



EUROPEAN UNION

Delegation of the European Union to Bosnia and Herzegovina

Clarification No.1 to the Tender dossier

Project title: Laboratory equipment for food control in Bosnia and Herzegovina

Tender No: EC/BiH/09/014; Publication ref: EuropeAid/128355/C/SUP/BA

Question 1

For Lot 1, Item 1.1 Gas Chromatograph – with ECD and NPD detectors:

- 1) Is it a problem that the maximal operating temperature of the ECD detector is 50 degrees Celsius lower than specified?
- 2) The dynamic range for an azobenzene/malathion mixture, is a factor 10 lower, could this pose a problem?

Answer 1

- 1) Please see Corrigendum No. 2 to the Tender Dossier.
- 2) It is not possible to evaluate the equipment that will be proposed. The tenderers are invited to check technical specifications and to prepare their proposals in accordance with the requirements of the tender dossier.

Question 2

For Lot 1, Item 1.2 Gas Chromatograph – Mass Spectrometer (GC/MS):

The lower mass range limit is given to be 1.5 instead of 1, will this pose a problem?

Answer 2

Please see Corrigendum No. 2 to the Tender Dossier.

Question 3

For Lot 1, Item 1.3 High Performance Liquid Chromatography with Fluorescence Detector and Diode Array Detector:

- 1) The Column temperature control module is able to maintain a temperature, from 10 degrees below ambient to at least 85 °C, as supposed to the 15 – 80 °C asked. Will this be a problem?
- 2) The solvent delivery system has a small piston stroke volume instead of a variable stroke volume as asked, could this be a problem?

Answer 3

- 1) Please see Corrigendum No. 2 to the Tender Dossier
- 2) Please see Corrigendum No. 2 to the Tender Dossier.

Question 4

For Lot 1, Item 1.4 High Performance Liquid Chromatograph with MS/MS Detector:

- 1) The solvent delivery system has a small piston stroke volume instead of a variable stroke volume as asked, could this be a problem?
- 2) The MS Triple Quadrapole detector has a mass range of 10 – 2000 m/z instead of 5 – 1500 m/z, could this form a problem?

Answer 4

- 1) Please see Corrigendum No. 2 to the Tender Dossier.
- 2) Please see Corrigendum No. 2 to the Tender Dossier.

Question 5

For Lot 2, Item 2.1 Atomic absorption spectrophotometer (AAS) with graphite furnace:

The specifications require an AAS with Zeeman background correction system. We offer an AAS with BGC-SR and BGC-D2 background correction system. Could the different background correction pose problems?

Answer 5

It is not possible to evaluate the equipment that will be proposed. The tenderers are invited to check technical specifications and to prepare their proposals in accordance with the requirements of the tender dossier.

Question 6

Is it possible to separate Lot 1 to two lots or more?

GC and LC are not the same chromatography and there are not the same beneficiaries of the equipment.

Answer 6

It is not possible to separate Lot 1 to two lots or more.

Question 7

Since identification of compounds in analysis of organophosphorus and organochlorine pesticides residues is based on their retention time and on comparison of the primary and secondary ions and also the analysis are dependent on accuracy (recovery percentages), precision (repeatability and reproducibility), and sensitivity (detection and quantitation limits), we think that the following items in the specifications should be changed to make the analysis more successful and more accurate.

Lot 1: Chromatographs

Item 1.1 Gas Chromatograph – with ECD and NPD detectors:

Specifications Required	Specifications Suggested
	In terms of written content above you

	<p>should add following requirements in the specification lines :</p> <ol style="list-style-type: none"> 1. - The gas chromatograph must have Time Saver, Enhanced Solvent Purge, Isolation and Enhanced Large Volume (ELVI) modes 2. The gas chromatograph oven must be capable of fast cool-down from 450 oC to 50 oC within 2.0 minutes
Column oven	
Maximum temperature programming rate: ≥ 120 °C/min	Maximum temperature programming rate : ≥ 140 °C/min
Temperature programming ramps/plateaus: min 5 / 6	Temperature programming ramps/plateaus : min 9 / 10
Injection ports – 2 identical injection ports	
Maximum operating temperature: at least 400°C	Maximum operating temperature: at least 450 °C in 1 °C increments
Automatic Liquid Sampler	
Sample tray: capable of holding at least 100 sample vials	Sample tray: capable of holding at least 108 sample vials
Injection volume range: $\leq 0.2 - \geq 10$ μ l	Injection volume range : $\leq 0.1 - \geq 50$ μ l

Item 1.2 Gas Chromatograph – Mass Spectrometer (GC/MS)

Specifications Required	Specifications Suggested
	<p>In terms of written content above you should add following requirements in the specification lines :</p> <ol style="list-style-type: none"> 1. - The gas chromatograph must have Time Saver, Enhanced Solvent Purge, Isolation and Enhanced Large Volume (ELVI) modes 2. The gas chromatograph oven must be capable of fast cool-down from 450 oC to 50 oC within 2.0 minutes
Column oven	
Maximum temperature programming rate: ≥ 120 °C/min	Maximum temperature programming rate : ≥ 140 °C/min
Temperature programming	Temperature programming ramps/plateaus

ramps/plateaus: min 5 / 6	: min 9 / 10
Injection ports – 2 identical injection ports	
Maximum operating temperature: at least 400°C	Maximum operating temperature: at least 450 °C in 1 °C increments
Mass selective detector	
Mass range: $\leq 1 - 1000$ amu, any subset of this range should be selectable by the user	Mass range : $\leq 1 - 1200$ amu, any subset of this range should be selectable by the user
Scan speed: at least 8000 amu/sec with 0.1 amu mass resolution	Scan speed : at least 12500 amu/sec with 0.1 amu mass resolution
Dynamic range at least 10^6	Dynamic range : better than 10^6
EI Scan Sensitivity: minimum 1pg octafluoronaphtalene S/N ratio $\geq 100:1$	EI Scan Sensitivity : minimum 1pg octafluoronaphtalene S/N ratio $\geq 180:1$
Mass axis stability: ± 0.1 m/z in 24 hours	Mass axis stability : ± 0.1 m/z in 48 hours
Interface Temperature – capable of being controlled up to 300°C	Interface Temperature – capable of being controlled up to 350°C
Automatic Liquid Sampler	
Sample tray: capable of holding at least 100 sample vials	Sample tray: capable of holding at least 108 sample vials
Injection volume range: $\leq 0.2 - \geq 10$ μ l	Injection volume range : $\leq 0.1 - \geq 50$ μ l

Item 1.3 High Performance Liquid Chromatography with Fluorescence Detector and Diode Array Detector

Precision (repeatability and reproducibility) in the HPLC system, and sensitivity (detection limits with Fluorescence detector), are very important in all analysis, so we think that the following items in the specifications should be changed to make the analysis more successful and more accurate.

Specifications Required	Specifications Suggested
Solvent Delivery System	
Maximum operating pressure at least 400 bar	Maximum operating pressure at least 690 bar
Autosampler- Programmable	
Injected volume – 0.1 μ l to 100 μ l	Injected volume – 0.1 μ l to 2,45 ml

Precision $\leq 0.3\%$ RSD from 5 – 100 μl , $\leq 1\%$ from 1 – 5 μl	Precision $\leq 0.5\%$ RSD for $\geq 5 \mu\text{L}$ injections, $\leq 1.0\%$ RSD for 1-4 μL injections
Column temperature control module	
Able to maintain a temperature, from 15 degrees below ambient to at least 80 °C	Able to maintain a temperature, from 15 degrees below ambient to at least 90 °C
Fluorescence detector	
Excitation wavelength: from ≤ 200 nm to ≥ 700 nm and zero order, bandwidth $\leq 20\text{nm}$	Excitation wavelength : from ≤ 200 nm to ≥ 850 nm and zero order, bandwidth $\leq 15\text{nm}$
Emission wavelength: from ≤ 280 nm to ≥ 800 nm and zero order, bandwidth $\leq 20\text{nm}$	Emission wavelength: from ≤ 250 nm to ≥ 900 nm and zero order, bandwidth $\leq 15\text{nm}$
Sensitivity: ≤ 10 fg anthracene LOD	Sensitivity should be presented with 5 or more selectable settings: S/N ratio 525:1 (tangent method), 700:1 (baseline method), for Raman peak of water
Scan speed at least 30ms per data point	This item is irrelevant in the respect of sensitivity and as such should not be highlighted

Item 1.4 High Performance Liquid Chromatograph with MS/MS Detector

Specifications Required	Specifications Suggested
Solvent Delivery System	
Maximum operating pressure at least 400 bar	Maximum operating pressure at least 690 bar
Autosampler- Programmable	
Injected volume – 0.1 μl to 100 μl	Injected volume – 0.1 μl to 2,45 ml
Precision $\leq 0.3\%$ RSD from 5 – 100 μl , $\leq 1\%$ from 1 – 5 μl	Precision $\leq 0.5\%$ RSD for $\geq 5 \mu\text{L}$ injections, $\leq 1.0\%$ RSD for 1-4 μL injections
MS Triple Quadrapole detector	
Capable of operating in the MS – MS mode	Capable of operating in the MS – MS, and MS-MS-MS mode
Analyzer mass range: 5 to 1500 m/z or better	Analyzer mass range: 5 to 1700 m/z or better
Scan rates: ≤ 500 to ≥ 5000 u/sec	Scan rates ≤ 250 to ≥ 4000 u/sec

Scan speed:2000 amu/sec or better	Scan speed:2400 amu/sec or better
Mass axis stability: $\leq \pm 0.2$ u over 8 hours	Mass axis stability : $\leq \pm 0.1$ amu over 8 hours

Lot 2: Atomic Absorption Spectrophotometers

Item 2.1 Atomic absorption spectrophotometer with graphite furnace

In respect of best performance, limit detection and sensitivity , we think that the following items in the specifications should be changed to make the analysis more successful and more accurate.

Specifications Required	Specifications Suggested
Atomic absorption spectrophotometer with Zeeman background correction system	Atomic absorption spectrophotometer with longitudinal Zeeman background correction system
	In terms of written content above you should add following requirements in the specification lines : Detector: Solid state detector
Minimum 4 lamp holder; automatic lamp position optimisation	Minimum 8 lamp holder; automatic lamp position optimisation
Graphite Furnace	
Fully computer-controlled Heated Graphite Atomizer (HGA)	Fully computer-controlled Transversely Heated Graphite Atomizer (THGA)
Tube temperature : from ambient to $\geq 2,500$ °C	Tube temperature: from ambient to $\geq 2,600$ °C
Holding time – 1 to 90 s in steps of 1 s	Holding time – 0 to 99 s in steps of 1 s
Temperature ambient to $\geq 2,500$ °C in steps of 10 °C	Temperature ambient to $\geq 2,600$ °C in steps of 10 °C

Item 2.2 Atomic absorption spectrophotometer flame with Hydride generation accessory

Specifications Required	Specifications Suggested
Atomic absorption spectrophotometer with Deuterium arc background correction system	Atomic absorption spectrophotometer with true double-beam echelle optical system and High-efficiency, segmented solid-state detector, Deuterium background corrector and two built-in EDL power supplies.
Wavelength range 190 – 880 nm	

minimum	Wavelength range 189 – 900 nm minimum
Minimum 4 lamp holder; automatic lamp position optimisation	Minimum 4 lamp holder; automatic lamp position optimisation with built in EDL lamp support

Lot 3: Various Laboratory Equipment

Item 3.3 Microwave Digestion System

Specifications Required	Specifications Suggested
Capable of holding at least 8 sealed digestion vessels	Capable of holding at least 16 sealed digestion vessels
Power rating ≥ 1200 W	Power rating ≥ 1400 W
Independent monitoring of temperature and pressure for each reaction vessel	Monitoring of temperature and pressure for all reaction vessel

Answer 7

It is not possible to evaluate the equipment that will be proposed. The tenderers are invited to check technical specifications and to prepare their proposals in accordance with the requirements of the tender dossier.

Please also refer to Corrigendum 2 to the Tender Dossier.

Question 8

For Lot 1 Chromatographs, 1.1 Gas Chromatograph – with ECD and NPD detectors:

- 1) In Required Specification for ECD you have specified Maximum operating temperature: at least 450°C. Most of columns and methods working conditions are limited to 330 °C which are used with ECD detectors. Is it acceptable, if we offer a ECD detector operates to 400 °C?
- 2) In Required Specification for NPD you have specified Maximum operating temperature: at least 450°C. Most of columns and methods working conditions are limited to 330 °C which are used with NPD detectors. Is it acceptable, if we offer a NPD detector operates to 400 °C?

Answer 8

- 1) Please see Corrigendum 2 to the Tender Dossier.
- 2) Please see Corrigendum 2 to the Tender Dossier.

Question 9

For Lot 1 Chromatographs, 1.3 High Performance Liquid Chromatography with Fluorescence Detector and Diode Array Detector:

1) In required Specification for Solvent Delivery System you have specified the unit must be able to general linear, concave, and convex gradient curves. For applications analysis of mycotoxins and veterinary drug residues no one reference method requires concave or convex gradient curve. Is it acceptable, if we offer a Solvent Delivery System which is able to general linear and step gradient curves?

2) In Required Specification for Column temperature control module you have specified '*Able to maintain a temperature, from 15 degrees below ambient to at least 80 °C*'. You also require cooling and heating with Peltier effect. According to the structure of the Peltier element, Column temperature control module are in reality effective up to 10 degrees below ambient temperature. Furthermore, methods for analysis of mycotoxins and veterinary drug residues are requiring temperature range from 25 to 40 and more degrees. Is it acceptable, if we offer Column temperature control module which is able to maintain a temperature, from 10 degrees below ambient to at least 80 °C?

3) In Required Specification for fluorescence detector you have specified Standard cell volume = 10-15 µl (standard). Flow cells with smaller volume with same path length are much more sensitive because small cell volume means high light transmission, and that produce lower noise. Is it acceptable, if we offer standard flow cell volume 8 µl ?

Answer 9

- 1) Please see Corrigendum 2 to the Tender Dossier.
- 2) Please see Corrigendum 2 to the Tender Dossier.
- 3) Please see Corrigendum 2 to the Tender Dossier.

Question 10

For Lot 1 Chromatographs, 1.4 High Performance Liquid Chromatograph with MS/MS Detector

1) In Required Specification for Solvent Delivery System you have specified the unit must be able to general linear, concave, and convex gradient curves. For applications of analysis residues of veterinary substances reference methods do not requires concave or convex gradient curve. Is it acceptable, if we offer a Solvent Delivery System which is able to general linear and step gradient curves?

2) In Required Specification for MS triple quadrupole detector you have specified Manifold temperature: independent control; $\leq 25\text{ }^{\circ}\text{C}$ to $\geq 70\text{ }^{\circ}\text{C}$. What do you mean by manifold temperature? Could you please clarify this parameter, is that the temperature of quadrupole?

3) In Required Specification for MS triple quadrupole detector you have specified Turbomolecular pump: dual stage air cooled. Please clarify what do you mean by dual stage? Does it mean a turbo pump backed up by rough pump or two turbo pumps? Is it acceptable, if we offer a turbo pump backed up by rough pump?

4) In Required Specification you did not specify Column temperature control module. It should be specified. Please include it in Required Specification.

5) In Required Specification there is no sensitivity specification, and that is the most important characteristic. Please specify required sensitivity.

Answer 10

- 1) Please see Corrigendum 2 to the Tender Dossier.
- 2) Please see Corrigendum 2 to the Tender Dossier.
- 3) Please see Corrigendum 2 to the Tender Dossier.
- 4) Please see Corrigendum 2 to the Tender Dossier.
- 5) Please see Corrigendum 2 to the Tender Dossier.

Question 11

For Lot 2 Atomic Absorption Spectrophotometers, Item 2.1 Atomic absorption spectrophotometer with graphite furnace:

- 1) In Required Specification for graphite furnace, you have specified computer controlled cooling system. Is it acceptable, if we offer standalone cooling system?

Answer 11

It is not possible to evaluate the equipment that will be proposed. The tenderers are invited to check technical specification and to prepare their proposals in accordance with the requirements of the tender dossier.

Question 12

For Lot 2 Atomic Absorption Spectrophotometers, Item 2.2 Atomic absorption spectrophotometer flame with Hydride generation accessory:

In Required Specification for Atomic absorption spectrophotometer with Deuterium arc background correction system, you have specified Computer controlled -ports valve. Could you please inform us, which valves you require?

Answer 12

Please see Corrigendum 2 to the Tender Dossier.