# *ANNEX II + III:* TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

**Supply of laboratory equipment for the project ABIDERS**

**Ref. no. HRRS00148-5/laboratory equipment**

**Columns 1-2 should be completed by the Project partner**

**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 Project partner 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 offeredspecifications.

The requirements set out in the technical specifications represent the minimum technical characteristics which offered goods must satisfy, unless stated otherwise, and tenderers are not allowed to modify technical specification in any way.

For each item for which it is not explicitly stated that it is allowed to offer goods of the equal characteristics, i.e. for each item where it is not stated “or equivalent”, for the purposes of this tender documentation it is assumed that words “or equivalent” are stated, and tenderer is allowed to offer equivalent goods / goods of equivalent characteristics.

**Lot no. 1 – FTIR spectrometer**

| **1.**  **Item Number** | **2.**  **Specifications Required** | **3.**  **Specifications Offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation Committee’s decision (Y/N)** |
| --- | --- | --- | --- | --- |
| 1 | **FTIR spectrometer** with next characteristics **– 1 pc**:  - FT IR spectrometer should have a range of 7800-350 cm-1  - The type of interferometer should be similar to Michelson type with Dynamic Alignment option for the mid-infrared region and the required resolution  - Spectral resolution 0.25 cm – 1 cm or better  - Signal to noise ratio typical 60000:1 or guaranteed 50000:1 or better. It is mandatory to indicate whether it is guaranteed or typical  - Wavenumber accuracy 0.02 cm -1 or better  - The warranty period for the interferometer, source and laser should be 10 years or more.  - Include ATR module with diamond crystal, transmission module, liquid sample holder, 10 cm gas cell  ATR for liquid samples, temperature controlled ATR, cell for gas and liquid samples, software, computer and library. There is the possibility of upgrading to a Raman microscope, an IR microscope / Include working software with the ability to connect to the Cloud, as well as chemometric software with qualitative and quantitative methods. The software must have options for Multicomponent search and contaminant analysis / Include installation and detailed training of at least 3 working days  - Mandatory service support  - Turn on the PC and monitor with OS must have the ability to search for spectra and search for peaks  - Spectrum database: minimum 11,000 spectra  The software must have an option to correct the baseline in a minimum of 3 points  - The software must have the ability to create a multi-point calibration curve |  |  |  |
|  | **Delivery**  Equipment must be delivered to University of Novi Sad, Institute of Food Technology in Novi Sad, Bulevar cara Lazara 1, 21102 Novi Sad |  |  |  |
|  | **Warranty period**  Min. warranty period is 24 months from the date of delivery |  |  |  |

**Lot no. 2 – UV spectrometer**

| **1.**  **Item Number** | **2.**  **Specifications Required** | **3.**  **Specifications Offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation Committee’s decision (Y/N)** |
| --- | --- | --- | --- | --- |
| 1 | **UV/Vis spectrophotometer** with next characteristics – **1 pc**:  UV/Vis spectrophotometer/Device for measuring absorbance in ELISA plates and cuvettes  Device for measuring absorbance in ELISA plates and cuvettes with the possibility of shaking, and measuring absorbance in small volumes (2 µL) with the appropriate accessory. The device has the ability to incubate up to a temperature of 65oC with condensation control (the possibility of creating a temperature gradient that prevents the formation of condensation)  6, 12, 24, 48, 96, 384 well microtiter plates supported. The maximum height of the tile is 20.3 mm.  Standard cuvettes for measuring absorbance are supported (cuvette with optical path 10 mm standing in a vertical position.  - The device in a variant with a touchscreen so that it can be used independently of a computer.  - The software comes with the device. The provider provides a computer (Win10, 64 bit, Excel 2016 or later)  - Detection method Measurement of absorbance  - Reading modes End point, kinetics, recording spectra (without computer). Endpoint, kinetics, spectral recording AND well mapping (when used via PC)  - Wavelength range 200-999 nm, in 1 nm increments. Wavelengths are adjusted using a monochromator  Temperature control up to 65 oC, control in 4 zones, uniformity ±0.5 oC at 37 oC  - Mixing Linear, orbital, double orbital  - Light source Xenon flash lamp  - Photodiode detector |  |  |  |
|  | - Spectral line width 2.9 nm  - Wavelength accuracy ±2 nm  - Accuracy of wavelengths ± 0.2 nm  - Absorbance measurement range 0 to 4 OD (microtiter plates and cuvettes)  0 to 3 OD (microtitre plate in rapid measurement mode)  Resolution of absorbance 0.001  OD accuracy 0.000 to 2.000 OD: ±1.0% ±0.010 OD  2,000 to 2,500 OD: ±3.0% ±0.010 OD  OD repeatability 0.000 to 2.000 OD: ±1.0% ±0.005 OD  2,000 to 2,500 OD: ±3.0% ±0.005 OD  OD linearity 0.000 to 2.000 OD: ±1.0% ±0.010 OD  2,000 to 2,500 OD: ±3.0% ±0.010 OD  - Accuracy, repeatability, and linearity were measured at normal read speed of a 96-well plate. The pause after moving the tile was 100 ms.  - The absorbance measurement performance in the cuvette is identical to the above  - Read speeds are shown in the tables below  - Measurement at the end point of 96 wells  - Recording time (s) Delay time (ms)  - Normal mode 74 100  - Normal mode, min delay time 64 0  - Erasing mode 35 0  384 wells  - Recording time (s) Delay time (ms)  - Normal mode 192 100 |  |  |  |
|  | **Delivery**  Equipment must be delivered to University of Novi Sad, Institute of Food Technology in Novi Sad, Bulevar cara Lazara 1, 21102 Novi Sad |  |  |  |
|  | **Warranty period**  Min. warranty period is 24 months from the date of delivery |  |  |  |

**Lot no. 3 – Ultrasonic bath**

| **1.**  **Item Number** | **2.**  **Specifications Required** | **3.**  **Specifications Offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation Committee’s decision (Y/N)** |
| --- | --- | --- | --- | --- |
| 1 | **Ultrasonic bath** with next characteristics – **1 pc**:  Ultrasonic bath 1.5  Ultrasonic frequency 40 kHz  Stainless steel |  |  |  |
|  | **Delivery**  Equipment must be delivered to University of Novi Sad, Institute of Food Technology in Novi Sad, Bulevar cara Lazara 1, 21102 Novi Sad |  |  |  |
|  | **Warranty period**  Min. warranty period is 24 months from the date of delivery |  |  |  |

**Lot no. 4 – DT-IV Dissolution; Tester Basket**

| **1.**  **Item Number** | **2.**  **Specifications Required** | **3.**  **Specifications Offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation Committee’s decision (Y/N)** |
| --- | --- | --- | --- | --- |
| 1 | **DT-IV Dissolution** with next characteristics – **1 set**:  - DT-IV Dissolution; Tester Basket - 6 pcs  - Speed Range: 20~200 rpm  - Speed Accuracy ±1rpm  - Temperature range Ambient temperature~+45.0℃  - Preset Timing Nine Points - 1~999 min |  |  |  |
|  | **Delivery**  Equipment must be delivered to University of Novi Sad, Institute of Food Technology in Novi Sad, Bulevar cara Lazara 1, 21102 Novi Sad |  |  |  |
|  | **Warranty period**  Min. warranty period is 24 months from the date of delivery |  |  |  |