

Specification for TOC/TIC/N Analyzer

Sr. No	Instrument /accessory Component description	Specifications										
1	TOC analyzer. The system should be able to analyses/estimate 1. Total Organic carbon (TOC) 2. Total Inorganic carbon (TIC), 3. NPOC in solid and liquid samples and 4. Total Nitrogen (TN) in liquid samples. Equipment should be equipped with autosampler and PC controlled with software and printer.											
2	TOC analyzer unit Measured parameters	TOC, NPOC, TIC, TC: Reproducibility: $\pm 1.5\%$ or better Measuring range <5 ppb to-25,000 mg/L or more Detection limit: $\pm 4 \mu\text{g/L}$ or better										
3	N analyzer	TN in bound form (if possible then with the capacity to calculate TON and TIN) Reproducibility: $\text{CV} \leq 3\%$ max Measuring range: In between 0-10,000 mg/L (with automatic dilution) Detection limit: $\pm 5 \mu\text{g/L}$ or better										
4	Solid sample module	With all the required accessories for TOC, NPOC, TIC, TC										
5	Working temperature range	5 – 40°C or better										
6	Data processing	Capable of performing linearization, peak detection, calibration, area calculation, SD and CV calculation etc.										
7	Instrument Controls	Automatic power shut down after furnace cooling. Automatic leak detection (preferable) The software should be user friendly										
8	Automatic Sample Injection (ASI) unit	<ul style="list-style-type: none"> • Vial capacity: 20-30 ml with 50-100 vial positions or better • At least 1000 number of vials should be supplied with the instrument • Equipped with automatic stirring facility (preferable) • 										
9	PC, printer with Software	PC: i5 or higher, 2.8 GHz or more processor speed, with at least 8 GB RAM, 1 TB HDD, CD/DVD read-write combo and, USB ports. PC should also be equipped with Windows 10 and MS office (at least 2016 office version) Printer: LaserJet tank printer (with at least 1000-page capacity)										
10	Other requirements	<ul style="list-style-type: none"> • Universal gas regulators and all the cylinders required for analysis along with tubing • Water purification system with following specifications: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Resistivity</td> <td>18.2 Meg Ohm.cm (@ 25 degree C</td> </tr> <tr> <td>Conductivity</td> <td>$< 0.055 \mu \text{ S/cm}$</td> </tr> <tr> <td>TOC</td> <td>< 5 ppb</td> </tr> <tr> <td>Bacteria</td> <td>$< 1 \text{ cfu/mL}$</td> </tr> <tr> <td>Pyrogen</td> <td>$< 0.001 \text{ Eu/mL}$</td> </tr> </table>	Resistivity	18.2 Meg Ohm.cm (@ 25 degree C	Conductivity	$< 0.055 \mu \text{ S/cm}$	TOC	< 5 ppb	Bacteria	$< 1 \text{ cfu/mL}$	Pyrogen	$< 0.001 \text{ Eu/mL}$
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		Particulates >0.22μ<1 P/mL Flow Rate 2 L /min All the consumables required for water purification system should be supplied extra for at least 2 years duration. <ul style="list-style-type: none"> • Sufficient consumables for the analysis of at least 5000 samples should be supplied extra
11	Warranty and AMC	Supplier should provide 3-year warranty along with AMC after successful installation of the system.
12	Installation and training	The entire system should be installed and commissioned at GBP-NIHE, Almora, Uttarakhand. After successful installation of the system and its peripherals, selected scientific and technical personnel from GBP-NIHE, Almora, Uttarakhand should be provided hands-on and in-depth training on the operation