



EUROPEAN UNION
European Structural and Investing Funds
Operational Programme Research,
Development and Education



Buyer's Contract No. S21/101H

PURCHASE CONTRACT

This purchase contract („**Contract**”) was concluded pursuant to section 2079 *et seq.* of the act no. 89/2012 Coll., Civil Code, as amended („**Civil Code**”), on the day, month and year stated below by and between:

- (1) **Institute of Physics of the Academy of Sciences of the Czech Republic, a public research institution**,
with its registered office at: Na Slovance 2, Praha 8, 182 21, Czech Republic
registration no.: 68378271
represented by: RNDr. Michael Prouza, Ph.D. – director
(„**Buyer**”); and

- (2) **ANAMET s.r.o.**
with its registered office at: Kováků 26, 150 00 Praha 5
registration no.: 25652150
represented by: Ing. Michal Dudák, Ph.D. - director
enrolled in the commercial registered kept by City Court in Prague section C, insert 58244
(„**Seller**”).

(The Buyer and the Seller are hereinafter jointly referred to as „**Parties**” and individually as “**Party**”.)

WHEREAS

- (A) The Buyer is a public contracting authority and the beneficiary of a grant of the Ministry of Education, Youth and Sports of the Czech Republic within the Operational Programme Research, Development and Education. The Buyer carries out a project financed by the grant specified herein in this provision („**Project**”).
- (B) For the successful realization of the Project it is necessary to purchase the Object of Purchase (as defined below) in accordance with the Rules for the Applicants and Recipients within the Operational Programme Research, Development and Education.
- (C) The Seller wishes to provide the Object of Purchase to the Buyer for consideration.
- (D) The Seller's bid for the public procurement entitled „*System for measuring size, charge and concentration of particles and molecules in solutions*”, whose purpose was to procure the Object of Purchase („**Public Procurement**”), was selected by the Buyer as the most suitable.
- (E) The Seller acknowledges that the Buyer is not, in connection to the subject matter of this Contract, an entrepreneur, and also that the subject matter of this Contract is not related to any business activities of the Buyer.



- (F) The documentation necessary for the execution of the Contract is
- Technical Specification, which forms an integral part hereof as its Annex No. 1 (hereinafter the “**TS**”); this TS also formed a part of the procurement documentation for the Public Procurement in the form of Annex No. 1 of the procurement documentation;

IT WAS AGREED AS FOLLOWS:

1. BASIC PROVISIONS

- 1.1 Under this Contract the Seller shall deliver and install for the Buyer a system for measuring particle size, molecular weight, particle charge and concentration in aqueous solutions or dispersions as described and defined in Annex 1 (Technical Specification) to this Contract in the required quality, and with the properties and related performance described therein („**Object of Purchase**”) and shall transfer to the Buyer ownership right to the Object of Purchase, and the Buyer, shall take over the Object of Purchase and shall pay the Seller the Purchase Price (as defined below), all under the terms and conditions stipulated in this Contract.
- 1.2 Under this Contract the Seller shall also carry out the following activities („**Related Activities**”):
- a) Transport and delivery the Object of Purchase to the place of delivery (Art. 2.2 hereof);
 - b) Performance of Factory Acceptance Test of the Object of Purchase;
 - c) Setup and installation of the Object of Purchase including direct measurements of respective parameters in line with Annex No. 1 – Technical Specification (“**Test at the user facility**”) hereof to be carried out at the end of installation at the place of delivery (Art. 2.2 hereof);
 - d) Provide the Buyer with training in English language carried out for approximately three Buyer’s employees, and which shall start on the last day of the Object of Purchase installation and shall take up to two (2) working days in length, unless Buyer and Seller agree otherwise;
 - e) Provide the Buyer with the Operating and Maintenance manuals, in English in reproducible form, and a licence for unlimited installations of the software;
 - f) Provide the Buyer with a certificate of conformity for CE marking;
 - g) Cooperate with the Buyer anytime during the performance of this Contract.



2. THE TIME AND PLACE OF DELIVERY

- 2.1 The Seller shall deliver the Object of Purchase within **sixteen (16) weeks** from the effectiveness of this Contract and shall carry out Related Activities within **three (3) weeks** from the signature of the Hand-over protocol at the latest, unless stipulated otherwise in this Contract. The time of delivery is stipulated herein in favour of the Buyer. The Buyer is entitled to prolong the time for delivery the Object of Purchase and/or for carrying out Related Activities for two (2) more weeks, should there be important reasons for that on the side of the Buyer, such as, but not only, impossibility to take over the Object of Purchase at the premises agreed in this Contract (place of delivery in Art. 2.2 of this Contract) due to reconstruction works taking place there.
- 2.2 The place of delivery shall be HiLASE Centre, Za Radnicí 828, 252 41 Dolní Břežany, Czech Republic, or any other address, which the Buyer communicated to the Seller prior to the delivery of the Object of Purchase (“**Place of delivery**”).
- 2.3 The Seller acknowledges that the deadlines stated in this Article are of essential importance to the Buyer with respect to the timeline of the Project with respect to the deadline by which the Project is to be implemented, and that the Buyer could incur damage as a result of failure to meet the above stipulated deadlines.

3. THE OWNERSHIP RIGHT

The ownership right to the Object of Purchase shall be transferred to the Buyer upon its delivery to the place of delivery and upon the signature of the Handover protocol.

4. PRICE AND PAYMENT TERMS

- 4.1 The purchase price for the Object of Purchase is **1 650 000 CZK** („**Purchase Price**”) **excluding VAT**. VAT shall be set and paid in accordance with respective legislation.
- 4.2 The Purchase Price cannot be exceeded and includes all costs and expenses of the Seller related to the performance under this Contract. The Purchase Price includes, among others, all expenses related to the handover of the Object of Purchase and execution of Related Activities, costs of copyright, insurance, customs, warranty service and any other costs and expenses connected with the performance of this Contract. The Purchase Price includes any eventual costs incurred in connection with the performance of the Seller’s obligations set out in Art. 7.15 and Annex 1 hereof.
- 4.3 The Purchase Price for the Object of Purchase shall be paid on the basis of a tax document – invoice, to the account of the Seller designated in the invoice.
- 4.4 The Buyer shall realize payments on the basis of duly issued invoice within thirty (30) calendar days from their receipt. If the Seller stipulates any shorter due period of an invoiced amount in an invoice, such different due period shall not be deemed



relevant and the due period stipulated herein prevails. The invoice on the Purchase Price shall be issued and paid only after the Handover protocol signature.

- 4.5 The invoice issued by the Seller as a tax document must contain all information required by the applicable laws of the Czech Republic. Invoices issued by the Seller in accordance with this Contract shall contain in particular following information:
- a) Name and registered office of the Buyer,
 - b) Tax identification number of the Buyer,
 - c) Name and registered office of the Seller,
 - d) Tax identification number of the Seller,
 - e) Registration number of the tax document,
 - f) Scope of the performance under this Contract (including the reference to this Contract),
 - g) Date of the issue of the tax document,
 - h) Date of the fulfilment of the Contract,
 - i) Purchase Price,
 - j) Registration number of this Contract, which the Buyer shall communicate to the Seller based on Seller's request before the issuance of the invoice,
 - k) Declaration that the performance of the Contract is for the purposes of the Project; the exact details of the Project including name and reg. number will be communicated to the Seller based on Seller's request which shall be sent to the Buyer to following e-mails: xxxxx and xxxxx before an invoice is issued. Seller shall issue an electronic invoice and send it to following e-mails xxxxx and xxxxx for preliminary check. After the preliminary check the Seller shall send the final electronic invoice to xxxxx, and must also comply with any double taxation treaties applicable to the given case.
- 4.6 The last invoice in each calendar year must be delivered by the Seller to the Buyer's no later than by December 15 of the given calendar year. In case that the invoice shall not contain the above mentioned information or the invoice does not comply with the requirements stipulated by law or the invoice is delivered to the Buyer later than by December 15 of the given calendar year, the Buyer is entitled to return it to the Seller during its maturity period and this shall not be considered as a default. The new maturity period shall begin from the receipt of the supplemented or corrected invoice to the Buyer.
- 4.7 The Buyer's invoicing details are set out in provision (1) hereof.



5. SELLER'S RIGHTS AND DUTIES

- 5.1 The Seller will be required to communicate effectively (as defined below) with the Buyer at all stages of this Contract in order to resolve any technical issues or problems that arise in a timely and efficient manner.
- 5.2 After the effectiveness of this Contract, the Seller shall provide the Buyer with the full contact details of Seller's Quality Manager, or member of staff responsible for quality approval and processes no later than two (2) weeks after the effectiveness of this Contract.
- 5.3 The Seller shall ensure that the Object of Purchase and Related Activities are in compliance with this Contract including all its annexes and applicable legal (e.g. safety), technical and quality norms.
- 5.4 During the performance of this Contract, the Seller proceeds independently. If the Seller receives instructions from the Buyer, the Seller shall follow such instructions unless these are against the law or in contradiction to this Contract. If the Seller, while exercising due professional care, finds out or should have found out that the instructions are for any reason inappropriate or illegal or in contradiction to this Contract, then the Seller must notify the Buyer.
- 5.5 All things necessary for the performance of this Contract shall be procured by the Seller, unless this Contract stipulates otherwise.

6. HANDOVER OF THE OBJECT OF PURCHASE

- 6.1 Handover and takeover of the Object of Purchase shall be realized on the basis of hand-over protocol ("**Hand – over protocol**") which shall be signed only after the Object of Purchase delivery and take-over is over and which shall contain following information:
 - identification of the Seller, the Buyer and all subcontractors, if there are any,
 - description of the Object of Purchase,
 - the list of defects and deficiencies of the Object of Purchase, if there are any, and the deadlines for their removal,
 - the signature of the Seller and the Buyer and the date of the hand-over.
- 6.2 Instructions and manuals related to all items of the Object of Purchase shall be attached to the Hand-over protocol at the latest.
- 6.3 If the Seller fails to duly carry out all Related Activities or if the Object of Purchase does not fully meet requirements of this Contract, the Buyer is entitled to refuse the takeover of the Object of Purchase. In such a case, the Seller shall remedy the deficiencies within forty five (45) calendar days, unless Parties agree otherwise. The



Buyer is entitled (but not obliged) take over the Object of Purchase despite the above mentioned deficiencies, in particular if such deficiencies do not prevent the Buyer in the proper operation of the Object of Purchase. In such a case, the Seller and the Buyer shall list the deficiencies in the Hand-over protocol, including the manner and the date of their removal (remedy). If the Parties do not reach agreement in the Hand-over protocol regarding the date of the removal, the Seller shall remove the deficiencies within fourteen (14) calendar days.

6.4 Parties hereby exclude application of section 2126 of the Civil Code.

7. WARRANTY

- 7.1 The Seller hereby provides a warranty of quality of the Object of Purchase for the period of 24 months.
- 7.2 The warranty shall commence on the day of the signature of the hand-over protocol by both Parties. However, if the Object of Purchase is taken over with defects or deficiencies, the warranty shall commence on the date of the removal of the last defect or deficiency by the Seller. Until the warranty commences under this article, any defect notified by the Buyer is considered to be apparent or hidden defect of the Object of Purchase.
- 7.3 The Seller shall remove defects that occur during the warranty period free of charge.
- 7.4 If the Buyer ascertains a defect of the Object of Purchase during the warranty period, the Buyer shall notify such defect without undue delay to the Seller (“**Warranty Claim**”). Defects may be notified on the last day of warranty period, at the latest; an e-mail is considered an adequate way to initiate a Warranty Claim. Warranty Claim sent by the Buyer on the last day of the warranty period shall be deemed to be made in time.
- 7.5 The Buyer notifies defects in writing via e-mail. The Seller shall accept notifications of defects on the following e-mail address: xxxxx.
- 7.6 In the Warranty Claim the Buyer shall describe the defect and the manner of removal of the defect. The Parties shall agree on the manner of defect’s/defects’ removal. If the Parties do not reach the agreement, the Buyer has the right to:
- a) request removal of the defect/defects by the delivery of Object of Purchase or its individual parts, or
 - b) request removal of the defect/defects by repair, or
 - c) request reasonable discount from the Purchase Price. In cases when the Buyer proposes the adequate discount from the Purchase Price and the Seller will not agree with the amount of such discount, the validity of the discount amount shall be ascertained by an independent expert, which is to be commissioned by the Buyer with whom the Seller also must agree. In the event the expert declares the discount



amount as justified, the Seller shall bear the costs of the expert's assessment. If the discount amount is disproportionate (high) to expert's assessment, the Buyer shall bear the costs of the expert's assessment.

The choice among the above mentioned rights shall be made by the Buyer. However, in case of a removable defect/defects that occur/occurs for the first time the Buyer shall not request removal of the defect by delivery of new Object of Purchase or its individual parts.

- 7.7 The Seller shall remove the defect within twenty (20) working days from the date on which the Warranty Claim was notified to the Seller, at the latest, unless the Buyer and the Seller agree otherwise. Should there be a need of component replacement (excluding stock components), the time period for removing defects based on mutual agreement of the Parties should prevail. The Seller undertakes to remove the defect at the Buyer's premises; otherwise, the Seller agrees to reimburse the Buyer for all costs of sending the defective component/device to the Seller.
- 7.8 The Seller shall remove defect/defects of the Object of Purchase within periods stated in the Contract also in the instances when the Seller is of the opinion that he is not liable for such defects. In cases when the Seller will not recognize the defect and the Buyer will not agree with such conclusion, the validity of the Warranty Claim shall be ascertained by an independent expert, which is to be commissioned by the Buyer but with whom the Seller also must agree. In the event the expert declares the Warranty Claim as justified, the Seller shall bear the costs of the expert's assessment. If the Warranty Claim is raised unjustly according to expert's assessment, the Buyer shall reimburse the Seller all reasonably incurred costs associated with removing the defect/defects.
- 7.9 Parties shall execute a protocol on the removal of the defect, which shall contain the description of the defect/defects, the confirmation that the defect/defects was/were removed and signature of the Buyer. The warranty period shall be extended by the time that expires from the date of exercising the Warranty Claim until the defect/defects is/are removed in cases where it was not possible to use the Object of Purchase for its intended purpose.
- 7.10 In case that the Seller fails to remove the defect/defects within time stipulated in this Contract or if the Seller refuses to remove the defect/defects, then the Buyer is entitled to remove the defect/defects at Buyer's own costs and the Seller shall reimburse these costs within thirty (30) calendar days after the Buyer's request to do so.
- 7.11 The warranty does not cover defects caused by unprofessional handling or by the failure to follow Seller's instructions for the operation and maintenance of the Object of Purchase.
- 7.12 The availability of all components (or of equivalent components that can replace original components) that may need replacing over the lifetime of the Object of Purchase will be guaranteed for at least ten (10) years.



- 7.13 Parties exclude application of the section 1925 (the sentence behind semi-colon) of the Civil Code.
- 7.14 During the warranty period stipulated in Art. 7.1 hereof the Seller undertakes to provide the Buyer with technical support (consultation of operational, maintenance and other issues regarding the Object of Purchase) free of charge up to 10 hours per year on the phone no.: xxxxx or on the e-mail address: xxxxx or on the skype: not available.

8. **TERMINATION, RIGHT OF WITHDRAWAL, CONTRACTUAL PENALTIES**

- 8.1 This Contract may be terminated by completing the performance required hereunder, by agreement of the Parties or by withdrawal from the Contract on the grounds stipulated by law or in the Contract.
- 8.2 The Buyer is entitled to withdraw from this Contract, if any of the following circumstances occur:
- (a) the Seller has materially breached obligations imposed by the Contract, specifically by being in delay with the fulfilment of this Contract and such delay lasts more than eight (8) weeks; or
 - (b) the Seller has materially breached obligations imposed by the Contract, specifically Object of Purchase fails to meet technical parameters and qualities or other requirements defined in the Annex 1 (Technical Specification);
 - (c) the insolvency proceeding is initiated against the Seller's assets;
 - (d) the funding body providing finances for the Project ("**Financial subsidy**") or any other control body determines that the expenditures or part of the expenditures incurred on the basis of this Contract are ineligible;
 - (e) the Financial subsidy for implementation of the Project is withdrawn from the Buyer; or
 - (f) should it become apparent that the Seller provided information or documents in the Seller's bid, which were not true and which could, therefore, influence the outcome of the Procurement Procedure leading to the conclusion of this Contract (Section 223(2)(b) of the Act No. 134/2016 Coll., on public procurement).
- 8.3 The withdrawal becomes effective by the moment of its delivery to the other Party.
- 8.4 The Seller is entitled to withdraw from the Contract in the event of material breach of the Contract by the Buyer and in case of events outside the control of the Seller (e.g. natural disasters, etc.).



- 8.5 In the event the Seller is in delay with term of delivery as stipulated in Art. 2.12 herein for more than five (5) working days, the Seller shall pay to the Buyer the contractual penalty in the amount of 1.000 CZK for each, even commenced calendar day of delay, since the first day of the delay.
- 8.6 In the case where the Seller fails to remove defects within the periods stipulated in the Contract and the default lasts more than ten (10) working days, the Seller shall pay to the Buyer a contractual penalty in the amount of 1.500 CZK for each defect and for each calendar day of delay, since the first day of the delay.
- 8.7 If the Buyer fails to pay the Purchase Price within the deadlines set out in this Contract, the Buyer shall pay the Seller interest on delay in the amount set forth by the law for each day of delay unless the Buyer proves that the delay with the payment of the Purchase Price was caused by late release of the Financial subsidy for the Project by the funding body.
- 8.8 The obliged Party must pay any contractual penalty/penalties to the entitled Party not later than within fifteen (15) calendar days of the date of receipt of the relevant claim from the other Party.
- 8.9 Payment of the contractual penalties pursuant to this Article shall in no way prejudice the Buyer's right to claim compensation for damage incurred by the Buyer as a result of the Seller's breach of obligations to which the penalty applies.
- 8.10 The Parties have agreed that the maximal amount of contractual penalties shall be limited to 10% of the Purchase Price.
- 8.11 The Buyer is entitled to set off by unilateral declaration any of its receivable or part of its receivable resulting from contractual penalty/contractual penalties against Seller's claim to pay Purchase Price.

9. **SOCIAL, ECOLOGICAL AND INNOVATIVE ASPECTS**

The Buyer aims to conclude contracts with suppliers that take into account and implement the principles of social responsibility, ecological sustainability and innovation. Therefore, the Seller shall ensure that:

- a) this Contract shall be fulfilled only by persons that are employed in accordance with the applicable legal regulations (no illegal or child workers);
- b) while performing this Contract, all applicable health and safety regulations and rules at work place are observed;
- c) all persons performing this Contract are employed under fair and non-discriminatory working conditions;
- d) if presented with different manners of fulfilling this Contract, the Seller shall select the solution/process that is in accordance with the principles governing nature conservation and nature protection, ecological sustainability and ecological waste management; and



- e) if presented with different manners of fulfilling this Contract, the Seller shall select the solution/process that is the most innovative.

10. **SPECIAL PROVISIONS**

By signing this Contract, the Seller becomes a person that must cooperate during the finance control within the Act no. 320/2001 Coll., on finance control in the public administration, as amended, and shall provide to the Directing Body of the Operational Programme Research, Development and Education or other control bodies (such as, but not only, European Commission, European Court of Auditors) access to all parts of the bid, Contract or other documents that are related to the legal relationship formed by this Contract. This duty also covers documents that are subject to the protection in accordance with other acts (business secrets, secret information, etc.) provided that control bodies fulfil requirements stipulated by these acts. The Seller shall secure that all its subcontractors are also obliged to cooperate with control bodies in the above stipulated extent. The Seller shall secure that all its subcontractors are also obliged to cooperate with control bodies in the above stipulated extent. The Seller is obliged to duly archive all written material prepared in connection with the execution of this Contract and to provide access to the Buyer to these archived documents until 2031; any finance control may also be carried out until year 2031.

11. **FINAL PROVISIONS**

- 11.1 This Contract is governed by the laws of the Czech Republic, especially by the Civil Code.
- 11.2 All disputes arising out of this Contract or out of legal relations connected with this Contract shall be preferable settled by a mutual negotiation. In case that the dispute is not settled within sixty (60) calendar days, such dispute shall be decided by courts of the Czech Republic in the procedure initiated by one of the Parties.
- 11.3 All modifications and supplements of this Contract must be carried out in writing as numbered amendment/amendments.
- 11.4 In the event that any of the provisions of this contract shall later be shown or determined to be invalid, putative, ineffective or unenforceable, then such invalidity, putativeness, ineffectiveness or unenforceability shall not cause invalidity, putativeness, ineffectiveness or unenforceability of the Contract as a whole. In such event the Parties undertake without undue delay to subsequently clarify any such provision using Sec 553(2) of the Civil Code, or to replace after mutual agreement such invalid, putative, ineffective or unenforceable provision of the Contract by a new provision, that in the extent permitted by the laws and regulations of the Czech Republic, relates as closely as possible to the intentions of the Parties to the Contract at the time of creation hereof.
- 11.5 The Parties agree that the Seller shall not be entitled to set off any part of its receivable, or receivable of its sub-debtor against the Buyer or any of his receivables, unless this Contract stipulates otherwise. The Seller shall not be entitled to assign



any receivable arising in connection herewith to a third party. The Seller shall not be entitled to assign any rights or obligations arising to him hereunder or any of its parts to third parties.

- 11.6 The Buyer declares that he has funds allocated to pay for the Object of Purchase at the moment of the Purchase Contract signature.
- 11.7 The Parties declare that they shall maintain confidentiality with respect to all facts and information they learned in connection with the Contract or during the performance of the Contract, and the disclosure of such facts or information could cause damage to the other Party. This confidentiality provision does not affect duties of Parties with respect to applicable legislation.
- 11.8 This Contract shall constitute complete agreement of the Parties on the Contract subject matter including the Object of Purchase and shall substitute any and all possible previous discussions, negotiations and agreements of the Parties related to the Contract subject matter including the Object of Purchase.
- 11.9 This Contract is executed in four (4) counterparts and each Party shall receive two (2) counterparts.
- 11.10 The following Annexes form an integral part of the Contract:
- **Annex No. 1:** Technical Specification Document (if Annex 1 uses the term “Contracting Authority” or “contracting authority” it means Buyer. If Annex 1 uses the term “Supplier” or “supplier”, it means Seller);

In case of any discrepancies between Annex No. 1 and provisions of this Contract, the Contract shall prevail.

- 11.11 The Parties agree to publish the full text of this Contract, including its annexes, in the Register of Contracts pursuant to Act No. 340/2015 Coll., on Special Conditions for the Effectiveness of Certain Contracts, the Disclosure of These Contracts and the Register of Contracts, as amended (Act on the Register of Contracts).
- 11.12 This Contract shall become valid on the date of the signature of both Parties. The Contract shall become effective on the date of its publication at Register of Contracts.

12. REPRESENTATIVES OF THE PARTIES

- 12.1 The Seller has appointed the following authorised representatives for communication with the Buyer in relation to the subject of performance hereunder:

In technical matters: Michal Dudák, xxxxx

- 12.2 The Buyer has appointed the following authorised representatives for communication with the Seller in relation to the subject of performance hereunder:

In technical matters: Alexander Bulgakov, xxxxx



EUROPEAN UNION
European Structural and Investing Funds
Operational Programme Research,
Development and Education



MINISTRY OF EDUCATION,
YOUTH AND SPORTS

IN WITNESS WHEREOF attach Parties their handwritten signatures:

Buyer

Signature: _____
Name: RNDr. Michael Prouza, Ph.D.
Position: director
Date:

Seller

Signature: _____
Name: Ing. Michal Dudák, Ph.D.
Position: director
Date:



EUROPEAN UNION
European Structural and Investing Funds
Operational Programme Research,
Development and Education



ANNEX 1

TECHNICAL SPECIFICATION

System for measuring size, charge and concentration of particles and molecules in solutions

Technical specification

This bid applies to purchase of a system for measuring particle size, molecular weight, particle charge and concentration in aqueous solutions or dispersions. The system should be able to analyze both inorganic particles (metals, alloys, semiconductors, multicomponent ceramics, dielectrics) and biomolecules including virus-like particles. The system must include the following instruments with accessories:

- Non-Invasive Back Scatter (NIBS) Dynamic Light Scattering, Dynamic Light Scattering and Multi-Angle Dynamic Light Scattering for measuring particle size distributions and concentrations;
- Static Light Scattering instrument for measuring molecular weight;
- Electrophoretic Light Scattering for measuring zeta potential of particles and molecules characterizing sample stability and/or propensity to aggregate.

The system must include a sufficiently powerful red-light laser and a high-sensitivity photodiode detector for maximum concentration sensitivity. The system must also include an optical filter wheel with fluorescence filter to allow measurement of fluorescent samples without impairing overall system sensitivity. Polarization filters must also be included offering analytical flexibility without any service technician visit.

The system should be table top with thermal stabilization and temperature control of the measured samples.

For smooth user-friendly operation and data analysis, the system needs be supplied with a software package. The software should be able to determine optimum measurement duration and identify data associated with transient artefacts.

The price of for the system must include standards for particle size tests, the delivery, installation, training service and warranty for minimum 2 years. The details of required parameters are given in the tables below.

Table 1: Particle and molecular size measurements

Parameter name	Required value
Measurement principles	Non-Invasive Back Scatter Dynamic Light Scattering; Dynamic Light Scattering (90° and 13°); Multi-Angle Dynamic Light Scattering
Measurement angles	Three angles minimum: 173°, 13°, and 90°
Measurement diameter range	0.3 nm - 15 µm or better
Minimum sample volume	3 µl or smaller
Minimum sample concentration	0.1 mg/ml (measured using 15 kDa Protein) or lower
Maximum sample concentration	40% w/v or higher
Accuracy	+/- 2% or better measured as a tolerance with standard samples in the size range of 60-200 nm

Table 2: **Zeta potential measurements**

Parameter name	Required value
Measurement principle	Mixed-Mode Measurement phase analysis light scattering
Size range	3.8 nm – 100 µm or better
Minimum sample volume	20 µl or smaller
Minimum sample concentration	1 mg/ml (measured using 15 kDa Protein) or lower
Maximum sample concentration	40% w/v (measured using bile acid) or higher
Sample conductivity range	Maximum: 260 mS/cm or higher
Measurement precision	+/- 5% or better for aqueous systems

Table 3: **Molecular weight measurements**

Parameter name	Required value
Measurement principle	Static Light Scattering with Debye Plot
Molecular weight range	980 Da – 20 MDa
Accuracy	+/- 10% or better

Table 4: **Particle concentration measurements**

Parameter name	Required value
Measurement principle	Multi-Angle Dynamic Light Scattering – Particle concentration (Mie)
Concentration range	1×10^8 to 1×10^{12} particles/ml
Calibration type	Single point system calibration

Table 5: **General requirements**

Parameter name	Required value
Laser	red laser with maximum power at least 10 mW
Detector	Avalanche photodiode
Temperature control range	0°C to 120°C or better
Interface	USB 2.0 or higher
Software	The software should provide the following information: - Size distribution v/s Intensity,

	<ul style="list-style-type: none"> - Zeta potential, - Average size of the distribution, - Molecular wt. by Debye plots, - Particle concentration, - Automatic expert advisor, - Export the raw data in ASCII formats, - User can modify method/library for tests.
Warranty/ Installation	Minimum 2 years/ Installation and initial training for users
Manual	Operating manual with customer maintenance and troubleshooting chapters (in English) should be provided with the instrument. The manual should be presented in both hard and soft copy.
Accessories	<p>The following accessories must be provided:</p> <ul style="list-style-type: none"> - Disposable polystyrene cuvettes with appropriate cap for aqueous solutions, quantity 100 units or more, - Square glass cuvettes with appropriate cap for other solutions, - Folded capillary cell, pack of 10 units with electrode and stoppers, - Low volume disposable sizing cell for measurements of particle size on side angle with reduced sedimentation
Reference materials	<p>The following standards must be provided:</p> <ul style="list-style-type: none"> - Concentrated suspension of standard nanospheres of app. 20 nm in size for validation of sizing, - Reference materials for validation of zeta potential
Test at the user facility	Yes. Direct measurements of specific parameters (particle size in a solution, zeta potential) must be performed at the end of installation using standard samples.