all the documents sought through tender duly filled signed and sealed.

4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.

5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the unprotected cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

## **ASSISTANCE TO BIDDERS**

1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

2) Any queries relating to the process of online bid submission or queries relating to GeM Portal in general may be directed to the 24x7 GeM Helpdesk.

### **Contact Person (National Informatics Centre)**

- 1. Mr.Midhun Babu  
Sr. Systems Analyst - HOCL  
Mobile No. 8921387812, 8547196394**

### **HOCL Work Co-ordinator**

- 2. Mr. Mangesh V Shhsane  
GM (Mechanical / Utility)  
Mobile No.9969186592/  
0484 – 2727440**
- 3. Mr. Jishnu M K  
Sr.Mechanical Engineer  
Mobile No.9947278381/  
0484 – 2727390**



## **ANNEXURE II**

### **ELIGIBILITY CRITERIA FOR PARTICIPATING IN THE BID**

1. Only manufacturers or their authorized dealers having sound financial capability and who can supply the chemicals as per the scope enclosed should submit the offers. Vendors who have been blacklisted in the past by any PSU shall not submit the bids.
2. Vendor should have sufficient technical and commercial capability to supply the materials as per HOCL requirements<sup>1</sup>.
3. Start up experience in a large chemical/petrochemical plant including pre-cleaning, passivation etc. A minimum two references are required each for both cooling water treatment and boiler water treatment.
4. Experience in treating low hardness and low alkalinity water (cooling water treatment). Vendor should have full-fledged manufacturing and R & D set up.
5. Vendor must also have service support facility at Cochin to carry out servicing directly by the Company.
6. Vendor must have executed orders of value of 74 lakhs for the similar water treatment supply contracts for cooling towers and boiler in the last three years.
7. Vendor must have executed at least one single order of value of 19 lakhs for the similar water treatment supply contracts for cooling towers and boiler in the last three years.
8. Vendor should submit balance sheet (Profit & Loss) for last three financial years.
9. Vendor should upload the satisfactory performance certificate/ Purchase Order copies from renowned customer.
10. Documentary evidence for all the above parameters is to be furnished by the bidder along with the Technical bid. However, the existing registered vendors of HOCL (for the said item) who were enlisted after ascertaining the above parameters may be exempted from furnishing the details against point no. 3,4,5 and 6.
11. MSME vendors as well as starts ups are eligible for relaxation on condition of prior turn over and prior experience subject to meeting of quality and technical specifications.
12. Any bidder from a country which shares a land border with India will be eligible to bid, only if the bidder is registered with the Department for promotion of Industry and Internal Trade (DPIIT). Such bidders should submit the valid copy of registration certificate along with tender.

- Relevant documents/purchase order copies are to be submitted to substantiate the above qualifying requirements. Please note that technical evaluation shall be done on the basis of criteria fixed by HOC and HOC reserves the right to accept or reject any or all bids without assigning any reasons whatsoever. Vendor should sign and upload the required documents given in PART A and PARTB
  - Vendors who are already registered with HOCL for the supply of water treatment are not required to furnish credentials against point no4, 5&6.
8. Technical offers submitted by existing suppliers will be evaluated considering the past Performance of the chemicals supplied by them to HOCL.

## ANNEXURE-III

### GENERAL CONDITIONS OF TENDER MAT/PUR/33094/23

Page 1 of 2

1. VALIDITY OF OFFER: Offer shall be valid for a minimum period of 90 days from the last date of submission stipulated for the tender. The bidder shall not be entitled during the contract period, to revise the rate or withdraw from the contract or vary any of the tender conditions without the consent of HOCL in writing.
2. SUBMISSION OF BIDS: Bids shall be uploaded as per the instructions given in Annexure I & IA.
3. EARNEST MONEY DEPOSIT (EMD): Parties has to submit Bid Security Declaration format duly filled along with Tender.

Bidders registered with HOCL / Bidders who have already supplied the material to HOCL, PSUs and Vendors registered with MSME need not submit EMD, but have to submit valid documentary proof like MSE certificate etc along with the Techno-commercial bid.

#### **EARNEST MONEY DEPOSIT - NOT APPLICABLE TO MSME / PSUs**

Quotation shall accompany an **EMD of Rs.18,350/-** shall be paid by RTGS/ NEFT/Bank Guarantee from any of the Nationalized / Scheduled Banks.

Bank Details     - Central Bank of India, Thripunithura  
                          - A/c No. 3580607136  
                          - IFSC - CBIN0284515

Details of bank transfer should be indicated in your technical offer. Quotations not accompanied with EMD, are liable to be rejected.

**EMD of the tenderer will be forfeited, if the tenderer withdraws or amends his tender or impairs or derogates from the tender in any respect within the validity period of the tender.**

4. Security Deposit: Successful bidder will have to pay a Security deposit of 5 % of the order value towards satisfactory performance of the contract. SD has to be submitted by way of Bank Guarantee from a Scheduled bank within 21 days of placement of Order. SD will be forfeited in the event of any breach of contract by the supplier. SD will be refunded to the contractor within 60 days of completion of contract. PSUs are exempted from payment of Security Deposit. Also MSME Vendors registered with NSIC are exempted from SD up-to the monetary limit mentioned in the certificate. This guarantee should be valid for 6 months beyond the expiry of the contract period and should be submitted within 15 days of placing the purchase order.

5. RIGHT TO REJECT A BID:HOCL reserves the right to reject any bid due to reasons such as
  - a) Vendor not following above bidding procedures (b) Vendor not being technically acceptable to HOCL (c) Not enclosing BID Security Declaration with the techno commercial bid (d) Vendor not agreeing with the general conditions of the tender. (e) Not enclosing any particular documents asked for (f) Any other valid reason including point No.8 as mentioned in Annexure III
6. PRICE: The price quoted shall be for delivery at our factory at Ambalamugal, Ernakulam District, Kerala state. The price shall be quoted in detail as per statement given in Annexure V. The price quoted by the vendor shall remain firm during the period of contract.
7. BOQ :Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable .If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the white colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder).No other cells should be changed. Once the details have been completed, the bidder should save it and submit it on-line, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.
8. PAYMENT TERMS: Payment shall be released by HOCL within 30 days of receipt and acceptance of the material at HOCL site.
9. INSURANCE: HOCL shall arrange the transit insurance for the materials.. However, the vendor shall promptly inform HOCL regarding dispatches for arranging insurance. The transporter engaged should have necessary public liability insurance coverage.
10. OPENING OF BIDS: Techno commercial bids will be opened electronically at 2.00 pm on 10.08.2023. HOCL, after evaluation of the techno commercial bids, will subsequently inform all those technically acceptable vendors regarding the date and time of opening of the price bids.
11. DISPUTES : : In the event of a contract being executed, all cases of disputes between seller and buyer shall be settled through arbitration as per Indian arbitration and Conciliation act 1996 or any amendments from time to time. The decision of the arbitration shall be final and binding on both the parties.
12. PURCHASE/PRICE PREFERANCE: Purchase/Price Preference or any other concessions applicable for SSI Units /PSUs will be as per latest Government Of India Directives. For availing this benefit, the bidder should make their claim in the Technical Bids itself and enclose necessary documentary evidence to prove their eligibility.
13. PERIOD OF CONTRACT: The contract for supply of chemicals shall be for a period of 2 years. No guarantee can be given about the exact quantity of chemicals that will be lifted from you. The chemical treatment programme will have to be started as soon as the tender is finalized and the supply of chemicals

will have to be effected as soon as the letter of intent is placed. The vendor shall carry sufficient inventory of chemicals at Cochin to meet the demands in time. Though the contract is for a period of 2 years. The work order will be initially awarded for a period of 1 year. The performance will be reviewed after one year and if found satisfactory the contract will be renewed for next year.

14. DELIVERY: The delivery schedule shall be given by HOCL and you shall be responsible for arranging supplies as per the schedule. In case the supplier fails to deliver the consignment within the period prescribed, HOCL shall be entitled to recover from supplier's pending bills against the order or from any other bills a penalty of ½% of the price of the goods in arrears per week at discretion of the HOC subject to maximum of 5%. Technical Assistance shall be offered till such time the ordered quantity of chemicals is fully used (consumed) or 2 years whichever is more.

At present the treatment programme is indented for a period of 2 years. Since we want to start the chemical treatment programme immediately on finalization of tender, the supply of chemical should be affected immediately on placement of the Letter of Intent and hence the chemicals should be available ex-stock preferably at Cochin. Therefore, the tenderer should indicate their best firm delivery time in the offer. Also, the prices should be firm for the above said period. Vendor has to take utmost care that there is no stock out situation. Stock out situation will be viewed very seriously.

15. TERMINATION OF ORDER: The order is subject to termination if the chemicals fail in giving the desired performance parameters agreed upon or if you fail to supply items as per delivery schedule agreed. In such case the performance guarantee will be invoked and HOCL shall make alternate arrangements to carry out the work at the risk and cost of failed supplier.

**16. INTEGRITY PACT should be signed for order value more than 50 lakhs .**

**17. RESTRICTION ON PROCUREMENT FROM BIDDER WHO SHARES THE LAND BORDER WITH INDIA**

Any bidder from a country which shares a land border with India will be eligible to bid, only if the bidder is registered with the Department for promotion of Industry and Internal Trade (DPIIT). (Pl. refer office Memorandum no. 6/18/2019-PPD dated 23rd July 2020 )Such bidders should submit the valid copy of registration certificate along with tender. However the said requirement of registration will not be applicable to bidders from those country to which Govt. of India has extended lines of credit or in which Govt. of India is engaged in development of projects. Bidders may appraise themselves of the updated lists of such countries available in the website of Ministry of External Affairs.

All Bidders shall furnish compliance certificate with respect to above clause as per the format in Annexure VI along with the bid.

\*\*\*\*\*

**TECHNICAL BID FORMAT**

(Techno commercial Bid should contain the following details which must be uploaded in PDF format)

1. Commercial Terms as per format given in tender term (ANNEXURE-VI)
2. Required BID Security Declaration.
3. Detailed Technical specification of the Chemical offered as per PART A and PARTB
4. Proof of satisfactorily meeting all the Eligibility criteria Conditions given in Annexure-II
5. Signed copy of the terms and conditions of the enquiry as given in Annexure-III
6. Un priced price bid formats
7. Financial Documents sought through the document uploaded in Excel / PDF format as required.

**COOLING WATER & BOILER WATER TREATMENT  
ANNEXURE – V  
PRICE BID FORMAT- AGAINST TENDER NO.MAT/PUR/33094/23**

- a) Quantity (total quantity required for 12 months :  
to be mentioned in respective column in BOQ)
- b) Basic Cost of chemical per Kg  
(For Caustic & Chlorine only quantity to be specified in BOQ) :
- c) P & F Charges (%) :
- d) Freight (%) :
- e) GST (%) :

(SUPPLY RATE TO BE INCLUSIVE OF SERVICE CHARGES ALSO)

The quantity recommended by technical department will be considered for price evaluation which will be done manually. Contingency chemical's rate to be mentioned in the respective column in BOQ. However the same will not be considered for financial evaluation.

\*\*\*\*\*

**ANNEXURE V - B**

**HOCL Tender Ref No: MAT/PUR/33094/23**

**COOLING WATER & BOILER WATER TREATMENT CHEMICALS**

Please mention the quantity required per Month as below

<b>Sl.No</b>	<b>Item Description</b>	<b>Chemical Name</b>	<b>Quantity Required Per Month</b>
1	Corrossion Inhibitor for cooling water treatment		
2	Bio-Dispersant for cooling water treatment		
3	Mineral Dispersant for cooling water treatment		
4	Antiscalent for cooling water treatment		
5	Antifoulant for cooling water treatment		
6	Non Oxidising Biocide-1 for cooling water treatment		
7	Non Oxidising Biocide-2-45% glutaraldehyde		
8	Chemical for ClO2 generation		
9	Anti scalant, corrossion inhibitor & sludge Conditioner for boiler water treatment		
10	Oxygen Scavenger for Boiler Water Treatment		
11	Condensate line protection for boiler water treatment		
12	Feed Water Ph Booster (Volatile) for boiler water treatment		

**\* This has to be submitted Along with Technical Bid**

**Chlorine & Caustic Soda Lye will be supplied by HOCL**

Please mention the quantity required per Month as below

<b>Sl.No</b>	<b>Item Description</b>	<b>Rate Per Unit Qty</b>	<b>Quantity Required Per Month</b>
1	Chlorine for ClO2 generation	Rs. 12.98	
2	Caustic Soda for cooling water treatment	Rs. 43.65	

**\* This has to be submitted Along with Technical Bid**

**ANNEXURE V - B**

**HOCL Tender Ref No: MAT/PUR/33094/23**

**Contingency Chemical for Cooling Water Treatment**

<b>Sl.No</b>	<b>Item Description</b>	<b>Chemical Name</b>	<b>Quantity Required Per Month</b>	<b>Rate Per Unit Qty</b>
1	Hydrocarbon ingress into system			
2	Chlorination failure			
3	pH fluctuation			
4	Lube Oil/ Grease ingress in to system			
5	High Iron Content			
6	High Turbidity of Make Up water			
7	High Chloride in Make Up Water			

**\* This has to be submitted Along with Technical Bid**

**Commercial Terms Format**

(Please fill up the details mentioned below in your letter head and upload along with your bid)

Name and Address of Organization:

Phone & Fax No:

GSTIN :

E-mail id for correspondence:

Contact Person Name and Mobile No:

MSME registration status of bidder: Registered/Non Registered.

BID Security Declaration: Submitted/Not Submitted

(If you are an MSME vendor, Pl. upload documentary evidence for same. If proof is not uploaded along with bid the same may not be considered)

Payment Term offered.

Terms of delivery offered:

Validity of offer:

Taxes Applicable:

Signature and Stamp



**COMMERCIAL TERM FORMAT-C**

(For Purchase Order/ Work Order with estimated value more than FIVE Lakhs)

ANNEXURE TO BE SUBMITTED ALONG WITH THE BID AGAINST TENDER NO \_\_\_\_\_

(KINDLY FILL AND SUBMIT ALONG WITH COMMERCIAL/TECHNICAL BID)

NAME OF BIDDER: .....

Sr.No.	COMMERCIAL CLAUSES	BIDDER CONFIRMATION (PLEASE PUT v )
1	Please mention whether you are a Class-I/Class II Local supplier.(Please see the definition given below)	Class I Class II
2	Specify the percentage (%) of local content.	_____ %
3	Details of location at which the local value addition is made.	
4	Mention whether the product offered is manufactured in India under a license from a foreign manufacturer who hold intellectual property rights and there is a technology collaboration agreement / Transfer of technology agreement	Yes / No

**SELF DECLARATION OF LOCAL CONTENT**

We hereby declare that the percentage (%) of local content specified against mentioned against Sr.No.2 is \_\_\_\_\_%.  
We also understand that submitting False self-declarations and auditors will be in breach of Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a Bidder or its successors can be debarred for up to Two Years as per the Rule 151 (iii) of the General. Financial Rules along with such other actions as may be permissible under Law.

**Definitions**

**Local Content:** - The amount of value added in India(Total value of item procured minus the value of imported content in the item(including all customs duties) as a proportion of total value, in percentage.

**Class I Local Supplier:** - Supplier or service provider whose goods, services or works offered for procurement has local content equal to or more than 50%.

**Class II Local Supplier:** - Supplier or service provider whose goods, services or works offered for procurement has local content more than 20% but less than 50 %.

**Purchase Preference:** -Will be as per the applicable Government order.

DATE

SIGNATURE AND STAMP

**BID SECURITY DECLARATION**

ANNEXURE TO BE SUBMITTED ALONG WITH THE BID AGAINST TENDER  
NO \_\_\_\_\_

I/We.....hereby declare  
that:

1. I will not revoke the tender within the stipulated period/ validity period OR increase the quoted rates.
2. I will commence the work on receipt of Purchase Order.
3. I will not withdraw or amend the tender or impair or derogate from the tender in any respect within the period of validity of the tender.
4. I will furnish the required performance security within the specified period.

**NAME AND ADDRESS OF THE BIDDER**

**PLACE:  
DATE:**

**SIGNATURE AND STAMP OF THE BIDDER**

REF : TENDER/RFQ No.: MAT/PUR/33094/23

**COMPLIANCE TO CLAUSE W.R.T MANADATORY REGISTRATION OF VENDORS FROM COUNTRIES SHARING LAND BORDER WITH INDIA,WITH DPIIT**

Date:

**TO WHOMSOEVER IT MAY CONCERNS**

"I have read The clause titled restrictions on procurement from a bidder of a country which shares a land border with India.

I certify that M/s.....(Name Bidder) is not from such a country

Or .

I hereby certify that M/s. ....(name of Bidder) is from a country which shares land border with India and fulfills all requirements in this regard and is eligible to be considered. Enclosed herewith Valid Registration Certificate

Or

I hereby certify that M/s..... (Name of Bidder) is from such a country which shares land border with India , however the said requirement of registration will not be applicable to bidders as Govt. of India has extended lines of credit or in which Govt. of India is engaged in development of projects. Enclosed herewith documentary evidence in this regards

We confirm that if it is established that we have provided any false information in pursuance to above clause, while competing for this contract then our Bid shall be rejected.

We further confirms that, if it is established that we have not complied with terms of aforesaid clause, during execution of contract, this would be a sufficient ground for immediate termination of the contract as per tender provision and shall be dealt accordingly

Name of the Bidder

Stamp & Signature of the Bidder

Name of the Bidder/ Bidding Firm / Company :												
<b>PRICE SCHEDULE</b> <b>(DOMESTIC TENDERS - RATES ARE TO GIVEN IN RUPEES (INR) ONLY)</b> <b>(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only )</b>												
<b>SUB: PROCURMENT OF WATER TREATMENT CHEMICALS</b> <b>HOCL Tender Ref No: MAT/PUR/33094/23</b>												
Sl.No	Item Description	Offered Chemical Name & Brand	Unit Lot = Qty per Month	Qty per Month	Period of contract (24 Lots = 24 Months)	BASIC RATE per kg In Figures To be entered by the Bidder in Rs.	P&F % (If Applicable)	Freight % (If Applicable)	GST %	quantity (total Quantity required for 2 year (24 months) in Kg	TOTAL AMOUNT Without Taxes	TOTAL AMOUNT With Taxes
<b>1</b>	<b>Cooling Water &amp; Boiler Water Treatment chemicals</b>											
1.01	Corrossion Inhibitor for cooling water treatment		Lot		24					0	0	0.00
1.02	Bio-Dispersant for cooling water treatment		Lot		24					0	0	0.00
1.03	Mineral Dispersant for cooling water treatment		Lot		24					0	0	0.00
1.04	Antiscalent for cooling water treatment		Lot		24					0	0	0.00
1.05	Antifoulant for cooling water treatment		Lot		24					0	0	0.00
1.06	Non Oxidising Biocide-1 for cooling water treatment		Lot		24					0	0	0.00
1.07	Non Oxidising Biocide-2-45% glutaraldehyde		Lot		24					0	0	0.00
1.08	Chemical for ClO2 generation		Lot		24					0	0	0.00
1.09	Chlorine for ClO2 generation		Lot		24	12.98				0	0	0.00
1.10	Caustic Soda for cooling water treatment		Lot		24	43.65				0	0	0.00
1.11	Anti scalant, corrossion inhibitor & sludge Conditioner for boiler water treatment		Lot		24					0	0	0.00
1.12	Oxygen Scavenger for Boiler Water Treatment		Lot		24					0	0	0.00
1.13	Condensate line protection for boiler water treatment		Lot		24					0	0	0.00
1.14	Feed Water Ph Booster (Volatile) for boiler water treatment		Lot		24					0	0	0.00
<b>A</b>	<b>TOTAL AMOUNT (ALL INCLUSIVE)</b>											<b>0.00</b>

Name of the Bidder/ Bidding Firm / Company :

**PRICE SCHEDULE  
(DOMESTIC TENDERS - RATES ARE TO GIVEN IN RUPEES (INR) ONLY)**

**(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only )**

**SUB: PROCURMENT OF WATER TREATMENT CHEMICALS  
HOCL Tender Ref No: MAT/PUR/33094/23**

Sl.No	Item Description	Offered Chemical Name & Brand	Unit Lot = Qty per Month	Qty per Month	Period of contract (24 Lots = 24 Months)	BASIC RATE per kg In Figures To be entered by the Bidder in Rs.	P&F % (If Applicable)	Freight % (If Applicable)	GST %	quantity (total Quantity required for 2 year (24 months) in Kg	TOTAL AMOUNT Without Taxes	TOTAL AMOUNT With Taxes
<b>2</b>	<b>Contingency Chemicals for cooling water treatment. This will not be considered for financial evaluation</b>											
2.01	Hydrocarbon ingress into system		Lot		24					0	0	0
2.02	Chlorination failure		Lot		24					0	0	0
2.03	pH fluctuation		Lot		24					0	0	0
2.04	Lube Oil/ Grease ingress in to system		Lot		24					0	0	0
2.05	High Iron Content		Lot		24					0	0	0
2.06	High Turbidity of Make Up water		Lot		24					0	0	0
2.07	High Chloride in Make Up Water		Lot		24					0	0	0
<b>B</b>	<b>TOTAL AMOUNT (ALL INCLUSIVE)</b>											<b>0.00</b>

**NOTE 1 :** Rate quoted for contingency chemicals will not be considered for L1 Evaluation. However the rate and quantity mentioned for the contingency chemicals will be valid for a period of two years.

**NOTE 2 :** In custom bidding bidder have a provision for entering the total quoted rates only as a lumpsum value. Bidder should enter the Total Amount (All inclusive) in SL.NO. A as the quoted rate. Please refer to our Note 1 given above.

**Note 3 :** Bidder has to upload this BoQ sheet duly filled signed and sealed in both Excel & PDF format along with the Financial documents sought through the GeM Bid.

**Note 4 :** P&F and Freight charges shall be entered only if applicable. If P&F and Freight charges are not applicable please leave the corresponding cells unattended / without entering any values.