

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Contract title: Supply of equipment for water monitoring for specific pollutants

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Publication reference: NEAR/BEG/2023/EA-OP/0115

Columns 1-2 should be completed by the contracting authority

Columns 3-4 should be completed by the tenderer

Column 5 is reserved for the evaluation committee

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

- Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
- Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words 'compliant' or 'yes' are not sufficient)
- Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specifications.

Unless otherwise specified, the requirements in these Technical Specifications are presented as a minimum standard which the offered goods must meet.

LIST OF ABBREVIATIONS

ALS	Automatic Liquid Sampler
BHT	Butylated Hydroxy Toluene
CFR	Code of Federal Regulation USA
CO ₂	Carbon dioxide
ECD	Electrochemical Detector
EI	Electron ionization
ESI	Electrospray ionisation
GC	Gas chromatography
HCl	Hydrochloric acid
HLB	Hydrophilic and Lipophilic Bounded polymeric sorbent
I.D.	Inner diameter
IQ	Instrument Qualification
L	Liter
LC MSD	Liquid chromatography with single quadrupole mass spectrometer detector
LC-MS-MS	Liquid Chromatography with tandem mass spectrometry
MB	Megabyte
MRM	Multiple Reaction Monitoring
MS	Mass spectrometry
MS Windows	Microsoft Windows
MS/MS	Tandem mass spectrometry
NDIR	Non Dispersive Infrared Sensor
NO	Nitric monoxide
NPOC	Non Purgeable Organic Carbon
OFN	Octa Fluoro Naphthalene
PC	Personal Computer
POC	Purgeable Organic Carbon
PTFE	Polytetrafluoroethylene
PTFE-TFM	TFM (modified PTFE) is copolymerized PTFE introducing an oxygen molecule and results in a higher density material with lower gas permeation
Q TOF	Quadrupole time-of-flight mass spectrometry
RSD	Relative Standard Deviation
S/N	Signal/Noise
SD	Standard Deviation
SIM	Selected Ion Monitoring
SPE	Solid Phase Extraction
SPME	Solid phase microextraction
TB	Terabyte
TC	Total Carbon
TFM	TFM - modified PTFE

TIC	Total Inorganic <i>Carbon</i>
TNb	Total Nitrogen Bound
TOC	Total Organic Carbon
UHPLC	Ultra High Performance Liquid Chromatography
UV	Ultra violet
VOC	Volatile Organic Compounds

1. Item number	2. Specifications required		3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1	High resolution LC MSD system -	Quantity: 1			
	Manufacturer's name:				
	Product type, model:				
	Specifications				
1.1	<p style="text-align: center;">UHPLC pump</p> <ul style="list-style-type: none"> • Gradient Formation: high pressure binary mixing • Solvent selection valve: internal 4 solvent selection valve • Flow range: 0.001 - 5ml/min • Flow Accuracy: ± 1 % • Flow Precision: < 0.075 % RSD • Proportioning Accuracy: ± 0.5 % • Proportioning Precision: < 0.15 % SD • Max. Pressure: 1200 bar • Composition accuracy: ± 0.35 % • Composition precision: < 0.15 % RSD • Integrated degassing unit: Included, number of channels: 2 • Active Seal wash: Included • Continuous tracking of instrument usage in terms of seal wear and volume 				

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>of pumped mobile phase with pre-defined and settable limits and feedback messages. Electronic records of maintenance and error detection, leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas.</p>			
1.2	<p>UHPLC Autosampler</p> <ul style="list-style-type: none"> • Sample capacity: 100 vials • Injection volume: 0.1–100 µL to be supported and included • Injection volume accuracy: ±0.5% • Injection volume precision: < 0.25% RSD • Carry over: < 0.004% • Sample thermostat: 4–40 °C • Max. operating pressure: 1000 bar • Metering device: Metering device in high pressure flow path • Continuous tracking of instrument usage in terms of seal wear with pre-defined and settable limits and feedback messages. Electronic records of maintenance and error detection, leak detection, safe leak handling, leak output signal for shutdown of the 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>pumping system. Low voltage in major maintenance areas</p> <ul style="list-style-type: none"> • 500 pcs. of SPE 200mg/6ml cartridges suitable for environmental analysis (HLB, Strata X stationary phase or equivalent) 			
1.3	<p>Thermostatic column compartment</p> <ul style="list-style-type: none"> • Temperature Range: Ambient to 110 °C • Temperature Stability: ±0.1 °C • Temperature Accuracy: ±0.5 °C • Temperature precision: ±0.1 °C • Column identification system: included with option to record all column usage data • Safety and maintenance: error detection, leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas. • Columns <ul style="list-style-type: none"> - Suitable for environmental analysis with C18, C8 and cyanopropyl stationary phase with particle size < 3.0 um, 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> - C18 (I.D. = 2.1 mm, L = 150 mm) 3 pcs. - C8 (I.D. = 2.1 mm, L = 150 mm) 3 pcs. - CN (I.D. = 2.1 mm, L = 150 mm) 3 pcs. - pH range 2-8 • Complete suitable guard column system; for each type of column min. 4 guard columns for each kind of analytical column mentioned above with holders for guard columns 			
1.4	<p>UV Visible detector</p> <ul style="list-style-type: none"> • Detector type: 1024-element diode array • Wavelength Range: 190 to 640 nm • Number of signals: 8 • Lamps: Deuterium • Maximum Data Collection Rate: 200 Hz for both signals and spectra • Short-term noise: $<\pm 8 \mu\text{AU}$ • Drift: $<1 \text{ mAU/h}$ • Linearity: $>2.0 \text{ AU (5 \%)}$ at 265 nm • Wavelength precision: $<\pm 0.1 \text{ nm}$ • Wavelength accuracy: $\pm 1 \text{ nm}$, self-calibration with deuterium lines • Spectral tools: data analysis software for spectra evaluation, including spectral libraries and peak purity functions 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Continuous tracking of instrument usage in terms of lamp usage with pre-defined and settable limits and feedback messages. Electronic records of maintenance and errors. Error detection, leak detection, safe leak handling, leak output signal for shutdown of the pumping system. Low voltage in major maintenance areas. 			
1.5	<p>High Resolution MS/MS Spectrometer</p> <ul style="list-style-type: none"> <i>MS Analyser:</i> High resolution accurate mass analyser Q TOF or Orbitrap with Quadrupole mass filter (Q TOF or Q Orbitrap) <ul style="list-style-type: none"> - Ion source: Heated ESI source - Mass range: 50-6000 m/z - Polarity switching: One full cycle in <1500ms - Dynamic range: > 5000:1 within single analyzer spectrum - Sensitivity: MS mode 1 pg of reserpine S/N > 500:1 in positive and negative mode 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>MS/MS: 1 pg reserpine S/N >1500:1 in positive and negative mode</p> <ul style="list-style-type: none"> - Resolving power: 60000 - Mass accuracy: < 1ppm with internal calibration - Spectral acquisition rate, MS: 50 spectra/second - Spectral acquisition rate, MS/MS: 30 spectra/second - Scan function: -Full MS with high-resolution accurate mass detection - Selected Ion Monitoring (SIM) with high-resolution accurate-mass detection - MS/MS mode – auto and target options - Integrated calibration solution: automated delivery of calibration for tuning and mass calibration. - Test mixture of 200 compounds of environmental contaminants that could be analyzed by LC-MS-MS system. <ul style="list-style-type: none"> • Nitrogen generator: Capacity and purity of nitrogen for trace analysis, max flow rate < 35L/min, max pressure 116 psi (8bar) with integrated air 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>compressor. Nitrogen purity > 95 %. Particles < 0.01um; Phthalate and BHT free; Non Methane Hydrocarbon content < 1ppm; Noise Level <56dB.</p> <ul style="list-style-type: none"> • Pumping systems: <ul style="list-style-type: none"> - One rough pump oil-sealed rotary vane pump that provides a high pumping speed equipped with an integral exhaust/ oil filtration system, base pressure <5 mbar - - Two turbomolecular pumps, with 3-Stage Split-Flow Turbo capability providing pumping speed 400/200/30 l/sec. 			
1.6	<p>LC MS/MS system control data station specifications</p> <ul style="list-style-type: none"> • Computer: Memory 1TB, two 25" Monitors and Laser Print - <u>compatible with offered chromatography software and recommended by the manufacturer.</u> • Compatibility with operating systems: MS Windows compatible software on one PC, for complete control over all the parts of the LC/MS System (UHPLC pump, Autosampler, 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>Column compartment, UV detector, Mass Spectrometer, syringe pump and switching valve)</p> <ul style="list-style-type: none"> • Dedicated Software for Environmental analysis that could be used to develop methods, acquire and process data for qualitative and quantitative analysis, and generate reports. • Software Databases <ul style="list-style-type: none"> - Built-in software databases of environmental contaminants with SRM transitions, retention times and collision energies for environmental pollutants. • High resolution MS/MS Spectral Library <ul style="list-style-type: none"> - 1500 components (environmental pollutants) and 5000 spectra obtained on equivalent MS system 			
	<p style="text-align: center;">Additional services before the provisional acceptance</p> <p>When delivering equipment, it is required to install the equipment and verify performance of hardware and software under the producers procedure, including standard reference materials and columns.</p>			

1. Item number	2. Specifications required		3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	Basic training of users for work on hardware and software of 5 days in Serbian language in end-user Laboratory for three people employed in National Laboratory Sector. Instructions for operation must be provided. The original operating instructions for all system components must be in English. A brief instruction manual should be in Serbian, one hard copy in each language and one soft copy in English.				
2	Total Organic Carbon TOC Analyzer	Quantity: 2			
	Manufacturer's name:				
	Product type, model:				
	Specifications				
2.1	<ul style="list-style-type: none"> • Principle of analysis: Catalytic high temperature oxidation • Instrument able to analyze: TIC, TC, TOC, NPOC, POC, TNb • Temperature of oxidation: 850°C • Type of detector for C: NDIR • Type of detector for N: ECD • Sample volume (liquids): 700 µL • Sample mass (solids): up to 1g • Limit of detection, C: 50 ppb • Working range, C: 0 – 30.000 mg/L C 				

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Limit of detection, N: 100 ppb • Working range, N: 0 – 100 mg/L NO or • Sample introduction technique: Sample are introduced via syringe drive but not by means of direct syringe injection • Autosampler (liquids): 50 positions with 40 mL volume of vial • Autosampler (solids): 50 positions • All sample positions are stirrable and purgeable • Autosampler should contain rinsing station • Gas carrier: Synthetic air (hydrocarbon and CO₂ free) or Oxygen (4.5) • Autozero function: Yes • Starter Kit of necessary parts and consumables for the 1000 samples run per unit. • Control software in compliance with 21 CFR Part 11 			
2.2	<p>System control data station specifications</p> <ul style="list-style-type: none"> • Computer: Memory 512 MB, 25" Monitor and Laser Printer • Compatibility with operating systems: MS Windows compatible software on one PC, for complete control over all 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>the parts of the System (Autosampler, Column compartment, Detectors,)</p> <ul style="list-style-type: none"> • Dedicated Software for environmental analysis: <p>Dedicated Software for analysis that can be used to develop methods, acquire and process data for qualitative and quantitative analysis, and generate reports.</p>			
2.3.	<p>Additional services before the provisional acceptance</p> <p>Unloading products at the place of delivery;</p> <p>When delivering equipment, it is required to install the equipment and verify performance of hardware and software under the producers procedure, including standard reference materials.</p> <p>Basic training of users for work on hardware and software of 3 days in Serbian language in end-user Laboratory for three people employed in National Laboratory Sector. Instructions for operation must be provided. The original operating instructions for all system components must be in English. A brief instruction manual should be in Serbian, one hard copy in each language and one soft copy in English.</p>			

1. Item number	2. Specifications required		3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
3	Evaporation system -	Quantity: 2			
	Manufacturer's name:				
	Product type, model:				
	Specifications				
3.1	<ul style="list-style-type: none"> • System for evaporating from 1 to 24 samples in parallel independent of sample number • Reliable evaporation to a volume from 30 to 500 µL • Transfer into the insert of a GC-vial is possible. • Moderate speed during centrifugation results in a centrifugal force which reliably prevents boiling retardation • Sensor reliably prevents evaporation to dryness • No cleaning steps during the entire process • Use of vacuum and energy supply via light • Space-saving in the laboratory due to parallel processing of large numbers of samples with only one system • No vapour in the laboratory due to a cold trap 				

1. Item number	2. Specifications required		3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Different rotors for different containers • No cross contamination • Starter Kit of necessary parts for the 2000 samples run per unit 				
3.2	<p>Additional services before the provisional acceptance</p> <p>Unloading products at the place of delivery.</p> <p>When delivering equipment, it is required to install the equipment and verify performance of hardware and software</p> <p>Basic training of users for work on hardware and software of 2 days in Serbian language in end-user Laboratory for three people employed in National Laboratory Sector. Instructions for operation must be provided. The original operating instructions for all system components must be in English. A brief instruction manual should be in Serbian, one hard copy in each language and one soft copy in English.</p>				
4	Automated sample preparation system	Quantity: 3			
	Manufacturer's name:				
	Product type, model:				
	Specifications				

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
4.1	<p>Principle:</p> <ul style="list-style-type: none"> • System for automated sample preparation by SPE and vacuum evaporation for concentrating of surface water samples • X-Y-Z robotic system with multiple functions that enables complete manipulation of the sample • Ability of the system to clean-up sample by SPE technique with direct eluting for vacuum evaporation for concentrating to exact volume, with possibility of adding internal standards • Possibility of transfer of concentrated cleaned-up samples into closed 2 ml vials 			
4.2	<p>Specifications of SPE module:</p> <ul style="list-style-type: none"> • Possibility of usage 8 solvents for washing and conditioning • Possibility of washing sample reservoirs and preventing carryover • Possibility of separating organic and water solvents • Double walled needle with two independently working solvent lines • Needle contains holes for high-pressure spray of any elected solvent for rinsing 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>bottles and vacuum chamber and for venting during filling a closed vial with sample</p> <ul style="list-style-type: none"> • Sensor for waste solvent level • Automatic processing up to 4L of sample • Possibility to upgrade for processing up to 10 L of sample • 24 positions for 1 L sample bottles • Leakage detection causes stopping of the system and process can be resumed after error correction • Possibility of loading of 24 samples for sequential throughput in batches of 3 samples that are prepared in parallel • Possibility of overlapping cycles for time saving – parallel loading of 3 samples, parallel drying of 3 columns after sample clean-up and eluting / evaporating of sample to defined volume • Possibility of usage standard SPE columns volume 3 ml and 6 ml • Possibility of usage different types and sizes of columns in different methods within one sequence • Flow range: 0.1 – 30 ml/min • Active pressure monitoring with option for process control, meaning e.g. when SPE-cartridge is blocked, system will 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>skip the sample and goes ahead with next sample</p> <ul style="list-style-type: none"> • SPE cartridges 200 mg/6 ml HLB phase or equivalent – 2000 pcs • Laboratory bottle 10L volume with screw thread GL45 – 12 pcs • Laboratory bottle 4 L volume with screw thread GL45 – 32 pcs • Laboratory bottle 1 L volume with screw thread GL45 – 96 pcs • Screw-Thread Bottle, volume 25 mL, usable with sealing cap (GL24) – 200 pcs • Screw-Thread Bottle, volume 60 mL, usable with sealing cap – 200 pcs • Screw-Thread Bottle, volume 115 mL, usable with sealing cap (GL25) – 200 pcs • Screw-Thread Bottle, volume 250 mL, usable with sealing cap (GL25) – 500 pcs • Screw-Thread Vials, 16 mL, flat bottom – 2000 pcs • Screw-Thread Vials, 4 mL, flat bottom – 2000 pcs 			
	<p>Specifications of evaporation module:</p> <ul style="list-style-type: none"> • Possibility of choosing evaporating technique – possibility of evaporating in vacuum and/or blow down with nitrogen or with air 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
4.3	<ul style="list-style-type: none"> • Possibility to evaporate any volume less than 350 ml down to a precise, defined end volume in range of 0.2 – 5 ml in 0.1 ml steps • Possibility of automated solvent exchange either liquid/liquid or dryness/re-resolution • Concentrated sample can be transferred to the vials. • Possibility of system clean-up between samples • Cleaning through needle with special rinsing capillary with 360° rinsing radius • Option for evaporation by vacuum with control heating or by blow down with nitrogen or with air without hardware changes 			
4.4	<p>Specification of software for system control</p> <ul style="list-style-type: none"> • Notebook Computer i3 with memory 512 MB, 15"monitor and a laser printer • MS Windows compatible software on PC, for complete control over all the parts of the System 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Possibility of setting up all parameters through software including conditioning, loading, washing, drying, eluting with different options – eluting with automated evaporating, eluting to one vial, eluting with a single solvent into one vial, eluting with different solvents into different vials, eluting Elution with different solvents into one vial, evaporating by vacuum or by Ambient air. 			
4.5	<p>Additional services before the provisional acceptance</p> <p>Unloading products at the place of delivery</p> <p>When delivering equipment, it is required to install the equipment and verify performance of hardware and software</p> <p>Basic training of users for work on hardware and software of 5 days in Serbian language in end-user Laboratory for three people employed in National Laboratory Sector. Instructions for operation must be provided. The original operating instructions for all system components must be in English. A brief instruction manual should be in Serbian, one hard copy in each language and one soft copy in English.</p>			

1. Item number	2. Specifications required		3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
5	Gas chromatograph with triple quadrupole mass spectrometer - GC MS/MS	Quantity: 1			
	Manufacturer's name:				
	Product type, model:				
	Specifications				
5.1	<p>Gas chromatograph Dual-channel system</p> <ul style="list-style-type: none"> • Pressure set-point and control precision to 0.001 psi • Electronic pneumatic pressure control for injector and detector, for automatic control of gas pressure and flow, based on micro-channels • Electronic pneumatic pressure control with capillary columns provides 4 columns flow control modes: constant pressure, ramped pressure (three ramps), constant flow, ramped flow (three ramps). • Capacitive "touchscreen" interface technology with glass interface, which has a built-in control of the device operation, built - in diagnostic tests, video instruction for basic user 				

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>maintenance of the system in real time, system status, configuration and flow path information</p> <ul style="list-style-type: none"> • Remote access directly for GC must be available independent of any computer being used and must available standard for the purpose of remote control of the operation on the GC, method and sequence editing and diagnostics in real time • Retention time repeatability: <0.0008 min • Area repeatability: <0.5 % RSD • Oven ambient temperature: +4 to 450 °C • Oven ambient temperature with CO₂ cryogenic cooling: -40 to 450 °C • Temperature ramps: min 20 oven ramps • Achievable temperature ramp rate: 120 °C/min (50 °C – 70 °C) and 35 °C/min (300 °C – 350 °C) • Oven cools down from 450 °C to 50 °C in <6.0 minutes • Gas chromatography columns: <ul style="list-style-type: none"> - Suitable for the analysis of semi-volatile and volatile compounds with consistent inertness and low 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>bleed characteristics for MS analysis:</p> <ul style="list-style-type: none"> - 100% Dimethylpolysiloxane with dimensions (L, ID, df) - 30 m, 0.25 mm, 0.25 um, 3 pcs. - 5% Phenyl, 95% dimethylpolysiloxane with (L, ID, df) - 30 m, 0.25 mm, 0.25 um, 3 pcs. - Column suitable for analysis of VOC (L, ID, df) - 30 m, 0.32 mm, 1.8 um, 2 pcs. • System for protecting analytical columns: <ul style="list-style-type: none"> - Deactivated fused silica tubing, 10 m, I.D. 0.25 mm, 3 pcs. • Universal union fitting to any capillary column diameter (recommended stainless steel made), 12 pcs. • Backflash system: <ul style="list-style-type: none"> - System for extending the lifetime of the analytical column - Operator selectable parameters must be fully controlled by software • Restriction capillaries, 3 pcs. 			
5.2.	Inlet split/splitless combined with temperature-programmable capability			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Maximum temperature inlet: 450 °C • Temperature control of inlet: LCO2 (to -70 °C) • Inlet supports cool injections for improved signal response. • Air cooling (to ambient +10 °C with oven temperature <50 °C) • Inlet temperature programming ramps: 10 at up to 720 °C/min or better • Injection modes: hot and cold split/splitless, pulsed split/splitless, solvent vent, direct • Split ratio: 7.500:1 or better • Spitless mode: pressure pulsed • Electronic septum purge flow control • Total flow setting range: 0 to 500 mL/min N2, 0 to 1.250 ml/min H2 or He, 0 to 200 mL/min argon/methane • Flow technology eluent splitting, backflushing, column switching • Backflush device must not require a replaceable insert 			
5.3	<p>Autoinjector</p> <ul style="list-style-type: none"> • Multifunctional robotic autosampler with software control, with capabilities 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>to change tools automatically within the same method and sequence</p> <ul style="list-style-type: none"> • For techniques: liquid injections, headspace, SPME without pausing GC operation • Rail, 1 pcs park station, liquid syringe tool, power terminal and cables, 1 pcs tray, 3 pcs VT54 racks, 1 pcs standard wash module • Rail sampling accessories: 100 pcs 2 mL vials, 100 pcs screw caps, 2 pcs 10 µL syringes • Agitator module: for the incubation and agitation of samples at controlled temperature with 6 positions for 20 mL vials, 30 °C- 200 °C • Headspace sampling accessories: 100 pcs of 20 mL vials, 100 pcs 18 mm magnetic screw caps (PTFE/silicone), 2 pcs of 2.5 mL syringes • Software control integrated in GC/MS/MS software 			
5.4	<p>MS / MS detector</p> <ul style="list-style-type: none"> • Type of analyzer: triple quadrupole • Ion source: EI 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Ion Source Temperature: 150 °C to 350 °C • Dual filaments for EI • Electron Energy: 10 to 300 eV • Mass Filters: hyperbolic quadrupole • Quadrupole temperature: 120 to 200 °C • Mass Range: m/z 10 to 1,000 • Resolution: 0.7 to 2.5 Da • Scan Rate: 20,000 u/s • MRM Speed: 800 transitions/sec • MRM Dwell: 0.5 msec • Mass analyzer modes: Full scan (Q1 / Q3), SIM (Q1 / Q3), MRM, Precursor ion scan, Product ion scan, Neutral loss scan • EI MRM S/N: 1 µL of 10 fg/µL OFN produces >1,500:1 RMS S/N for the transition of m/z 272 to 222 • EI MRM Instrument detection limit - 4fg of better octafluoronaphtalene (OFN); of m/z 272 to 222 • Vacuum System: dual stage turbomolecular pump and mechanical pump • Collision Energy: adjustable, 60 eVs • Detector: electron multiplier • Tuning: software controlled autotune 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
5.5	<p>Computer</p> <ul style="list-style-type: none"> • PC with memory 1TB, two 25" monitors and printer according to the manufacturer's recommendation, operating system in accordance with the requirements of the manufacturer of the equipment • Unique control of parameters GC, ALS and MS/MS device • Software for data collection, processing, and reporting of results • Possibility to use methods from the existing GC 7890/7000C in order to get the same chromatographic results (same retention times, resolution, analysis speed) • An integrated retention time locking module that has the ability to eliminate retention time differences due to maintenance, detection system or physical location allowing any GC or GC/MS/MS detection system to measure the same retention time for compounds of a specific method" • Programmable sleep mode for reduces power and gas consumption during periods of inactivity, wake mode readies 			

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	<p>the system for operation, programmable on a daily and weekly basis</p> <ul style="list-style-type: none"> • Set of tools necessary for maintenance of the appliance:1 set • Pesticide and environment pollutant MRM Data Base 				
5.6	<p>Additional services before the provisional acceptance</p> <p>Unloading products at the place of delivery</p> <p>When delivering equipment, it is required to install the equipment, qualify the IQ installation, and verify performance of hardware and software</p> <p>Basic training of users for work on hardware and software of 5 days in Serbian language in end-user Laboratory for three people employed in National Laboratory Sector. Instructions for operation must be provided. The original operating instructions for all system components must be in English. A brief instruction manual should be in Serbian, one hard copy in each language and one soft copy in English.</p>				
6	<p>Enhanced microwave system for high temperature and pressure digestion</p>	<p>Quantity: 1</p>			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	Manufacturer's name:			
	Product type, model:			
	Specifications			
6.1	<ul style="list-style-type: none"> • System capable to run any kind of acid chemistry including aggressive media such as aqua regia and/or large volumes of HCl using the loosing fit caps to maintain the same pressure level in and outside the vials • Capability to process different sample types and different digestion chemistries within the same run • Acid volume: 1 – 4 mL • Chamber volume: 990 mL with 900 mL TFM main vessel • Operating temperature: 300°C • Temperature sensor directly in contact with the solution of the main vessel • Operating pressure: < 199 bar • Sample vials material: Glass, quartz or PTFE-TFM vials (usable within the same run) • Sample vials volume: 6 to 70 mL (capable to work with different vial volumes in the same rack) 			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Technology that involves only one chamber enables the same temperature and pressure to be achieved in all samples simultaneously (no sample rotation is needed) • Pre-pressurization of the chamber by inert gas in purpose of preventing sample boiling and elimination of cross-contamination • Auto-lift mechanism for automated loading of the sample rack into the chamber • Safety mechanism: Chamber securely closed by double interlocked stainless steel clamps. Failsafe mechanism for safety release pressure (over 199 bar), Safety valve enables manual release of pressure after digestion cycle in case of power failure • Microwave power emission: 1500 W • Dedicated external cooling system (1000W) to enable quick cooling • Analog manometer for easy reading of reactor's pressure 			
	<p>Additional services before the provisional acceptance</p>			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>Unloading products at the place of delivery</p> <p>When delivering equipment, it is required to install the equipment and verify performance of hardware and software</p> <p>Basic training of users for work on hardware and software of 2 days in Serbian language in end-user Laboratory for three people employed in National Laboratory Sector. Instructions for operation must be provided. The original operating instructions for all system components must be in English. A brief instruction manual should be in Serbian, one hard copy in each language and one soft copy in English.</p>			

Support & maintenance requirements during warranty and commercial warranty period for all items				
Commercial warranty	<p>2 years (after the end of 1 year standard warranty) in accordance with the conditions laid down in Article 32 of the General Conditions and Article 32 of the Special Conditions</p> <p>Tenderer must provide a detailed description of the organisation of the proposed service (e.g. name of the authorised service provider)</p>			

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
Response time	On-site response time within 5 working days during 3 years after provisional acceptance. Tenderer must provide a detailed description of the organisation of the proposed service (e.g. name of the authorised service provider)			
Repair time	20 working days repair time during 3 years after provisional acceptance Tenderer must provide a detailed description of the organisation of the proposed service (e.g. name of the authorised service provider)			

Part II – Place of delivery/Acceptance

Item	ARTICLE	Name of person responsible for provisional and final acceptance	Place of acceptance
Item 1	High resolution LC MSD system	Zoran Stojanović , master chemist, Head of Laboratory for instrumental and biological analysis.	Belgrade, Zabljacka 10a
Item 2	Total Organic Carbon TOC Analyzer	Zoran Stojanović , master chemist, Head of Laboratory for instrumental and biological analysis.	Belgrade, Zabljacka 10a
Item 3	Evaporation system	Zoran Stojanović , master chemist, Head of Laboratory for instrumental and biological analysis.	Belgrade, Zabljacka 10a
Item 4	Automated sample preparation system	Zoran Stojanović , master chemist, Head of Laboratory for instrumental and biological analysis.	Belgrade, Zabljacka 10a
Item 5	Gas chromatograph with triple quadrupole mass spectrometer - GC MS/MS	Zoran Stojanović , master chemist, Head of Laboratory for instrumental and biological analysis.	Belgrade, Zabljacka 10a
Item 6	Enhanced microwave system for high temperature and pressure digestion	Zoran Stojanović, master chemist, Head of Laboratory for instrumental and biological analysis.	Belgrade, Zabljacka 10a

Authorised Contact Person	Delivery address
Name: Phone: Fax: E-mail: Working hours: 8-15 (Monday to Friday)	Belgrade, Zabljacka 10a