

**DETAILS OF LABORATORY EQUIPMENTS/INSTRUMENTS/ACCESSORIES
ETC.WITH CONFIGURATION AND TECHNICAL SPECIFICATION/REQUIREMENT**

ITEM NO 1.

Purge-And-Trap Concentrator with Foam Sensor/Foam Eliminator: Purge and Trap concentrator system is required as an attachment for GC/MS Model: Trace GC Ultra Polaris Q-MS of Thermo Fisher Scientific for testing of volatile compounds such as Benzene, Vinyl Chloride, Epichlorhydrin etc especially for Water samples as per EU norms-EC/98/83.

The Purge-And-Trap Concentrator should have the following features/criteria:

- a. Electronic Mass flow controller with choice of He or N₂ gases.
- b. It should have a very low carry over and built in water management system.
- c. It should have a foam sensing and preventing facility.
- d. The trap furnace must have temperature ambient to 350°C and should cool down facility.
- e. There must be temperature uniformity and control along the entire length of trap.
- f. The sample mount temperature should be Ambient to 100⁰C and condenser temperature should be Ambient to 250⁰C
- g. The trap furnace must have 6 port switching valve, external transfer line, sample mount, condenser and sample heater.
- h. The concentrator must have a temperature programmable moisture condensate trap.
- i. The concentrator must utilize a Mass Flow Controller for electronic flow control.
- j. The concentrator must have an automated leak check capability.
- k. The concentrator must be controllable through an RS-232 interface.
- l. The system should be capable of operating in laboratory temperature upto 30°C and humidity levels upto 90%.
- m. The system should be supplied with windows based licensed software with original license certificate.
- n. All tubing and related fitting in this system should be Silteck treated for system inertness throughout the sample path.

Note 1 : All accessories, spares to be provided and quoted so that auto sampler can be installed and put to operation for the analysis without any additional requirement of accessories / spares. Such accessories / spares shall include Head space cum liquid autosampler of 100 vials or similar consisting of Base unit, Autosampler features amongs others should have Automatic syringe recognition and adjustment , Automatic internal standard calibration method cleaning operations etc Primary Ambient Tray, Washing Station,Syring Holder 50mm needle for 5,10,100,250µl syringes, HS turret including Turret, Syringe Holder and Incubation Oven etc, Secondary Ambient Tray, Mounting Bracket with screw and mounting accessories and all other accessories required

Note 2 : Complete set of operational and maintenance manual to be provided.

Note 3 : Pre-requisites as required for installation to be stated in the quotation.

Note 4 : It will be Supplier's responsibility to couple & show the performance of Purge & Trap system with above make of GCMS

Note 5 : Different type of trap for various applications to be provided (optional, price to be quoted separately).

Quantity required: One

ITEM NO 2.

Low Bleed Capacity Capillary columns for GC-MS Model Trace GC ultra with ECD & Polaris Q –MS of Thermofisher Scientific : The analytical columns are required for residual level at sub ppb concentration analysis of Organochlorine pesticides, PAH, PCB, Volatile Compounds, Organophosphorus compounds in Fish and Fishery products, Milk, Poultry and Water analysis (EU norms-EC/98/83).

The analytical column should meet the following features/criteria:

SI No	Specification	Column 1	Column 2	Column 3
1	Phase	DB-5 MS or similar phases	DB-5 or similar phases	DB-624 or similar phases
2	Length (m)	30	30	20
3	Internal ID (mm)	0.25	0.25	0.18
4	Film thickness (µm)	0.25	0.25	1
5	Temperature range (°C)	-60 to 325/350	-60 to 325/350	-20 to 280

- Very low bleed characteristics ideal for GC-MS
- Non Polar
- The analytical column should be supplied with certificate of Performance.

Quantity required: Column 1 - Two Nos., Column 2 – One No., Column 3 –One No.

ITEM NO 3.

Graphite tubes with integrated platform for HGA-850 of AA-300: Graphite Tubes with integrated platform for HGA-850 of Atomic Absorption Spectrophotometer (AA-300) of Perkin Elmer (India Pvt. Ltd) for atomization of samples.

The Graphite tubes should meet the following features/criteria:

- a. Graphite tubes cylindrical in nature with integrated platform compatible to Perkin Elmer AA 300 (HGA-850).
- b. It will be Supplier's responsibility to couple & show the performance of the mentioned spare with above make of AA 300.

Quantity required: 10 Nos

ITEM NO 4.

Multichannel Micropipette: Multichannel micropipette (8 channels) is required for analysis of Histamine in Fish, Aflatoxin M1 in Milk by ELISA, etc

- a) Range 10-100µl
- b) Range 30-300 µl

The Multichannel micropipette should meet the following features/criteria:

- a. Separate tip ejection button (2- button operation)
- b. Autoclavable lower part.
- c. Four digit display magnified for improved visibility
- d. Should conform In Vitro Diagnostic (IVD) Directive
- e. Should have maintenance free nose cones
- f. Should be chemically resistant
- g. Should have a single handed volume setting.
- h. Should be for single operation with reduced operating forces.

Quantity required: Range 10-100 µl—1No , Rang 30-300 µl- 1No.

ITEM NO 5.

HPLC Columns: The analytical column with its compatible guard column is required for residual levels at sub ppb concentration analysis of Tetracycline groups, Oxolinic acid and Sulphanomide groups using HPLC

The analytical column should meet the following features/criteria:

- a. Length- 150 & 250mm
- b. Internal ID - 4.6 mm
- c. Particle Size- 5 microns
- d. Pore size- 95-100 Å^o
- e. Carbon load- 16%
 - Difunctional bonded silica based column
 - Should be highly stable with good peak shape for low pH applications
 - The analytical column should be supplied with certificate of Performance

Quantity required: 2 Nos

ITEM NO 6.

Biosafety Cabinet: Biosafety cabinet required to work aseptic conditions for product protection and lab personnels.

The Biosafety cabinet should meet the following criteria

- a. Working Area: 900-1220 mmW x 600-610 mm D x 500- 610 mm H or similar.
- b. Should be a Class II/Class 100 or it's equivalent Vertical Biosafety cabinet.
- c. Bulk head in SS 304 double skin construction
- d. SS 304 working chamber with partially perforated table
- e. Sliding door in front
- f. Should have a prefilter and a hepafilter for effective trapping
- g. Should have a motor blower assembly
- h. Suitable fluorescent lighting and UV lamp
- i. Should have a Magnehelic Gauge/Meter.
- j. Should have a castor wheel
- k. Should have a valid calibration test

Quantity required: 1 No.

ITEM NO 7.

Air Purifier: Air purifier required for purification of air to reduce the bio burden of the laboratory

The Air purifier should meet the following features/criteria

- a. Capacity range : at least 1000 ft³
- b. The body shall be compact, light Weight, ABS plastic / powder coated material.
- c. shall have Prefilter, Ionizer, Carbon activated filter, UV tube air purifier, Hepafilter

Quantity required: 3 No.

ITEM NO 8.

Rotary Vacuum Pump: Rotary vacuum pump required for Water's LCMSMS, HPLC Model No.2695, MS Model Micromass (Quattro Micro)

The Rotary Vacuum pump shall have the following features/criteria

- a. Two stage, direct drive, sliding vane pump.
- b. Pump should be oil sealed and designed for reliable, long term operation in laboratory condition.
- c. Pump should be a freestanding unit.

- d. Pump should have a thermal overload device which prevents overheating.
- e. The motor should be totally enclosed which is cooled by motor cooling fan.
- f. Should have Oil distribution valve
- g. Pumping chambers should be air tight
- h. Should have a gas ballast control.
- i. It will be Supplier's responsibility to couple & show the performance of Vacuum pump with LCMSMS
- j. Voltage 230 V single phase.

The details of Technical requirement for the Rotary Vacuum pump are given below:

Displacement (swept volume) 50 Hz	32.2m ³ h ⁻¹ / 19 ft ³ min ⁻¹
Speed (Pneurop 6602) 50 Hz	27.5 m ³ h ⁻¹ / 16.2 ft ³ min ⁻¹
Ultimate vacuum (total pressure)	
without gas ballast	1 x 10 ⁻³ mbar / 7.5 x 10 ⁻⁴ Torr
with gas ballast	1.5 x 10 ⁻² mbar / 1.1 x 10 ⁻² Torr
Inlet connection	NW25 flange
Outlet connection	Nozzle 15 mm external Ø removable from 3/4 in BSP tapped hole
Maximum permitted pressure at outlet	0.5 bar gauge / 7 psig
Maximum inlet pressure for water vapor	30 mbar / 23 Torr
Maximum water vapor pumping rate	0.7 kg h ⁻¹
Motor power 50 Hz	0.75 kW
Weight	40 kg / 88 lbs
Noise	57 dB(A) @ 50 Hz

Quantity required: 1 No

ITEM NO 9 & 10.

HPLCMS-MS Columns: The analytical column with its compatible guard column is required for residual levels at sub ppb concentration analysis of banned veterinary drugs using HPLCMS-MS eg. Choramphenicol, Nitrofurantol metabolites etc.

The analytical column should meet the following features/criteria:

SI No	Specification	Column No1	Column 2
1	Phase	Hybrid particle based column	Hybrid particle based column
2	Length (mm)	100	150
3	Internal ID (mm)	2.1	4.6
4	Pore size (°A)	125	135
5	Particle Size (µm)	5	5
6	Carbon Load %	15.5	17.5
7	PH range	1-12	1-12

- The analytical column should be supplied with certificate of Performance

Quantity required: 2 Nos

ITEM NO 11.

Hot Air Oven with air circulation : Hot Air oven with air circulation required for Moisture Determination and for dry sterilization.

The Hot air oven shall have the following criteria:

- a. Capacity: 300 litres or similar
- b. Temperature Range: Ambient +5° to 250°C
Accuracy: ±1°C
- c. Controller: Digital Microprocessor programmable controller
- d. Material Inner: Stainless Steel
Outer: Powder coated Stainless steel
- e. Safety: Oven temperature protector, Oven current and leakage breaker.
- f. Verification: Timer operated verification system

Quantity required: 2 Nos

ITEM NO 12.

Refrigerator: The twin cooling system refrigerator *i.e* separate refrigerator cum freezer independently operative for sample storage and storage of media, standard etc.

The Refrigerator should meet the following criteria

- a. The refrigerator should have two separate compartments for refrigeration and freezing which are individually operated. Freezer compartment and Refrigerator compartment should be situated side by side vertically and not Top & Bottom.
- b. Capacity : Approximate 570 litres or similar
- c. Should have a digital display and control panel depicting freezer temperature and refrigerated temperature.
- d. Should have an open door alarm.
- e. Automatic defrosting system with multi airflow.
- f. Should have an open door alarm.
- g. Freezer temperature should be set between -15° to -25°C
- h. Refrigerator temperature should be set between 1 to 2°C

Quantity required: 1 No.

ITEM NO 13.

Autoclave Microprocessor controlled : Autoclave Microprocessor controlled is required for wet sterilization of media, Bench Top Model (Horizontal Type)

The Autoclave shall have the following criteria:

- a. Dimension range : 650 to 670W x 800 to 850D x 520 to 570H mm or similar.
- b. Capacity: 44 litres or similar
- c. Temperature Range: 105-135°C
- d. Pressure:Max. 0.26 Mpa (2.60kgf/cm²)
- e. Controller: Digital programmable micro processor controlled.
- f. Material Inner: Stainless steel (STS 316)
Outer: Epoxy resin powder coated steel
- g. Timer: 0-60 min (sterilization and dry time)
- h. Display: LCD display temperature timer, LED indicator
- i. Safety: Over pressure release safety valve.
Over heating protector
Door open sensing and power cut off
- J Electric supply : 230V, 50/60Hz
- k Servo controller voltage stabilizer : 5 KVA
- l Power consumption : 3 Kw

Quantity required: 1 No

ITEM NO 14.

Electronic Analytical Balance: Electronic analytical balance is required for weighing chemicals

The balance should meet the following criteria.

- a. Capacity : upto 320gm
- b. Least Count : 0.1 mg
- c. Readability : 0.1 mg
- d. Calibration (Internal) : Fully automatic, time/temperature controlled
Self adjustment
Balance must be provided with calibration Certificate having traceability National or International standard. Calibration shall also be done on site after installation.
- e. Calibration (external) : Adjustable with external weight.
- f. Four digital display
- g. Vibration adaptor for damps influence due to vibration and minor shocks.
- h. Operation manual and maintenance manual
- i. Service manual with set of required tools.

Quantity required: 1 No

ITEM NO 15.

Standard Reference Materials (SRM): Standard Reference Material (SRM) for analysis of waters, fish and fish products, milk, poultry and other processed food products.

The details of SRM required with the requirements are as follows:

Sl No	Compound	Quantity required
1	Benzene	Minimum quantity to be quoted
2	Benzopyrene	Minimum quantity to be quoted
3	1,2- dichloroethane	Minimum quantity to be quoted
4	Epichlorohydrin	Minimum quantity to be quoted
5	Tetrachloroethane	Minimum quantity to be quoted
6	Trichloroethane	Minimum quantity to be quoted
7	Trihaloethane	Minimum quantity to be quoted
8	Vinly Chloride	Minimum quantity to be quoted
9	Sulphanomides	Minimum quantity to be quoted
10	Aflatoxin B1, B2, G1, G2	Minimum quantity to be quoted
11	PAH	Minimum quantity to be quoted

- a. The SRM shall have certificate of analysis for lot/batch number
- b. The SRM should be invariably from the latest batch
- c. SRM should be in the form of solution/dilutions/solids

Quantity required: 1 No. each SRM

ITEM NO 16.

Sonicator: Sonicator required for degassing solvents (HPLC grade), Cleaning glassware, Sophisticated instruments Parts etc.

Sonicator shall have the following features/ requirements/criteria:

- a. Size: 300mmLx 250mmWx 150mm H or similar
- b. Capacity: 9-10 liters (approximately) or similar.
- c. It should be microprocessor controlled with mechanical timer for approximately 30 minutes
- d. It should have a In built MOSFET base electronic circuit.
- e. Tank Material : SS 304, 18G
- f. Outer cabinet with SS lid : SS 304, 20G
- g. Input supply : 230 V Single Phase , 50Hz
- h. Drain Facility : with SS Ball Valve
- i. Power consumption : Average 250 V
- j. Operation manual and maintenance manual
- k. Service manual with set of required tools.