



**BSWM- BIDS AND AWARDS COMMITTEE
 SUPPLEMENTAL BID BULLETIN
ADDENDUM NO. 2021-08-026-01**

CONTRACT: INVITATION TO BID FOR SUPPLY AND DELIVERY OF 18 UNITS OF INDUCTIVELY COUPLED PLASMA-OPTICAL EMISSION SPECTROSCOPY (ICP-OES) FOR CY 2021 (IB No.: BSWM 2021-08-0026)

This **Addendum** is being issued in accordance with **Section 22.5.2 of the IRR of RA 9184**, to clarify and modify some provision of the Bidding Documents. **THIS SHALL FORM AN INTEGRAL PART OF THE BID DOCUMENT.** Likewise, the succeeding agreements and reminders were discussed during the **Pre-Bid Conference** held last **August 26, 2021, 9:30AM** at the **BSWM Function Hall** and via **Videoconferencing-Zoom**.

I. DISCUSSION OF THE BIDDING DOCUMENT:

- o **ABC: One Hundred Thirty-Five Million Pesos (PhP 135,000,000.00)**
- a. For SLCC, **similar contract** shall be contract of **Supply and Delivery of Technical and Scientific Laboratory Equipment** completed within five (5) **consecutive years** prior to the deadline for the submission and receipt of bids.

The Bidder should comply with the following requirements:

- i. Completed at least two (2) similar contracts, the aggregate amount of which should be equivalent to at least *fifty percent (50%) in the case of non-expendable supplies* of the ABC for this Project; and
- ii. The largest of these similar contracts must be equivalent to at least half of the percentage of the ABC as required above.
- o Delivery of goods is required **within sixty (60) calendar days** upon receipt of Notice to Proceed (NTP).
- o **Awarding** - One Project having several items that shall be awarded as one contract.

II. SECTION VII. TECHNICAL SPECIFICATION:

ITEM No. (on Section VII of Bid Document+)	ORIGINAL	AMENDED
8	Wavelength Range: Minimum of 167 - 785 nm which cover all elements in ICP-OES.	Wavelength Range: 163 (min)- 785 nm (max) which cover all elements in ICP-OES.
9	RF Generator: at least 27 MHz RF, with min of 750 to 1500W with 1-15 W increment	RF Generator: at least 27 MHz RF, 750 (min) to 1500W (max) with 1-15 W increment
31	Water Chiller: 1HP 1.9L Polyclear fluid	Water Chiller: 1HP 1.9L clear fluid
43	6 sets - Argon Gas with tank	8 sets - Argon Gas with tank
44	3 empty tanks under ownership of the respective lab 3 empty tanks under	Includes Gas Cylinder Bond and Rental (1 year)

	ownership of the respective lab 3 empty tanks under ownership of the respective lab	Procurement of gas should be with PhilGEPS Registered Supplier. Coordinate per recipient for their existing gas suppliers.
54	Training: Inclusive of training for 2 end-user on operation and basic troubleshooting inclusive of fare, transpo, accommodation and on-site training	Includes training for two (2) personnel per recipient at manufacturer's training site inclusive of all expenses Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.
72	17.) Bohol Province (New Capitol Building, Gov Lino I. Chatto Drive, Brgy, Tagbilaran City, Bohol)	17.) Bohol Province (BISU-Bilar Campus, Zamora, Bilar, Bohol.)
83	Optimized RO Cartridges – 16 LPH	Optimized RO Cartridges – minimum 16 LPH
85	Aquastop Quick Connection	Water Stop Quick Connection or better
95	30 L reservoir with recirculation pump, CO2 vent filter and sterile overflow	30 L or higher capacity reservoir with recirculation pump, CO2 vent filter and sterile overflow
133	With contact-free DIRC temperature measurement of all samples in the temperature range from 50 to 300°C or better	With contact-free temperature measurement of all samples in the temperature range from 50 to 300°C or better
135	12 position, 100ml capacity digestion vessel made of PTFE/TFM	12 position at 100ml or 16 position at 100ml
136	Noise level: <60dB	Noise level: 60dB or lower
180	Cutting Speed: 0 - 2400 rpm	Cutting Speed: 0 - 3000 rpm
211	with 1 spare electrode	with 1 spare electrode With ISO 17025 Calibration Certificate
226	$A \leq \pm \% : 0.5\%$	$A \leq \pm \% : 0.5\%$ With ISO 17025 Calibration Certificate
231	$A \leq \pm \% : 0.5\%$	$A \leq \pm \% : 0.5\%$ With ISO 17025 Calibration Certificate
236	$A \leq \pm \% : 0.5\%$	$A \leq \pm \% : 0.5\%$ With ISO 17025 Calibration Certificate
247	Sensitivity drift within +10 to +30°C : $\leq \pm 2.10^{-6}/K$	Sensitivity drift within +10 to +30°C : $\leq \pm 2.10^{-6}/K$ With ISO 17025 Calibration Certificate
251	$CV \leq \% : 0,1 (50 ml)$	$CV \leq \% : 0,1 (50 ml)$ With ISO 17025 Calibration Certificate
258	Door Type: Manual	Door Type: Manual With ISO 17025 Calibration Certificate
263	$CV^* : 0.2$	$CV^* : 0.2$ With ISO 17025 Calibration Certificate

268	CV* : 0.2	CV* : 0.2 With ISO 17025 Calibration Certificate
282	with ISO Calibration Certificate	With ISO 17025 Calibration Certificate
302	Electrical : 115 or 230 @ 50/60Hz	Electrical : 115 or 230 @ 50/60Hz With ISO 17025 Calibration Certificate
307	A ≤ ± % : 0.5%	A ≤ ± % : 0.5% With ISO 17025 Calibration Certificate
312	A ≤ ± % : 0.5%	A ≤ ± % : 0.5% With ISO 17025 Calibration Certificate
322	with ISO calibration	With ISO 17025 Calibration Certificate
325	<p>Weighing Capacity : 820g</p> <ul style="list-style-type: none"> • Readability : 0.01g • Pan Size : 150Ø mm. • Repeatability : ≤± 0.02g • Linearity : ≤± 0.03g • Response Time : 1.0 sec. • Allowable ambient operating temperature: 5 to +40°C • Sensitivity drift within +10 to+30°C : 5.10-6 ≤±K • Dimension (WxDxH) : 230 x 310 x 87 mm • Weight : 2.0 kg • Power Requirements : AC adapter 230V • Calibration & Adjustment: Internal 	<p>Weighing Capacity : 820g</p> <ul style="list-style-type: none"> • Readability : 0.01g • Pan Size : 150Ø mm. • Repeatability : ≤± 0.02g • Linearity : ≤± 0.03g • Response Time : 1.0 sec. • Allowable ambient operating temperature: 5 to +40°C • Sensitivity drift within +10 to+30°C : 5.10-6 ≤±K • Dimension (WxDxH) : 230 x 310 x 87 mm • Weight : 2.0 kg • Power Requirements : AC adapter 230V • Calibration & Adjustment: Internal <p>With ISO 17025 Calibration Certificate</p>
330	<p>pH Accuracy: ≤ 0.02 pH (± 1 digit)</p> <p>pH Electrode calibration: 1 to 3 points calibration</p> <p>pH Measurement Range: -2.00 - 19.99 pH</p> <p>pH Resolution: 0.01 pH</p> <p>Power Supply: Batteries</p>	<p>pH Accuracy: ≤ 0.02 pH (± 1 digit)</p> <p>pH Electrode calibration: 1 to 3 points calibration</p> <p>pH Measurement Range: -2.00 - 19.99 pH</p> <p>pH Resolution: 0.01 pH</p> <p>Power Supply: Batteries</p> <p>With ISO 17025 Calibration Certificate</p>
352	Internal : WxDxH : approx 47 x 51 x 43.2cm (18½ x 20 x 17")	Internal : WxDxH : approx 47 x 51 x 43.2cm (18½ x 20 x 17") With ISO 17025 Calibration Certificate
382	A ≤ ± % : 0.5%	A ≤ ± % : 0.5% With ISO 17025 Calibration Certificate
397	Includes: PVC IntelliSense Blower # 7183420 Acid Cabinet # 9901000 Ducting for single-story building	Includes: PVC IntelliSense Blower # 7183420 Acid Cabinet # 9901000 Ducting for single-story building With ISO 17025 Calibration Certificate
446	with ISO calibration	With ISO 17025 Calibration Certificate
453	Includes: PVC IntelliSense Blower # 7183420 Acid Cabinet # 9901000 Ducting for single-story building	Includes: PVC IntelliSense Blower # 7183420 Acid Cabinet # 9901000 Ducting for single-story building

		With ISO 17025 Calibration Certificate
480	includes all necessary electrodes: ISE electrodes: Flouride, Nitrate, Ammonium, Chloride, Ammonia, Sodium, Calcium	includes all necessary electrodes: ISE electrodes: Flouride, Nitrate, Ammonium, Chloride, Ammonia, Sodium, Calcium With ISO 17025 Calibration Certificate
504	with ISO Calibration Certificate	With ISO 17025 Calibration Certificate
513	Door Type: Manual	Door Type: Manual With ISO 17025 Calibration Certificate
		Please see attached Annex A – Revised Section VII: Technical Specifications

III. REMINDERS DURING THE PRE-BID CONFERENCE:

- The Bureau is now adopting the GPPB Resolution No. 16-2020 dated September 16, 2020 (Simplified PBDs shall be used for Competitive Bidding of Procurement Projects that will be posted upon its effectivity on 06 October 2020).
- The documents required for eligibility, technical proposal and financial proposal are found at **Section VIII – Checklist of Technical and Financial Documents** of the bidding document.
- Please refer to the bidding document for the **sample form of Single Largest Completed Contract (SLCC)** and form for **Statement of all ongoing Government & Private Contracts** including Contracts Awarded but not yet started for your reference.

Note: if no ongoing projects/ contracts, please state “none” or “no ongoing projects/contracts” in the form for the Statement of all on going Government and Private Contracts.

- Bidding will be conducted through open competitive bidding procedures using a non-discretionary “pass/fail” criterion as specified in the Implementing Rules and Regulations (IRR) of Republic Act (RA) 9184, otherwise known as the “Government Procurement Reform Act”

“Any lacking documents can cause the automatic disqualification of bids.”

- Below are the **acceptable forms of bid security** that bidders may opt to use, **which shall include the Bid Securing Declaration**. The amount of which shall not be less than the required percentage of the ABC in accordance with the following schedule:

Form of Bid Security	Amount of Bid Security (Not less than the required Percentage of the ABC)
Cash or cashier’s/manager’s check issued by a Universal or Commercial Bank.	Two percent (2%)
Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: Provided, however, that it shall be confirmed or authenticated by a Universal or Commercial Bank, if issued by a foreign bank.	
Surety bond callable upon demand issued by a surety or insurance company duly certified by the Insurance Commission as authorized to issue such security.	Five percent (5%)

- Bidders have the option to choose from any of the four (4) forms of Bid Security provided in the bid documents including the Bid Securing Declaration.
- Please be guided that the surety bond issued by GSIS as well as a cash deposit certificate is no longer accepted.
- The bidders are reminded that their Bids and Bid Securities **should be valid and firm** for a period that shall **not exceed one hundred twenty (120) calendar days** after the date of the opening of bids
- The computation of a prospective bidder's NFCC must be at least equal to the ABC to be bid, calculated as follows:
 - $NFCC = [(Current\ assets\ minus\ current\ liabilities) (15)]$ minus the value of all outstanding or uncompleted portions of the projects under going contracts, including awarded contract yet to be started, coinciding with the contract to be bid.
 - **Note: K= 15 is a constant factor per RA 9184 Revised IRR**
- For **sealing and marking of bid proposal**, the bidders are requested to submit two (2) separate envelopes, placed in one sealed envelope. An illustration is provided on the bidding documents showing the required envelopes and markings of the documents for the eligibility screening, technical and financial proposal.
 - The bidders shall submit **one (1) copy of original documents** (certified true copies) and **one (1) duplicate copy**.
 - **All pages/documents** must be **duly signed** by the authorized representative (original and duplicate proposal).
- **The bidders are reminded of:**
 - Submission of the requirements within five (5) calendar days after the receipt of the Notice from the BAC that your bid has been identified as the Lowest Calculated Bid (LCB) and is subject for Post-Qualification of BAC TWG as stated in ITB Clause no. 20.2 of the Bid Documents.
 - Submission of **Performance Bond** and **Signed Contract Agreement within ten (10) calendar days after the receipt of Notice of Award (NOA)** as Lowest Calculated and Responsive Bid (LCRB) as stated in RA 9184 Section 37.2.1 and Section 37.2.2.
 - **Required Warranty Certificate from the Supplier** in order to assure that manufacturing defects will be corrected by the Supplier, as provided under Section 62.1 of the 2016 revised IRR of RA 9184 and as stated in the bidding documents Section VII- General Condition of Contract (GCC) Clause no. 5.
 - **All bidders** who wish to join the bidding **shall download the attached document from PhilGEPS website** to be included in the Document Request List (DRL). This is for awarding purposes in compliance to Section 37.1.6 of RA9184.
 - For easy reference, **all bidders shall provide dog-ear codes in the presentation of their documents**.
- Bidders may download the updated Bidding Forms at GPPB Website (<https://www.gppb.gov.ph/downloadables.php>).

- In case of withdrawal of submitted proposal, a letter stating their intention to withdraw from the project should be submitted by the bidder before the scheduled Opening of Bids.
- A complete set of **Bidding Document** may be acquired by interested Bidders until **September 9, 2021 9:00AM** from the address and website below and **upon payment** of the applicable fee, pursuant to the latest Guidelines issued by the GPPB.
 - For bank-to-bank payment (Land bank of the Philippines) for the purchase of bidding documents, please coordinate with the BAC Secretariat thru bswm.bacsec@gmail.com.
- **Schedule of Submission and Opening of Bids is subject to change** due to Community Quarantine enforced by the government in line with the COVID-19 pandemic. Please refer to the BSWM PhilGEPs posting for updates (<https://www.philgeps.gov.ph/>) and BSWM Procurement Service FB page <https://www.facebook.com/bswmpms>.
 - Bidders who wish to **attend the Opening of sealed Bids** will be **allowed thru videoconferencing(via Zoom)** as per GPPB Resolution No. 24-2018. Please coordinate with the BAC Secretariat a day before the Opening of bids thru bswm.bacsec@gmail.com. Said activity will also be available “live” through BSWM Procurement Service FB Page (<https://www.facebook.com/bswmpms>).
 - An authorization letter and photocopy of company ID for the representative of the bidders who shall submit bid proposal and will join the opening of bids on behalf of their company is required to be presented (including online attendees).

DEADLINE/SCHEDULE OF SUBMISSION AND OPENING OF BIDS:

Deadline of submission of bid proposal is on September 9, 2021, 9:00AM.

Opening of Bids is on September 9, 2021, 9:30AM at BSWM Function Room.

For precautionary measure against the COVID 19, bidder attendance will be through videoconferencing only.

For guidance and information of all concerned.

(SGD) DR. GINA P. NILO

OIC, Assistant Director / BAC Chairperson

Annex A: Revised Technical Specifications

Item	Specification	Statement of Compliance
		<p><i>[Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</i></p>
1	ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry)	

2	Specifications:	
3	True simultaneous analysis	
4	Torch Orientation: Vertical torch configuration and automatic alignment	
5	Entire optical system is enclosed in a purged and thermostated optical enclosure	
6	Computer controlled, fully automated Plasma ignition and shutdown, Ambient operating temperature, and gas flows are controlled by the system controller	
7	Focal Length: 253 mm or better	
8	Wavelength Range: 163 (min)- 785 nm (max) which cover all elements in ICP-OES.	
9	RF Generator: at least 27 MHz RF, 750 (min) to 1500W (max) with 1-15 W increment	
10	Optical System: Vertical dual view Echellepolychromator	
11	Resolution: max 0.007 nm at 200 nm	
12	Detector: Charge-Coupled Device (CCD), peltier-cooled to a temperature of preferably -40°C with anti-blooming technology	
13	Measurement Speed: Maximum of 0.8 secs (Purging time for As after switching on the gas system: 15 minutes or better)	
14	Plasma warm-up: 10 minutes maximum	
15	Elimination of tail plume of plasma: no use of shear gas	
16	Torch: Quartz, Automatic alignment, mounted vertically.	
17	Gas Controls: Plasma gas: 0-20L/min at 0.1-1L/min increment Auxillary Gas : 0-2.0L/min at 0.01-0.1 L/min increments Nebulizer Gas: 0-1.5L/min at 0.01-0.05L/min increment	
18	Type of Gas: Argon only	

19	Purge Gas: Argon only	
20	Nebulizer: Concentric glass	
21	Peristaltic pump: built-in, 5 channels	
22	Spray Chamber: cyclonic glass	
23	Software:	
24	Step by step approach of graphical user interface	
25	Method development- provides quantitative results (low to high concentrations) for each element of unknown sample without the need to prepare calibration standards	
26	Shows data that avoid spectral interference determine possible dilution factors, assist in determining the calibration range for each element, and which plasma view to use	
27	The software is capable of quantitative screening which captures data from the entire wavelength range as each sample is measured, then uses this broader view to calculate the approximate concentration of up to 70 elements in a sample	
28	Environmental Conditions:	
29	The instrument must be able to operate in laboratory conditions that range from 15 - 30C and a relative humidity of 25 - 80 % non-condensing, non-corrosive. The instrument must be able to operate in laboratories with temperature changes of up to 2 C per hour without any degradation of performance	
30	Standard Accessories:	
31	Water Chiller: 1HP 1.9L clear fluid	
32	Autosampler: 360 samples capacity or more using same sample rack	
33	2 torches, nebulizer, spray chamber, and all necessary tubing	
34	Custom solution in Other Solutions details: Ca 50ug/ml, Cu 2ug/ml, Fe 10ug/ml, Mg 10 ug/ml, Mn 2ug/ml, K 10ug/ml, Na 10ug/ml. Zn 2ug/ml	

	MATRIX: MEHLICH III (0.2N acetic acid; 0.25N NH4NO3; 0.015N NH4F; 0.013N HNO3; 0.001M EDTA) Size: 500ML	
35	Custom solution in Other Solutions details: Ca 100ug/ml, Cu 5ug/ml, Fe 25ug/ml, Mg 50ug/ml, Mn 5ug/ml, K 25ug/ml, Na 25ug/ml, Zn 5ug/ml. MATRIX: MEHLICH III (0.2N acetic acid; 0.25N NH4NO3; 0.015N NH4F; 0.013N HNO3; 0.001M EDTA) Size: 500ML	
36	Custom solution in Other Solution details: Ca 500ug/ml, Cu 10ug/ml, Fe 50ug/ml, Mg 100ug/ml, Mn 10ug/ml, K 50ug/ml, Na 50ug/ml, Zn 10ug/ml. MATRIX: MEHLICH III (0.2N acetic acid; 0.25N NH4NO3; 0.015N NH4F; 0.013N HNO3; 0.001M EDTA) Size: 500ML	
37	Multi-element Standard 1 (anions) NIST Traceable with Certificate of Analysis Solution details: 2ug/ml Boron (B), 10ug/ml Phosphorus (P), Size: 500ml	
38	Multi-element Standard 2 (anions) NIST Traceable with Certificate of Analysis Solution details: 5ug/ml Boron (B), 25ug/ml Phosphorus (P), Size: 500ml	
39	Multi-element Standard 3 (anions) NIST Traceable with Certificate of Analysis Solution details: 10ug/ml Boron (B), 50ug/ml Phosphorus (P), Size: 500ml	
40	Exhaust System with complete ductworks and Gas line (10 or more meters)	
41	1 set - UPS and AVR 10KVA 15-30 mins back up time	

42	2 pc.- Argon Gas Regulator	
43	8 sets - Argon Gas with tank	
44	Includes Gas Cylinder Bond and Rental (1 year) Procurement of gas should be with PhilGEPS Registered Supplier. Coordinate per recipient for their existing gas suppliers.	
45	1 set - Complete computer system with Printer, 22"LCD Monitor. Comprises of PC, MS office Professional, 64 Bit operating system	
46	Hydride Generation Accessory for analysis of hydride forming elements like Hg, As, Sb, Se	
47	Bottle top dispenser, 1-10mL w/ 2.5L container bottle and 5-50mL w/ 2.5L container bottle	
48	2 units - Dehumidifier 60L capacity	
49	1 unit each of Pipettors 1-10 mL, 1-5 mL, 0.1-1 mL	
50	Instrument table for the ICP-OES -custom made -chemical resistant -phenolic resin tabletop	
51	capable of remote data management system	
52	Warranty: 1 year warranty to include all labor and parts	
53	2 years free of preventive maintenance	
54	Includes training for two (2) personnel per recipient at manufacturer's training site inclusive of all expenses Note: Written agreement per recipient must be agreed, signed, and notarized within the delivery period.	
55	Delivery Sites: (subject to change)	
56	1.) RSL 1 (Ilocos Region Integrated Agricultural Laboratory, DA-RFO 1, Pangasinan Research and Experiment Center, Tebag East, Sta. Barbara, Pangasinan)	

57	2.) RSL 2, Tuguegarao (Regional Government Center, Carig Sur Tuguegarao City, Cagayan)	
58	3.) RSL CAR(Ambuklao Road, Gibraltar, Baguio City)	
59	4.) RSL 3 (Capitol Compound, Sto Nino, City of San Fernando, Pampanga)	
60	5.) RSL 4A (Lares Compound, Marawoy, Lipa City, Batangas)	
61	6.) Bukidnon Research Center (NSWRRDC HIPEZ)	
62	7.) RSL 5 (#19 Del Rosario Maharlika Highway Naga City 4400)	
63	8.) RSL 6 (Parola, Iloilo City)	
64	9.) RSL 7 (DA – RFO 7 Complex, Highway, Maguikay, Mandaue City)	
65	10.) RSL 8 (Brgy 1&4 Libertad Magsaysay Blvd., Tacloban City, Leyte)	
66	11.) RSL 9 (Zamboanga Peninsula Area, Zone 14. Zamboanga City)	
67	12.) RSL 10 (Department of Agriculture RFO X, A. Luna St., Cagayan de Oro City, Misamis Oriental Philippines 9000)	
68	13.) RSL 11 (F. Bangoy St., Davao City, Davao del Sur)	
69	14.) RSL 12 (Sinsuat Ave., Cotabato City 9600)	
70	15.) RSL 13 (P-8, Taguibo, Butuan City)	
71	16.) Bulacan Research Center (NSWRRDC LUPEZ, San Ildefonso, Bulacan)	
72	17.) Bohol Province (BISU-Bilar Campus, Zamora, Bilar, Bohol.)	
73	18.) BSWM (SRDC Bldg., Elliptical Rd cor Visayas Ave, Diliman, Quezon City)	
74	Delivery Timeline:	

75	60 Calendar Days upon receipt of Notice to Proceed	
76	INCLUSIONS PER DELIVERY SITE	
77	Conformity to DISTRIBUTION OF INCLUSIONS PER SITE as listed below.	
78	Detailed Specifications for ICP Inclusions:	
79	<u>Water Deionizer (Type I and Type II water)</u>	
80	Specifications:	
81	Produces both ASTM Type 1 and Type 2 .	
82	Water Purification System , Pretreatment and Reservoir tank	
83	Optimized RO Cartridges – minimum 16 LPH	
84	Dispense Filter 0.1 um	
85	Water Stop Quick Connection or better	
86	Leak Sensor and Shut off mechanism	
87	Tank Level Monitoring and Indication	
88	RO Permeate Water Monitoring	
89	Consumables Change Out Reminders	
90	simple and user-friendly installation and maintenance	
91	tilt-able and illuminated display for easy reading of conductivity/resistivity, temperature, and water level	
92	RS232 interface	
93	Standard Accessories:	
94	main system unit	
95	30 L or higher capacity reservoir with recirculation pump, CO2 vent filter and sterile overflow	
96	hand dispenser kit with 3 meter cord and 0.2 micron final filter	
97	wall bracket accessory	

98	pressure gages and reducing valve	
99	prefilter, hardness stabilizer cartridge and carbon prefilter	
100	reverse osmosis cartridge	
101	polishing DI cartridge	
102	Ultraviolet lamp	
103	inline ultrafilter	
104	0.1 m polysulfone membrane filter	
105	Inclusions:	
106	2 pcs - 1 um prefilter	
107	2 pcs - hardness stabilizer	
108	2 pcs - carbon cartridge	
109	2 pcs - RO cartridge	
110	2 pcs - Ultrapure cartridge	
111	2 pcs - sterile 0.1 um filter for system	
112	2 pcs - CO2 Vent filter	
113	2 years warranty on parts and service	
114	Free PMS within warranty period (2 years)	
115	<u>Digital Multi meter,</u> <u>EC/TDS/Resistivity/Temp./Salinity</u>	
116	Specifications:	
117	Parameter: pH/Oxydo Reduction Potential (ORP) Conductivity/Total Dissolved Solid (TDS)/Salinity/Resistivity Dissolved Oxygen (DO) Biochemical Oxygen Demand (BOD) Ion Selective Electrode (ISE): Ammonia, Ammonium, Chloride, Fluoride, Nitrate, Sodium	
118	Conductivity Measurement Range: 0.01 μ S/cm - 200.0 mS/cm	

119	Conductivity resolution: 0.01 μ S/cm - 0.1 mS/cm upon selected measuring range	
120	mV Measurement Range: -1500 - 1500 mV	
121	mV Resolution: 0.1 mV	
122	Salinity Measurement Range: 0 - 42 (ppt) (‰) Salinity	
123	Resolution: 0.01 (ppt) (‰)	
124	TDS Measurement Range: 0.00 mg/L - 50.0 g/L NaCl	
125	TDS Resolution: 0.01 mg/L up - 0.1 g/L upon measuring range	
126	Temperature Measurement: $^{\circ}$ C or $^{\circ}$ F	
127	Temperature Resolution: 0.1	
128	with ISO Calibration Certificate	
129	<u>Microwave Digestion System</u>	
130	Specifications:	
131	Power: at least 2000W	
132	Type: Top loading	
133	With contact-free temperature measurement of all samples in the temperature range from 50 to 300 $^{\circ}$ C or better	
134	With contact free Optical Pressure Control for individual pressure measurement in each single digestion vessel, instrument measurement range is 0-150 bar	
135	12 position at 100ml or 16 position at 100ml	
136	Noise level: 60dB or lower	
137	Comes with: 12 pieces digestion vessel made of TFM with lid and rupture disc, turntable with collection vessel to prevent emissions into the microwave cavity and room air.	
138	with 10kVA AVR	

139	inclusive of training on operation and basic troubleshooting inclusive of fare, transportation, accommodation and on-site training	
140	Warranty: 3 year warranty to include all labor, parts, including preventive maintenance	
141	<u>Heavy Duty Stacking Rack</u>	
142	Specifications:	
143	Capacity: 175 kg	
144	HxWxD: approx 1800x900x400mm	
145	Curled Uprights: 8 pcs	
146	Beam: 20 pcs	
147	Middle Cross Bar: 5 pcs	
148	MDF Board: 5 pcs	
149	<u>Canister</u>	
150	Specifications:	
151	wide-mouth HDPE Jar Plastic	
152	screw lids, 500ml	
153	white and opaque	
154	cap diameter: 92 mm (3.62 in)	
155	height: 97 mm (3.81 in)	
156	bottom diameter: 95 mm (3.74 in)	
157	<u>Fully Automated Distillation System (Nitrogen Determination)</u>	
158	Specifications:	
159	Fully programmable including: -sample dilution -alkali and receiver addition -distillation and tube draining -titration -calculation and reporting	

160	Analysis time: 3.5 minutes at 30 mg N (6.5 minutes at 200 mg N)	
161	Distillation capacity: ~ 40 ml/min	
162	Measuring range: 0.1 – 200 mg N	
163	Measuring range: 0.1 – 200 mg N	
164	Reproducibility: 1% RSD (including the digestion step)	
165	Recovery: > 99.5% at nitrogen levels between 1 – 200 mg N	
166	Tube draining: 200 ml in less than 10 seconds	
167	Burette volume: 35 ml	
168	Burette resolution: 2.4 µl/step	
169	Burette speed: >0.5 ml/second	
170	Reagent pump volumes: 0 – 150 ml in steps of 5 ml	
171	Delay: 0 – 1800 seconds	
172	Inclusions:	
173	1 pc - Instrument table for the Distillation System	
174	preventive maintenance kit	
175	AVR	
176	1 pc - Adapter 100mL, 250mL	
177	digestion tube 250mL, diameter: at least 34mm	
178	<u>Plant Tissue Grinder</u>	
179	Specifications:	
180	Cutting Speed: 0 - 3000 rpm	
181	Chamber Size: 1.575" Diameter	
182	Sample Input Size: 0.6" Diameter	
183	Sample Volume: Volume Dependent on Sample	

184	Torque: Continuous: 2.56 Nm, Peak: 4.125 Nm	
185	Display: LCD	
186	Housing Material: Powder Coated Steel	
187	Sieve Material: 316 Stainless Steel	
188	Ground sample/Output size (2mm)	
189	<u>pH meter</u>	
190	Specifications:	
191	Parameter: pH, mV, Temperature	
192	Accuracy: ORP: 1 mV	
193	Automatic Buffer Recognition: IUPAC standards (DIN 19266)/Technical buffer (DIN 19267)	
194	Inputs: BNC, ref, Pt1000	
195	Measuring Range ORP: -1999 to 1999 mV	
196	mV Accuracy: ≤ 1 mV	
197	mV Measurement Range: -1999 to 1999 mV	
198	mV Resolution: 1 mV	
199	Operating Humidity: < 80 % relative humidity (non-condensing)	
200	Operating Interface: Keypad Operating	
201	Temperature: 5 to 40 °C	
202	ORP Resolution: 1 mV	
203	pH Accuracy: 0.02 pH	
204	pH Electrode calibration: 1 to 3 points calibration	
205	pH Measurement: -2 to 16 pH	
206	pH Resolution: Selectable between 0.01 0.1 pH 0.01 and 0.1 pH	
207	Temperature Accuracy: ≤ 0.2 °C	

208	Temperature Compensation: With temperature probe Pt 1000 or by keypad With temperature probe Pt 1000 or by keypad	
209	Temperature Measurement: -20 to 150 °C	
210	Temperature Resolution: 0.1 °C	
211	with 1 spare electrode With ISO 17025 Calibration Certificate	
212	<u>ultrasonic washer, 5.5 gal</u>	
213	Specifications:	
214	Constant Power: Stable intelligent power; tracking circuitry; same ultrasonic power delivered to the tank adjusting for a light or heavy load.	
215	Sleep mode: A green feature, when cycle is complete and no key is touched for 15 minutes unit goes into sleep model, touching any key unit comes back on. Continuous degas	
216	Degas: Capacity of degassing for 90 minutes. For faster start-up, in auto mode sequence, set degas, and timer will start sonics after countdown.	
217	High/low power: High power: 100% of power to the tank; Low power: 70% of power to the tank; setting for delicate applications.	
218	Temperature: Unit can be heated up to 69 deg. F. Can be set in Fare height or Celsius.	
219	Auto ultrasonic activation takes the process control out of the operator's hand once programmed for same results everytime. When temperature reaches set point that is set, ultrasonics turn on, Timer starts count down for time set. When done, turns off the heater and ultrasonics.	
220	Built-in shut-off : high temp safety alarm indicator for protection.	
221	Calibration: Temperature auto calibration through front panel.	
222	<u>digital bottle top dispenser, 10 mL, acid resistant</u>	

223	Specifications:	
224	Graduation : 0.2mL	
225	Accuracy : 50uL	
226	A \leq \pm % : 0.5% With ISO 17025 Calibration Certificate	
227	<u>1 unit - digital bottle top dispenser, 20 mL, acid resistant</u>	
228	Specifications:	
229	Graduation : 1,00	
230	Accuracy : 125uL	
231	A \leq \pm % : 0.5% With ISO 17025 Calibration Certificate	
232	<u>1 unit - digital bottle top dispenser, 50 mL, acid resistant</u>	
233	Specifications:	
234	Graduation : 1,00	
235	Accuracy : 250uL	
236	A \leq \pm % : 0.5% With ISO 17025 Calibration Certificate	
237	<u>1 unit - analytical balance, 220g capacity</u>	
238	Specifications:	
239	Weighing Capacity : 220g	
240	Readability : 0.0001g	
241	Pan Size : 90mm dia.	
242	Units of measure : g, mg, ct, GN, mo, oz, dwt	
243	Response Time : 2.5 sec.	
244	Repeatability (std.deviation) : \leq \pm 0.0001g	

245	Linearity : $\leq \pm 0.0002g$	
246	Response time (average) : 2.5seconds	
247	Sensitivity drift within +10 to +30°C : $\leq \pm 2.10^{-6}/K$ With ISO 17025 Calibration Certificate	
248	<u>digital burette, continuous, 0-50 mL</u>	
249	Specifications:	
250	A $\leq \pm \%$: 0,2 (50 ml)	
251	CV $\leq \%$: 0,1 (50 ml) With ISO 17025 Calibration Certificate	
252	<u>acid safety cabinet, 15 gal, 1 manual close door</u>	
253	Specifications:	
254	Corrosives/Acid Steel Safety Cabinet,	
255	Meet OSHA and NFPA 30 Standard	
256	Material Specifications: 18-Gauge CR Steel	
257	Liter Capacity: 114L	
258	Door Type: Manual With ISO 17025 Calibration Certificate	
259	<u>micropipette, 1 mL</u>	
260	Specifications:	
261	A* $\leq \pm \%$: 0.6	
262	A* $\leq \pm \mu l$: 6	
263	CV* : 0.2 With ISO 17025 Calibration Certificate	
264	<u>micropipetter, 2 mL</u>	
265	Specifications:	
266	A* $\leq \pm \%$: 0.6	

267	A* $\leq \pm \mu\text{l} : 30$	
268	CV* : 0.2 With ISO 17025 Calibration Certificate	
269	<u>Digital Multi meter,</u> <u>EC/TDS/Resistivity/Temp./Salinity</u>	
270	Specifications:	
271	Parameter: pH/Oxydo Reduction Potential (ORP) Conductivity/Total Dissolved Solid (TDS)/Salinity/Resistivity Dissolved Oxygen (DO) Biochemical Oxygen Demand (BOD) Ion Selective Electrode (ISE): Ammonia, Ammonium, Chloride, Fluoride, Nitrate, Sodium	
272	Conductivity Measurement Range: 0.01 $\mu\text{S}/\text{cm}$ - 200.0 mS/cm	
273	Conductivity resolution: 0.01 $\mu\text{S}/\text{cm}$ - 0.1 mS/cm upon selected measuring range	
274	mV Measurement Range: -1500 - 1500 mV	
275	mV Resolution: 0.1 mV	
276	Salinity Measurement Range: 0 - 42 (ppt) (‰) Salinity	
277	Resolution: 0.01 (ppt) (‰)	
278	TDS Measurement Range: 0.00 mg/L - 50.0 g/L NaCl	
279	TDS Resolution: 0.01 mg/L up - 0.1 g/L upon measuring range	
280	Temperature Measurement: $^{\circ}\text{C}$ or $^{\circ}\text{F}$	
281	Temperature Resolution: 0.1	
282	With ISO 17025 Calibration Certificate	
283	<u>20 placer digester w/ scrubber</u>	
284	Specifications:	
285	Temperature range: Ambient 40 $^{\circ}\text{C}$	

286	Temperature setting repeatability :1°C	
287	Temperature stability at 100°C : ± 2°C	
288	Temperature stability at 400°C : ± 1°C	
289	Heating up time : 20 to 400 °C at 230 V ~40 min	
290	Digestion application memory: Up to 254	
291	Digestion steps per application: Up to 23	
292	Lift connection Yes, full control	
293	Scrubber: Yes, full control	
294	Tubes/batch: 20 tubes	
295	with ISO calibration	
296	<u>digital reciprocating shaker</u>	
297	Specifications:	
298	size: approx L-24.5", W-13.5", H-10"	
299	Speed : 20-240 osc/min	
300	Stroke : 1 in	
301	Maximum capacity : approx 40lbs	
302	Electrical : 115 or 230 @ 50/60Hz With ISO 17025 Calibration Certificate	
303	<u>Bottle top dispenser, 2.5L- 25mL mL w/ 2.5L container bottle , autoclavable</u>	
304	Specifications:	
305	Graduation : 0.5mL	
306	Accuracy : 125uL	
307	A ≤ ± % : 0.5% With ISO 17025 Calibration Certificate	
308	<u>Bottle top dispenser 5-50mL w/ 2.5L container</u>	

	<u>bottle, autoclavable</u>	
309	Specifications:	
310	Graduation : 1 mL	
311	Accuracy : 250uL	
312	A $\leq \pm$ % : 0.5% With ISO 17025 Calibration Certificate	
313	<u>drying oven, forced convection (179 L capacity)</u>	
314	Specifications:	
315	Temperature Stability: $\pm 0.3^{\circ}\text{C}$	
316	Timer: ON / OFF	
317	Wattage: 3360 w	
318	Temperature (Metric): 50°C to 250°C	
319	Capacity: 179 L	
320	Electrical Requirements: 208/240 V 60 Hz	
321	No. of Shelves: 2 supplied/19 max.	
322	With ISO 17025 Calibration Certificate	
323	<u>top-loading balance (820g capacity)</u>	
324	Specifications:	
325	Weighing Capacity : 820g <ul style="list-style-type: none"> • Readability : 0.01g • Pan Size : 150\emptyset mm. • Repeatability : $\leq \pm 0.02\text{g}$ • Linearity : $\leq \pm 0.03\text{g}$ • Response Time : 1.0 sec. • Allowable ambient operating temperature: 5 to $+40^{\circ}\text{C}$ • Sensitivity drift within $+10$ to $+30^{\circ}\text{C}$: $5.10^{-6} \leq \pm \text{K}$ • Dimension (WxDxH) : 230 x 310 x 87 mm • Weight : 2.0 kg • Power Requirements : AC adapter 230V • Calibration & Adjustment: Internal With ISO 17025 Calibration Certificate	

326	<u>portable pH meter</u>	
327	Specifications:	
328	Automatic Buffer Recognition: pH 2.01, 4.01, 7.00, 9.21, 10.01 Calibration Curves Display: Slope and assymetry potential displayed Compliance Certifications: CE.WEEE Display: Backlit LCD with pictograms Display Type: 128 x 64 pixel, simultaneous readings	
329	Measurement Method: Auto stabilisation, continuous Measuring Range ORP: ± 1999 mV Model: pH1 mV Resolution: 0.1 mV (0 - 200 mV) 1 mV (for rest of range) Operating Humidity: < 80 % relative humidity (non-condensing) Operating Interface: Keypad Operating Temperature: 0 - 50 °C (32 - 122 °F) Parameter: pH, mV, ORP/Redox, Temperature	
330	pH Accuracy: ≤ 0.02 pH (± 1 digit) pH Electrode calibration: 1 to 3 points calibration pH Measurement Range: -2.00 - 19.99 pH pH Resolution: 0.01 pH Power Supply: Batteries With ISO 17025 Calibration Certificate	
331	<u>ultrasonic washer</u>	
332	Specifications:	
333	Constant Power: Stable intelligent power; tracking circuitry; same ultrasonic power delivered to the tank adjusting for a light or heavy load.	
334	Sleep mode: A green feature, when cycle is complete and no key is touched for 15 minutes unit goes into sleep model, touching any key unit comes back on. Continuous degas	
335	Degas: Capacity of degassing for 90 minutes. For faster start-up, in auto mode sequence, set degas, and timer will start sonics after countdown.	
336	High/low power: High power: 100% of power to the tank; Low power: 70% of power to the tank; setting	

	for delicate applications.	
337	Temperature: Unit can be heated up to 69 deg. F. Can be set in Fare height or Celsius.	
338	Auto ultrasonic activation takes the process control out of the operator's hand once programmed for same results everytime. When temperature reaches set point that is set, ultrasonics turn on, Timer starts count down for time set. When done, turns off the heater and ultrasonics.	
339	Built-in shut-off : high temp safety alarm indicator for protection.	
340	Calibration: Temperature auto calibration through front panel.	
341	<u>vibration damping mount</u>	
342	Specifications:	
343	Dimension: 13 3/4"X 13 3/4" X 3",	
344	Cast of Dense Black and White Terazzo with Polished Surface that resist Scratches and Chemical Attacks	
345	<u>desiccator cabinet (57 L)</u>	
346	Specifications:	
347	Clear on all sides for quick visualization of desiccator contents	
348	Pull-out, perforated acrylic shelves (2 included) allow maximum air circulation and have built-in stops	
349	maximum weight per shelf: 10lbs (4.5kg)	
350	Shelves are removable to allow use as a single, spacious chamber for specific storage needs; cabinet can hold up to seven shelves spaced 2” apart; extra shelves sold separately	
351	Door hinges located on right side	
352	Internal : WxDxH : approx 47 x 51 x 43.2cm (18½ x 20 x 17") With ISO 17025 Calibration Certificate	

353	<u>hollow cathode lamp (cobalt) for AAS</u>	
354	Specifications:	
355	pin type socket, uncoded lamp 2 pins	
356	3pcs - Heavy Duty Stacking Rack	
357	Specifications:	
358	Capacity: 175 kg	
359	HxWxD: approx 1800x900x400mm	
360	Curled Uprights: 8 pcs	
361	Beam: 20 pcs	
362	Middle Cross Bar: 5 pcs	
363	MDF Board: 5 pcs	
364	<u>UV-Vis Spectrophotometer w/ sipper</u>	
365	Specifications:	
366	Photometric System – Double beam with rear beam access Monochromator – Double out-of-plane Littrowmonochromator Source – 250 Hz Wavelength Range – 190-1100 nm	
367	Detectors – Silicon photodiode detectors for simultaneous measurement of all channels Beam dimensions at sample interface - <1.5mm Limiting Resolution – 0.1nm	
368	Stray Light (%T) (12 g/L KCl, BP/EP method) < 1.0 % At 220 nm (10 g/L NaI, ASTM method) < 0.003 At 300 nm (Acetone) < 0.005 At 370 nm (50 mg/L NaNO ₂) < 0.003	
369	Wavelength accuracy (nm) ± 0.2 Wavelength reproducibility (nm) < 0.025	
370	Photometric accuracy (Abs)NIST 930E filter at 1 Abs - ± 0.005 Photometric range (Abs) 4.0 Photometric reproducibility (Abs) 0.005	

	Photometric stability (Abs/hour) 0.0003	
371	Photometric noise (Abs/RMS) At 500 nm, 0 < 0.0001 Abs AbsAt 500 nm, 0 < 0.0001 Abs Abs(using ultra-micro cuvette: 50 µL, 2 x 2.5 mm, 10 mm pathlength) At 500 nm, 1Abs < 0.0002 Abs	
372	z-height 15 mm Spectral bandwidth 0.1 to 5 nm at 0.01 nm Maximum scan rate 150,000 nm/min Data collection rate 250 data points per second Data interval 0.01 to 10 nm	
373	with UV workstation software	
374	with sipper	
375	with PC, printer and complete genuine office and OS	
376	with 2KVA AVR	
377	with 2 years warranty and free PMS within period	
378	<u>bottle-top dispenser, 1-10 mL w/ 2.5L container bottle</u>	
379	Specifications:	
380	Graduation : 0.5mL	
381	Accuracy : 125uL	
382	A ≤ ± % : 0.5% With ISO 17025 Calibration Certificate	
383	<u>UV-Vis w/ fiber optics and 1 extra dip probe</u>	
384	Specifications:	
385	Source: Unique full spectrum Xenon Flash Lamp (80Hz) with typical lifetime of 10 years (guaranteed 3 years) Monochromator: Czerny-Turner Grating: Holographic, 27.5x35mm, 1200 lines/mm, blaze angle 8.6o at 240nm Beam splitting system: Beam Splitter	
386	Detectors: 2 Silicon diode detectors for simultaneous sample beam and reference beam measurements.	

	<p>Optical Design: Double beam Czenry-Turner monochromator</p> <p>UV-VIS Limiting Resolution: $\leq 1.5\text{nm}$</p> <p>Toluene/hexane limiting resolution: (EP/BP and TGA test): ≥ 1.92</p>	
387	<p>Stray light:</p> <p>At 198 nm (12 g/L KCl, TGA & BP/EP method) $\leq 0.187\%T$</p> <p>At 220 nm (10 g/L NaI ASTM method) $\leq 0.018\%T$</p> <p>At 370 nm (50 mg/L NaNO₂) $\leq 0.008\%T$</p>	
388	<p>Wavelength Range: 190 – 1100nm</p> <p>Wavelength Accuracy: ± 0.06 at 541.94nm</p> <p>Wavelength Reproducibility: $\pm 0.01\text{nm}$</p> <p>Photometric Accuracy: Using NIST 960E filters at 1 Abs = $\pm 0.0007\text{Abs}$</p> <p>Photometric Range: ± 4.0 Abs</p> <p>Photometric Display: $\pm 9.9999\text{Abs}$, $\pm 200.00\%T$</p> <p>Photometric Reproducibility (Abs):</p>	
389	<p>Using NIST 930E filters, at 465 nm, 2 s SAT</p> <p>Maximum deviation at 1 Abs: < 0.004 Abs</p> <p>Standard deviation for 10 measurements: < 0.00050 Abs</p> <p>Using NIST 930E filters, at 546.1 nm, 2 s SAT</p> <p>Maximum deviation at 0.5 Abs: < 0.003 Abs</p> <p>Standard deviation for 10 measurements: < 0.0030 Abs</p>	
390	<p>Inclusions:</p> <p>One (1) UV Software</p> <p>One (1) pair 3.5mL, 10mm Pathlength Quartz Cuvette (Pair)</p> <p>One (1) Desktop Computer, 64-bit Microsoft Windows 10 Pro + Microsoft Office 2016 Inkjet Printer, AVR 2KVA</p> <p>One (1) Free Preventive Maintenance within Warranty Period</p> <p>Two (2) sets Dip Probe Coupler with doors and Fiber optic Quartz fixed (10 mm) pathlength probe</p>	
391	<u>Fumehood</u>	
392	Specifications:	
393	<p>By-pass airflow design and by-pass block</p> <p>Glacier white powder-coated steel exterior</p> <p>Heat-welded Type 1 unplasticized PVC liner with integral work surface, drainage trough and pre-set baffle(s). PVC withstands maximum continuous</p>	

	operating temperature of 140° F (60° C) and has a flame spread less than 25 per ASTM E84	
394	<p>Powder-coated aluminum sash handle with Clean-Sweep openings and Clean-Sweep slots on the powder-coated stainless steel sash tracks*</p> <p>Removable front and side panels, and front access panels for access to plumbing and electrical wiring</p> <p>Pre-wired T8 fluorescent lighting with vapor-proof design and ADA-compliant light and blower switches</p> <p>Built-in washdown system with internal piping and spray nozzles</p> <p>Black enamel-coated hardboard supporting surface</p> <p>PVC, 12.75" OD exhaust connection(s)</p>	
395	<p>Standards conformance & regulations:</p> <ul style="list-style-type: none"> • CFR 29, Part 1910 • SEFA 1 • NFPA 45 • ASTM E84-09C • ASHRAE 110 • ANSI Z9.5 • UL 61010-1 • CAN/CSA C22.2 No. 61010.1 • UL 1805 • CE Conformity Marking (230V models) 	
396	<p>3/16" thick tempered safety glass vertical-rising sash with cable and pulley. Two pre-plumbed service fixtures with forged brass valves, lower right side with brass tubing and plastic serrated hose connector for gas and lower left side with copper tubing and gray PVC rigid gooseneck faucet for cold water. Components for converting the lower right fixture to air or vacuum are provided.</p> <p>One pre-wired GFCI electrical duplex receptacle on lower right side and, on 8' models, one additional pre-wired GFCI electrical duplex receptacle on lower left side</p>	
397	<p>Includes:</p> <p>PVC IntelliSense Blower # 7183420 Acid Cabinet # 9901000</p> <p>Ducting for single-story building</p> <p>With ISO 17025 Calibration Certificate</p>	
398	<u>Water Distillation Unit</u>	
399	Specifications:	

400	Produces both ASTM Type 1 and Type 2 .	
401	Water Purification System , Pretreatment and Reservoir tank	
402	Optimized RO Cartridges – 16 LPH	
403	Dispense Filter 0.1 um	
404	Aquastop Quick Connection	
405	Leak Sensor and Shut off mechanism	
406	Tank Level Monitoring and Indication	
407	RO Permeate Water Monitoring	
408	Consumables Change Out Reminders	
409	simple and user-friendly installation and maintenance	
410	tilt-able and illuminated display for easy reading of conductivity/resistivity, temperature, and water level	
411	RS232 interface	
412	Standard Accessories:	
413	main system unit	
414	30 L reservoir with recirculation pump, CO2 vent filter and sterile overflow	
415	hand dispenser kit with 3 meter cord and 0.2 micron final filter	
416	wall bracket accessory	
417	pressure gages and reducing valve	
418	prefilter, hardness stabilizer cartridge and carbon prefilter	
419	reverse osmosis cartridge	
420	polishing DI cartridge	
421	Ultraviolet lamp	
422	inline ultrafilter	

423	0.1 m polysulfone membrane filter	
424	Inclusions:	
425	2 pcs - 1 um prefilter	
426	2 pcs - hardness stabilizer	
427	2 pcs - carbon cartridge	
428	2 pcs - RO cartridge	
429	2 pcs - Ultrapure cartridge	
430	2 pcs - sterile 0.1 um filter for system	
431	2 pcs - CO2 Vent filter	
432	2 years warranty on parts and service	
433	Free PMS within warranty period (2 years)	
434	<u>Block Digester</u>	
435	Specifications:	
436	Temperature range: Ambient 40°C	
437	Temperature setting repeatability :1°C	
438	Temperature stability at 100°C : ± 2°C	
439	Temperature stability at 400°C : ± 1°C	
440	Heating up time : 20 to 400 °C at 230 V ~40 min	
441	Digestion application memory: Up to 254	
442	Digestion steps per application: Up to 23	
443	Lift connection Yes, full control	
444	Scrubber: Yes, full control	
445	Tubes/batch: 20 tubes, diameter: at least 19mm	
446	With ISO 17025 Calibration Certificate	
447	<u>perchloric acid fumehood, 4ft.</u>	

448	Specifications:	
449	By-pass airflow design and by-pass block Glacier white powder-coated steel exterior Heat-welded Type 1 unplasticized PVC liner with integral work surface, drainage trough and pre-set baffle(s). PVC withstands maximum continuous operating temperature of 140° F (60° C) and has a flame spread less than 25 per ASTM E84	
450	Powder-coated aluminum sash handle with Clean-Sweep openings and Clean-Sweep slots on the powder-coated stainless steel sash tracks* Removable front and side panels, and front access panels for access to plumbing and electrical wiring Pre-wired T8 fluorescent lighting with vapor-proof design and ADA-compliant light and blower switches Built-in washdown system with internal piping and spray nozzles Black enamel-coated hardboard supporting surface PVC, 12.75" OD exhaust connection(s)	
451	Standards conformance & regulations: <ul style="list-style-type: none"> • CFR 29, Part 1910 • SEFA 1 • NFPA 45 • ASTM E84-09C • ASHRAE 110 • ANSI Z9.5 • UL 61010-1 • CAN/CSA C22.2 No. 61010.1 • UL 1805 • CE Conformity Marking (230V models) 	
452	3/16" thick tempered safety glass vertical-rising sash with cable and pulley. Designed for perchloric acid use Two pre-plumbed service fixtures with forged brass valves, lower right side with brass tubing and plastic serrated hose connector for gas and lower left side with copper tubing and gray PVC rigid gooseneck faucet for cold water. Components for converting the lower right fixture to air or vacuum are provided. One pre-wired GFCI electrical duplex receptacle on lower right side and, on 8' models, one additional pre-wired GFCI electrical duplex receptacle on lower left side	
453	Includes: PVC IntelliSense Blower # 7183420 Acid Cabinet #	

	9901000 Ducting for single-story building With ISO 17025 Calibration Certificate	
454	<u>flammable safety cabinet, 45 gal, 2 manual doors</u>	
455	Specifications:	
456	Meet OSHA and NFPA 30 Standard	
457	Material Specifications 18-Gauge CR Steel	
458	Gallon Capacity: 45 Liter Capacity: 170	
459	Number of Doors: 2	
460	Door Type: Manual	
461	<u>flammable safety cabinet, 30 gal, 1 shelf & 2 manual doors</u>	
462	Specifications:	
463	Meet OSHA and NFPA 30 Standard	
464	Material Specifications 18-Gauge CR Steel	
465	Gallon Capacity: 30 Liter Capacity: 114	
466	Number of Doors: 2	
467	Door Type: Self close	
468	<u>hotplate w/ magnetic stirrer</u>	
469	Specifications:	
470	Speed range : 50-1500 rpm	
471	Maximum Surface Temp: 400°C	
472	Heating Surface: 10.25" x 10.25"	
473	Max. Recommended Flask Size: 6 Li	
474	<u>bench-top pH/EC/DO/ORP/ISE meter w/ complete solutions and other electrodes</u>	

475	Specifications:	
476	Conductivity Accuracy: ≤ 0.5 % of measurement range Conductivity measurement: Temperature correction: linear, non-linear for Natural waters Conductivity Measurement Range: 0.001 $\mu\text{S}/\text{cm}$ to 1000 mS/cm	
477	pH Accuracy: ≤ 0.002 pH pH Electrode calibration: 1 to 3 points calibration within selected buffer set or user defined buffer pH Measurement Range: -2.00 - 19.99 pH	
478	Salinity Measurement Range: 5.85 mg/L - 311.1 g/L NaCl Salinity Resolution: 0.01 mg/L - 0.1 g/L NaCl, depending on the measurement range	
479	TDS Measurement Range: 0 mg/L - 500 g/L TDS Resolution: Depending on the measurement range Temperature Accuracy: ≤ 0.2 °C	
480	includes all necessary electrodes: ISE electrodes: Flouride, Nitrate, Ammonium, Chloride, Ammonia, Sodium, Calcium With ISO 17025 Calibration Certificate	
481	<u>refrigerated centrifuge, 4x180 ml swinging bucket rotor</u>	
482	Specifications:	
483	Rotor Capacity: 4 x 180 ml	
484	Max. Speed: 5,500 rpm	
485	Max. RCF: 5,580 x g	
486	Control system: Microprocessor	
487	Display: Digital	
488	Centrifugation Chamber: Corrosion-resistant, high thermal conductivity, 304 grade Stainless Steel	
489	Memory: 6 programs, direct access	

490	Maximum Timer Range: 9 hr, 59 min, plus continuous	
491	Electrical: 230V, 50/60 Hz	
492	Dimensions: approx 24.5 x 23.8 x 14.2 in WDH	
493	Temperature Range: -10 to +40°C	
494	Sound Level (dBA): <61	
495	Drive System: Direct, brushless induction low profile motor	
496	Rotor Locking System : Push-button Auto Lock III	
497	Inclusions:	
498	1 pc - Swinging Bucket Rotor	
499	1 set - Round Buckets (set of 4)	
500	1 set - Biocontainment Lids (set of 4)	
501	1 set - Adapter for 15 ml conical tubes (set of 4)	
502	1 set - Adapter for 50 ml conical/skirted tubes (set of 4)	
503	1 set - Microliter 30 x 2 ml Aluminum Fixed Angle Rotor	
504	With ISO 17025 Calibration Certificate	
505	<u>acid/base cabinet</u>	
506	Specifications:	
507	114L capacity	
508	External Dim. HxWxD(mm): approx 1006mm H x 508mm W x 370mm	
509	Meet OSHA and NFPA 30 Standard	
510	Material Specifications 18-Gauge CR Steel	
511	Liter Capacity: 114	
512	Number of Doors: 1	

513	Door Type: Manual With ISO 17025 Calibration Certificate	
514	<u>Plant Stress Detection Glasses</u>	
515	Specifications:	
516	Included flame copper sun protection lens (400 nanometer UV A-B-C). Soft case included	
517	<u>Munsell Plant Tissue Color Chart</u>	
518	Specifications:	
519	Munsell Plant Tissue Color Chart Contains 320 matte color chips mounted on charts for 17 hues: 2.5R, 5R, 10R, 2.5YR, 5YR, 7.5YR, 2.5Y, 5Y, 2.5GY, 5GY, 7.5GY, 2.5G, 5G, 7.5G, 5BG, 2.5B, and 5RP. Instructions, binder, and masks included	
520	<u>Portable Salinity Refractometer (Salt)</u>	
521	Specifications:	
522	Range: 0 to 100 ppt; 1.000 to 1.070 specific gravity. Resolution: 1 ppt; 0.001 specific gravity. Accuracy: ±1 ppt; ±0.001 specific gravity. Temperature compensation: 10°C to 30°C. Dimensions: 7-3/4”L x 1-1/2” dia.	
523	Conformity to SECTION VI. SCHEDULE OF REQUIREMENTS	

meter																		
26. ultrasonic washer					1			1										
27. vibration damping mount					5													
28. Digital desiccator cabinet (57 L)					1													
29. hollow cathode lamp (cobalt) for AAS					1													
30. UV-Vis Spectrophotometer w/ sipper								1										
31. bottle-top dispenser, 1-10 mL w/ 2.5L container bottle								1	1									
32. UV-Vis w/ fiber optics and 1 extra dip probe									1									
33. Fume Hood																		
34. Water Distilling Unit																		
35. Block Digester										1								
36. perchloric acid fumehood, 4ft.										1				1				
37. flammable safety cabinet, 45 gal, 2 manual doors																1		
38. flammable safety cabinet, 30 gal, 1 shelf & 2 manual doors																	1	
39. hotplate w/ magnetic stirrer						1					1				1		1	

40. bench-top pH/EC/DO/ORP/I SE meter w/ complete solutions and other electrodes	1																	1	
41. refrigerated centrifuge, 4x180 ml swinging bucket rotor																			1
42. acid/base cabinet																			1
43. Plant Stress Detection Glasses						1													
44. Munsell Plant Tissue Color Chart						1													
45. Portable Salinity Refractometer (Salt)						1													

Name of Authorized Representative

Signature

Date Signed