

## IZMJENA 1

**Tehničke specifikacije**

**NARUČITELJ:** INSPECTO D.O.O., Električne centrale 1, 31400 Đakovo, Hrvatska

**OIB:** 52975458232

**PREDMET NABAVE:** Nabava usluge operativnog leasinga LC-MS/MS instrumenta

**EVIDENCIJSKI BROJ NABAVE:** 01-2019-KOM

**DATUM:** 07.02.2019.

**TEHNIČKE SPECIFIKACIJE**

**Tehničke specifikacije** LC-MS/MS instrumenta navedene u tablici u formatu kontrolne liste obavezne su kao minimalni standard koji mora zadovoljiti tražene funkcionalnosti i prateće usluge u sklopu predmeta nabave.

Kolona III služi za ocjenjivanje sukladnosti ponuđenih funkcionalnosti u odnosu na tražene minimalne funkcionalnosti. Ponuditelj je dužan ispuniti kolonu III za svaku traženu funkcionalnost. Ponuditelj u kolonu III upisuje DA ako ponuđeni instrument zadovoljava traženu funkcionalnost navedenu u koloni II. U suprotnom Ponuditelj upisuje NE. Ponuditelj ne smije mijenjati specifikacije navedene u koloni II.

Ponuditelj u kolonu IV može dodatno pojasniti na koji način ponuđeni instrument zadovoljava traženu funkcionalnost.

Ponude koje ne udovoljavaju svim traženim funkcionalnostima, odnosno ponude kod kojih nije uneseno DA za svaku traženu funkcionalnost, bit će odbijene zbog nezadovoljavanja minimalnog standarda funkcionalnosti LC-MS/MS instrumenta.

Eventualna prateća dokumentacija koju Ponuditelj dostavlja kao nadopunu ponudi mora jasno ukazivati na modele odnosno opcije koje se nude. Ponude koje ne identificiraju precizno modele i specifikacije mogu biti odbijene.

Naručitelj dopušta korištenje hrvatskog i engleskog jezika u popunjavanju tablice Tehničke specifikacije.

**Napomena:** Uzimajući u obzir izvor sufinanciranja kroz Ugovor o dodjeli bespovratnih sredstava u sklopu projekta "InspectoKOM – Komercijalizacija inovacija tvrtke Inspecto d.o.o.", odnosno kroz sredstva dodijeljena kroz Operativni program «Konkurentnost i kohezija 2014. – 202» i Poziv za dostavu projektnih prijava "Komercijalizacija inovacija u poduzetništvu", sva ponuđena oprema koja je predmet ovog postupka nabave mora biti nova i prethodno nekorištena.

## TEHNIČKE SPECIFIKACIJE

### 1 (one) UHPLC-MS/MS Tandem Quadrupole benchtop Instruments

I R.br	II Tražene funkcionalnosti	III Ponuđena funkcionalnost (DA/NE)	IV Komentar/pojašnjenje
1.			
1.1	Instruments	1	<i>Model</i>
1.2	1 (one) UHPLC-MS/MS system for the dedicated and intended use for food and feed.		
1.3	This instrument specification is for 1 (one) <ul style="list-style-type: none"> <li>I. bench-top tandem quadrupole mass spectrometer systems</li> <li>II. individual ultra-high performance liquid chromatography (UHPLC) module, configured for integrated LC-MS/MS analysis.</li> <li>III. entire system setup must be provided from a single manufacturer..</li> </ul>		
A.	<b>INLET SYSTEM MODULES (UHPLC-Inlet and MS/MS must be provided from the same manufacturer)</b>		
2.1	Suitable system to be used as an inlet system for the LC-MS/MS		

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2.2	Gradient system must have a suitable mixing of four solvents (possibly to be expanded with additional six port valve.		
2.3	Total System band spread ( $5\sigma$ ) not more than: <i>12 <math>\mu</math>L in default configuration</i>		
2.4	At least 4 solvents connected on the system		
2.5	Solvent blending, Automated, on-line pH, ionic strength, and organic modifier blending from pure solvents.		
2.6	Gradient formation can facilitate quaternary gradient		
2.7	Flow rate must be from <i>0.01 to 2.00 ml/min</i> , in <i>0.001 ml increments</i>		
2.8	Flow Accuracy: $\pm 1.0\%$		
2.9	<b>Flow Precision: <math>\leq 0.075\%</math> RSD</b>		
2.10	Maximum operating pressure not less than 15,000 PSI		
2.11	Composition Accuracy: $\pm 0.5\%$ (5%-90% range)		
2.12	Composition Precision: $<0.15\%$ RSD		
2.13	Automatic compressibility compensation available		
2.14	System Delay Volume from solvent mixer to inlet of column not more than $<550 \mu$ L		

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2.15	At least four chamber channel vacuum degasser must be included.		
2.16	Autosampler capacity must be at least 96 vials (2 mL) or 2 96-well plates		
2.17	Injection volume range 0.1 to 1000 uL		
2.18	Injection linearity better than 0.999		
2.19	Number of injections per sample up to at least 99		
2.20	Sample temperature adjustable from 4°C to 40°C.		
B.	<b>1 (one) Tandem Quadrupole MS</b>		
2.21	The instrument must be equipped with atmospheric pressure ionization (API) LC interface that includes the source and spraying units.		
2.22	At least 2 Built-in sample reservoirs for tuning and calibration of the systems automatically embedded into the system control software. No classical syringe pumps.		
2.23	The 2 ion source must be of a dual-orthogonal design in order to minimize source contamination and de-cluster ions formed at atmospheric pressure. Ultra high resistance to matrix effects.		
2.24	The source elements and desolvation cone/mechanisms must be able to be removed for		

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	cleaning without breaking the instrument vacuum, consequently maximizing instrument up time.		
2.25	The source elements and desolvation cone/mechanisms must be able to be removed for cleaning without breaking the instrument vacuum, consequently maximizing instrument up time. The interface and the ion transport optics into the instruments analyzer compartment must be free of any routine maintenance or exchange of any spare parts or cleaning like ion transfer lines, desolvation capillaries or similar.		
2.26	<del>Positive and negative ionization capabilities must be included as standard on the instruments and be able to be used in the same run (injection). Switching time between positive and negative polarity must be not more than 15 msec.</del>		
2.27	Positive and negative ionization capabilities must be included as standard on the instrument and be able to be used in the same run (injection). Switching time between positive and negative polarity must be not more than 15 msec.		

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2.28	A combined ESI/APCI ion source must be provided as standard with the instrument with switching times not more than 20 msec.		
2.29	There must be a universal source available that could be interchanged for analysis of different classes of ionization compounds types.		
	<b>Mass Analyzer</b>		
2.30	The instrument must incorporate two quadrupole mass analyzers, a collision cell and mass pre filters to prevent contamination of the main analyzers and maximize resolution of the ions in a linear geometry design.		
2.31	Analyzer must incorporate a collision cell with appropriate design to accelerate the ion transitions from 1 <sup>st</sup> to 2 <sup>nd</sup> quadrupole.		
2.32	It must be possible to switch between MS to MS/MS (MRM) scan mode in not more than 3 msec to allow method validation of ion suppression and matrix effects.		
2.33	Suitable air-cooled turbo molecular pumps must be provided with the instrument.		
2.34	Suitable pre-vacuum pump must be provided with the instrument.		

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2.35	<del>Instrument must have scan speed of at least 10.000 Da/sec. in Full Scan mode.</del>		
2.36	Instrument must have got scan speed of at least 20.000 Da/sec. in Full Scan mode.		
2.37	Mass Range 5-2000 m/z or better.		
2.38	Adjustable Dwell-time down to 1 msec must be possible. Instrument must provide automated calculation of the suitable Dwell time needed for the dedicated multi-method.		
2.39	Instrument must have Multiplier-Detectors.		
2.40	Instruments must have got Photomultiplier to guarantee at least 10 years free of maintenance.		
2.41	<p><b>SENSITIVITY - ESI+ (Standard ESI source)</b></p> <p><b>1 (one) MS/MS Instrument:</b> MRM sensitivity (ESI+): 1 pg on column injection of Reserpine must result in a chromatographic signal to noise ratio (S/N), for the transition 609 &gt; 195 m/z, greater than 200.000:1, using raw unsmoothed data.</p>		
	<b>System Control and Data analysis software</b>		

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2.42	Suitable software for the control of all parts of the instrument including UHPLC, all reservoirs, MS/MS and GC-MS capabilities		
2.43	<b>Suitable Nitrogen Generator with built-in Compressor capable of supplying two LC-MS/MS instruments</b>		
	<b>Other Requirements</b>		
2.44	Installation, Operation and Service Manuals, Maintenance Instructions and Troubleshooting Guide must be provided in hard copy and electronic form before the handover.		
2.45	Local application support capable of method development and optimization for two different methods to be developed at customer site.		