


PURCHASE AGREEMENT

2021 – 8/3113


Ústav organické chemie a biochemie AV ČR, v.v.i.

With its registered office at: Flemingovo nám. 2, 166 10 Praha 6
IČO (business identification number): 61388963
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Represented by: RNDr. PhDr. Zdeněk Hostomský, CSc., Director
Bank account: 

hereinafter as the “**Contracting Authority**”

and

Wyatt Technology Europe GmbH

With its registered seat/place of business at: Hochstrasse 12 a, Dernbach, 56307,
Deutschland
IČO (Business Identification Number): 489 66 715
DIČ (V.A.T. Identification Number): DE811476985
Represented by: Dr. Dierk Roessner, Managing Director
Registered in the Commercial Register of registration court Montabaur, HRB 13084
Bank account: 

hereinafter as the “**Contractor**”,

the Contracting Authority and the Contractor hereinafter as the “**Contracting Parties**”

have concluded, in compliance with the provisions of Section 2079 et seq. of the Czech Act No. 89/2012 Coll., Civil Code (“**Civil Code**”), based on the realized public tender System of Multi-Angle (Static) Light Scattering (MALS) detector and Refractive Index (RI) detector (“**Tender Proceedings**”), this purchase agreement (“**Agreement**”) in the following wording:

1. THE PURPOSE AND SUBJECT OF THE AGREEMENT

- 1.1. The subject of this Agreement is the Contractor’s commitment to deliver combined system of Multi-Angle (Static) Light Scattering (MALS) detector and Refractive Index Detector (RI) as specified in Appendix 1 to this Agreement (“**Equipment**”) to the Contracting Authority and transfer the ownership rights to the Equipment to the Contracting Authority, as well as the obligation of the Contracting Authority to pay to the Contractor the agreed price for the duly delivered Equipment in accordance with the conditions set in this Agreement. The Equipment will be used for standard-free absolute molecular weight determination of proteins and their complexes, membrane proteins and other biopolymers.
- 1.2. A part of the Contractor’s delivery is also to supply all the attachments for the Equipment necessary to fulfil the purpose of this Agreement, including the license to

the operating software (as described in this Agreement and the appendices hereto), to transport the Equipment to the place of performance, to install the Equipment and to put the Equipment into full operation, to train the staff of the Contracting Authority concerning use of the Equipment in the place of performance in the extent necessary for realization of the purpose of this Agreement, to hand over the documents needed to take over and use the Equipment, and to provide the guarantee service (including free update of the software within the guarantee period).

- 1.3. The Contractor is entitled to use for performance of this Agreement subcontractors, whereas the Contractor is obliged to state the list of subcontractors in Appendix 2 to this Agreement. If the Contractor does not use for performance of this Agreement subcontractors, then the Contractor is obliged to annex as appendix to this Agreement a declaration of honour stating that the subcontractors shall not be used for performance of this Agreement.

2. THE PLACE AND TIME OF PERFORMANCE

- 2.1. The place of performance is Flemingovo náměstí 2, 166 10 Prague 6, Czech Republic, laboratory C2.06.
- 2.2. The Contractor shall supply the Equipment including installation and putting the Equipment into full operation within 8 weeks from the effective date of this Agreement.
- 2.3. The Contracting Authority shall confirm the proper delivery of the Equipment in writing on the handover protocol, based on which the Contractor can charge for the delivery of the Equipment and issue the respective invoice (tax document).
- 2.4. The Contracting Authority is not obliged to accept the Equipment if it has any defects or if the Contractor has not properly fulfilled its obligations stipulated in the Agreement. In such a case, the Contracting Authority shall inform the Contractor about the reasons for non-acceptance of the Equipment.
- 2.5. Nevertheless, the Contracting Authority can accept the Equipment even if it has defects or the Contractor has not properly fulfilled its obligations stipulated in the Agreement. In such a case, the Contracting Authority shall list in the handover protocol all the defects discovered. In that case, the Contracting Authority is, based on this Agreement, entitled to all claims under this Agreement in connection with the defects listed.
- 2.6. The Contractor shall remove the defects listed in the handover protocol or fulfill other claim arising from defects selected by the Contracting Authority within 10 working days from the date of issue of this protocol, if the Contracting Parties do not agree otherwise.

3. THE ACQUISITION OF OWNERSHIP RIGHTS AND THE RISK OF DAMAGE TO THE EQUIPMENT

- 3.1. The Contracting Authority shall acquire the ownership rights to the Equipment at the moment of its receipt. The Contractor assumes the risk of damage to the Equipment until it is taken over by the Contracting Authority.

4. THE QUALITY OF THE EQUIPMENT AND ITS DEFECTS

- 4.1. The Equipment shall be supplied in the required quality and shall always:
 - a) have the properties required by this Agreement and its appendices;
 - b) have the properties in accordance with the purpose of this Agreement as it arises from the content of this Agreement;

- c) be made according to all applicable standards and technological regulations;
and
 - d) be in compliance with applicable legislation.
- 4.2. The Contractor is responsible for the defects which the delivered Equipment has at the moment of its take-over by the Contracting Authority, as well as for the defects of the Equipment, which shall appear during the guarantee period after the Equipment is taken over by the Contracting Authority.

Quality Guarantee

- 4.3. The Contractor provides the Contracting Authority with a quality guarantee to the Equipment (any of its components or accessories) for a period of 24 months from the date when the Equipment is taken over by the Contracting Authority and it is confirmed on the handover protocol. The Contractor is responsible for any defect which appears during the guarantee period.
- 4.4. The guarantee period is interrupted for the period during which the Contracting Authority cannot use the Equipment or its part for defects for which the Contractor is responsible.
- 4.5. If the Equipment which has been handed over is defective, the Contracting Authority may choose from the following:
- require the removal of the defect in time limits according to paragraph 4.13 of this Agreement;
 - require adequate discount from the price of the Equipment; or
 - withdraw from this Agreement.
- 4.6. Unless the Contractor removes the defect within the time period set in this Agreement, the Contracting Authority can, at its discretion, either choose another claim arising from this Agreement or remove the defect on its own or through another party at the expense of the Contractor. In that case, the Contractor is obliged to pay upon request of the Contracting Authority all the costs incurred by the Contracting Authority for removal of the defect or in connection with such removal.
- 4.7. If the Contracting Authority has selected as a claim arising from defects discount from the purchase price, the Contracting Authority shall propose the amount of discount in writing to the Contractor. Unless the Contractor rejects this proposal in writing within 10 days from its receipt, the amount of the discount proposed by the Contracting Authority is binding for both Contracting Parties. If the Contractor rejects the proposed amount of discount from the purchase price in time and if the Contracting parties do not agree otherwise within 30 days from raising of the claim on discount of the purchase price by the Contracting Authority, the amount of discount shall be determined by an expert selected by the Contracting Authority from a list of experts. The discount determined by the expert shall be then binding for both Contracting Parties.
- 4.8. The costs of the expert assessment according to the above stated provision are borne by the Contractor unless it is proven that there was no defect. The Contractor is obliged to pay for such expenses at the latest together with the discount from the purchase price of the Equipment.
- 4.9. The Contracting Authority undertakes to provide the Contractor with the necessary cooperation within removal of the defects which can be reasonably required, in particular to enable the Contractor works aiming at removal of the defects.

- 4.10. The Contractor undertakes that it will, within removal of the defects, respect the operating instructions of the Contracting Authority if they are issued and to proceed in such a manner so as to minimize the interference in the use of the Equipment by the Contracting Authority and the normal operation of the Contracting Authority.
- 4.11. The guarantee service is such an activity of the Contractor which prevents the formation of defects of the Equipment and helps to preserve the properties of the Equipment.
- 4.12. The Contractor shall ensure at his expense free guarantee service to the Equipment at the place of installation of the Equipment according to the below stated conditions. The Contracting Authority shall report the guarantee defects to the following Contractor's email address [REDACTED]
- 4.13. The binding time limits for removal of the guarantee defects:

| | |
|---|---|
| The guaranteed period for the receipt and acceptance of the reported defect by the Contractor | The guaranteed period for the removal of the defect |
| 5 working day | 10 working days, if not agreed otherwise by the Contracting Parties |

5. OTHER OBLIGATIONS OF THE CONTRACTOR

- 5.1. The Contractor is obliged to comply with all obligations included in his bid within the Tender Proceedings even if they are not explicitly expressed in this Agreement.
- 5.2. The Contractor agrees that all information provided to the Contracting Authority in compliance with this Agreement and Czech legislation can be published by the Contracting Authority, including this Agreement.
- 5.3. The Contractor undertakes to have an insurance contract, the subject of which is the liability insurance for damage caused by the Contractor to a third party, effective during the installation of the Equipment. The insurance coverage must be at least EUR 100 000 for one claim event. The Contractor must present to the Contracting Authority the insurance contracts or certificates proving the existence of the insurance in the extent specified in this paragraph upon request of the Contracting Authority prior to the installation of the Equipment.

6. THE PRICE OF THE EQUIPMENT

- 6.1. The total price of the Equipment and other performance of the Contractor under this Agreement is CZK 3 012 006,40 excluding VAT.
- 6.2. The Contractor explicitly declares and assures the Contracting Authority that the price of the Equipment includes all the costs of the Contractor associated with the performance of this Agreement. The price of the Equipment is final. The price of the Equipment includes in particular:
- a) the transport, installation of the Equipment and putting the Equipment into full operation in the place of performance of the Agreement;
 - b) the remuneration for use of software necessary for operation of the Equipment;
 - c) training of the staff of the Contracting Authority concerning use of the Equipment in the place of performance of the Agreement (at least 1 day);
 - d) guarantee service (including labour, material and travel costs) and upgrade of the software to the Equipment within the guarantee period;

- e) the costs of proper packaging;
 - f) customs duties and fees;
 - g) guaranty to the extent specified by this Agreement;
 - h) all other costs and fees necessary for proper fulfillment of this Agreement.
- 6.3. The price for the Equipment does not include VAT in accordance with the Act No. 235/2004 Coll., on Value-Added Tax, as subsequently amended ("**Value-Added Tax Act**"); the Price for the Equipment shall be increased by VAT, which the Contractor will have to pay or declare in any form according to the Value-Added Tax Act, in the wording in effect on the day of taxable supplies. The price for the Equipment already includes all the possible taxes and fees that the Contractor may have to pay or declare in any form under any applicable foreign laws.
- 6.4. The Contractor undertakes to inform the Contracting Authority immediately in writing about the fact that the tax administrator has issued a decision that the Contractor is an unreliable payer in the sense of the provisions of Section 106a of the Value-Added Tax Act. The Contractor is obliged to send this notice to the Contracting Authority without delay after receiving such a decision of the tax administrator, no matter if this decision has already come into force.
- 6.5. The Contractor undertakes to inform without delay the Contracting Authority in writing about the existence of the final decision of the tax administrator that the Contractor is an unreliable tax payer in the sense of the provisions of Section 106a of the Value-Added Tax Act, about the withdrawal of such a decision of the tax administrator and about the decision of the tax administrator that the Contractor is no longer an unreliable payer in the above-mentioned sense.
- 6.6. The Contracting Parties have agreed that the Contracting Authority shall pay taxable performance to the Contractor (to a provider of taxable performance) only to the account of the Contractor which is published by the tax administrator in a manner enabling remote access; until the Contractor has provided the number of such a bank account, the obligation of the Contracting Authority to pay the price of the Equipment is not due. This provision shall not be used, if the Contractor is a person who is not registered as value added tax payer in the Czech Republic.
- 6.7. If the Contractor breaches its obligations listed in the preceding paragraphs of this Agreement, the Contractor must pay the Contracting Authority a contractual penalty in the amount corresponding to the liability incurred by the Contracting Authority by virtue of its guarantee (i.e. in the amount of unpaid VAT). The payment of such a contractual penalty does not limit or otherwise affect the right to the compensation for the (also non-material) damage causally connected with the breach of the obligation, to which the contractual penalty applies.

7. THE TERMS OF PAYMENT

- 7.1. The price for the Equipment shall be paid by the Contracting Authority in CZK. The price for the Equipment shall be paid based on an invoice (a tax document) issued by the Contractor in compliance with this Agreement.
- 7.2. Should the invoice issued by the Contractor not have the adequate particulars required by this Agreement or legislation, the Contracting Authority is entitled to return it within the due date to the Contractor for completion without exceeding the due date. The period of the due date begins anew once the properly completed and corrected invoice is delivered to the Contracting Authority again.

7.3. The Particulars of the Invoice

The invoice issued by the Contractor according to this Agreement must contain at least the following particulars:

- 7.3.1. a reference to this Agreement;
- 7.3.2. all the details of a proper accounting and tax document required by the relevant legislation (mainly, but not exclusively, the Value-Added Tax Act);
- 7.3.3. the description of the invoiced Equipment and the invoiced price;
- 7.3.4. a copy of the respective handover protocol on the takeover of the Equipment by the Contracting Authority as an attachment.

7.4. If the requirements for the issue of an invoice (tax document) based on this Agreement are met, the Contractor is obliged to deliver this invoice to the Contracting Authority without undue delay, not later than within 3 working days from fulfilment of the respective conditions for issue of the invoice under this Agreement. The invoice issued by the Contractor in accordance with this Agreement is due within 21 days counted from delivery of the invoice to the Contracting Authority.

7.5. If the invoice is issued in accordance with this Agreement, the Contracting Authority shall pay it by the due date. The Contracting Authority shall pay the amount owed by sending it to the Contractor's account listed in this Agreement and will abide by the conditions stated in paragraph 6.5 of this Agreement.

8. SANCTIONS

8.1. Should the Contractor be in default with the handover of the Equipment in terms of the time limits set in this Agreement, the Contractor is obliged pay to the Contracting Authority a contractual penalty in the amount of 0.05 % from the price of the Equipment for each commenced day of delay.

8.2. Should the Contractor be in default with satisfaction of a claim arising from defects raised by the Contracting Authority within the time limit for satisfaction of a claim according to this Agreement, the Contractor is obliged to pay to the Contracting Authority a contractual penalty in the amount of 0.05 % from the price of the Equipment, for each commenced day of delay and for each individual case of delay.

8.3. If the Contracting Authority is in arrears with payment of an invoice properly issued by the Contractor and delivered to the Contracting Authority in accordance with this Agreement, the Contractor is entitled to interest on late payment in the amount of 0.01 % of the amount owed for each commenced day of delay.

8.4. Exercise of a claim for contractual penalty does not limit the right on compensation for the (also non-material) damage in the full extent of such a damage.

8.5. The penalty payment notice must be sent in writing; the contractual penalty is due within 14 calendar days from the date of delivery of the notice.

9. MUTUAL COMMUNICATION OF THE CONTRACTING PARTIES

9.1. All the communication or other negotiations of the Contracting Parties in connection to this Agreement shall be addressed in English to the below-listed representatives of the Contracting Parties according to this Agreement. Should this Agreement require a written form for some communication or other negotiations between the Contracting Parties, such a communication shall be sent through a postal service provider to the registered address of the respective Contracting Party to the attention of the

representative of this party according to this Agreement or handed over to this representative in person against a written confirmation of receipt.

9.2. For the purposes of this agreement, the Contracting Authority is represented by:

in technical issues: [REDACTED]

in contractual matters: [REDACTED]

in supplier-customer relations: [REDACTED]

For the purposes of this agreement, the Contractor is represented by:

[REDACTED]

10. AMENDMENTS TO THIS AGREEMENT AND ITS DURATION

10.1. This Agreement may only be amended or modified by numbered written addenda signed by both Contracting Parties. The provisions of Section § 558, Subsection 2 of the Civil Code shall not be applied.

10.2. This Agreement shall enter into force upon its signing by both Contracting Parties and shall become effective upon its publication in the Register of Contracts under the Act. No. 340/2015 Coll., on Special Conditions for the Effectiveness of Certain Contracts, the Disclosure of These Contracts and the Register of Contracts (Act on the Register of Contracts), as amended.

10.3. **Withdrawal from the Agreement**

Should there be a delay in the performance of the contractual obligations of one Contracting Party, the other party is entitled to terminate this Agreement by withdrawing from it in compliance with the provisions of Section 2001 et seq. of the Civil Code. In the event of a substantial breach of contractual obligations, the other party is entitled to withdraw from the Agreement provided that the delayed party is informed about the withdrawal without undue delay following to the acknowledgement of the respective breach. If a party does not, in the event of a substantial breach of the Agreement, withdraw from this Agreement without undue delay, it may withdraw based on the same breach by following the procedure applicable for a minor breach of the Agreement. A substantial breach of contractual obligations is particularly, but not exclusively:

10.3.1. on the side of the Contractor: if the Contractor does not properly fulfill its duty to handover the Equipment within the time limit under this Agreement;

10.3.2. on the side of the Contractor: if the Contractor does not, within the time limit under this Agreement, properly remove defects or satisfy the claims from the defects of the Equipment chosen by the Contracting Authority based on the defects listed in the handover protocol;

10.3.3. on the side of the Contracting Authority: a delay in the payment of the price for the Equipment based on an invoice properly issued in accordance with this Agreement longer than 60 days;

10.3.4. on either side: a breach of other obligations, which is considered a substantial breach of contractual obligations by this Agreement.

In the event of a minor breach of contractual obligations, the other party is entitled to withdraw from the Agreement provided that the delayed party does not fulfill its obligation even within a reasonable additional period that has been provided to it.

10.4. The Assignment of the Rights Arising from the Agreement and Set-off

10.4.1. The Contractor is not entitled to assign this Agreement or its part or transfer any of its claims arising from this Agreement or its part to a third party without the prior written consent of the Contracting Authority.

10.4.2. The Contractor agrees that its claims against the Contracting Authority arising from this Agreement cannot be unilaterally set off.

10.4.3. The Contractor is aware of the fact that the consent of the Contracting Authority with the assumption of any debt (obligation) of the Contractor arising from this Agreement by a third party must be given by the Contracting Authority in writing.

11. FINAL PROVISIONS

11.1. This Agreement as well as any non-contractual obligations related to this Agreement are governed by Czech law.

11.2. Business practices concerning the agreed or follow-up performance do not take precedence over contractual arrangements or provisions of law, even if such provisions do not have overriding mandatory effect.

11.3. If the circumstances after the conclusion of the Agreement change to such an extent that the performance will be more difficult for the Contractor or there will be a gross disproportion between the rights and obligations of the Contracting Parties, it does not affect in any way the Contractor's obligations arising from this Agreement; the provisions of Section 1765, Subsection 1 and 1766 of the Civil Code shall not be applicable and the Contractor, in accordance with Section 1765, Subsection 2 of the Civil Code, assumes the risk of changing circumstances.

11.4. The Contracting Parties exclude the application of the provisions of Sections 1799 and 1800 of the Civil Code on clauses in adhesion contracts.

11.5. Neither of the Contracting Parties is authorized to incorporate any right arising from the Agreement or its breach into a security.

11.6. The presumption of the mail delivery period according to provisions of Section 573 of the Civil Code is not applicable between the Contracting Parties.

11.7. The provisions of this Agreement are severable in the sense that if some of the provisions of this Agreement become invalid, it does not annul the entire Agreement. In such case, the Contracting Parties undertake to replace the invalid provision by a valid one that best meets the intended purpose of the invalid provision. Until then, the relation between the Contracting Parties is governed by applicable legislation of the Czech Republic.

11.8. Any controversy arising out of this Agreement or in connection herewith shall fall within the jurisdiction of the locally competent court based on the place of business of the Contracting Authority.

11.9. This Agreement has been made in one electronic counterpart.

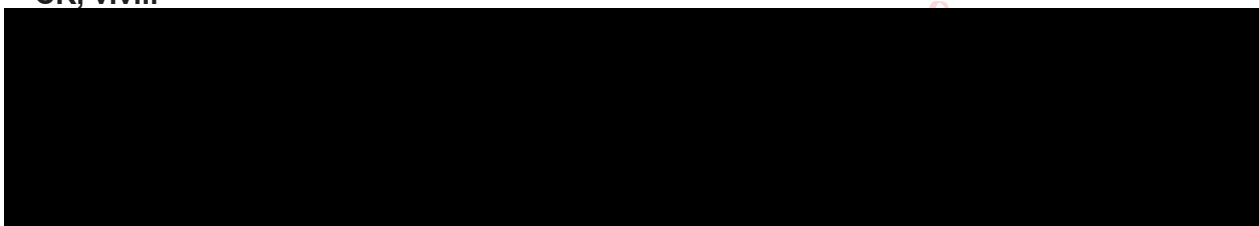
11.10. The following appendices form an integral part of the Agreement: Appendix 1 – Equipment Specification, Appendix 2 – List of subcontractors or declaration of honour of the Contractor stating that the subcontractors shall not be used for performance of this Agreement.

Prague

Dernbach, 18.10.2021

**Ústav organické chemie a biochemie AV
ČR, v.v.i.**

Wyatt Technology Europe GmbH



RNDr. PhDr. Zdeněk Hostomský, CSc.
Director

Dr. Dierk Roessner
Managing Director

Appendix 1 – Equipment Specification

Combined system of Multi-Angle (Static) Light Scattering (MALS) detector and Refractive Index Detector (RI)

The minimum specification required:

1. Multi-Angle Light Scattering Detector (MALS)

1) Measurement range and number of angles

The Multi-Angle (Static) Light Scattering (MALS) detector must make static light scattering measurements at 3 or more angular locations, simultaneously, in order to quantify molar mass of macromolecules in solution from 200 Da to 10 MDa and rms radius from 10 nm to 50 nm (up to 150 nm with shape specific models).

Determination of molar mass of glucose and sucrose standards must be provided. The peak average molar mass of glucose must be between $180.2 \pm 4\%$, the peak average molar mass of sucrose must be between $342.3 \pm 4\%$. Measurement data of absolute molar mass in respect to retention time must be provided.

2) Calibration

The determination of molar mass and its distribution with the MALS detector must be possible without the need of molar mass or size standards.

It must be possible to perform the calibration with toluene (light scattering standard). Measurements must be independent from the concentration of the sample, its conformation and the used solvents and buffer conditions.

End-users must be able to perform the calibration themselves. This must take less than 15 minutes. The MALS detector must be delivered and installed calibrated ex factory.

3) Sensitivity

The MALS detector laser source must operate at least at current of 100 mA (@2.4 Vdc).

It must be possible to determine the molar mass of 25 ng of a 100 kDa polystyrene in THF and 500 ng BSA in aqueous buffer, respectively.

Measurement data of absolute molar mass in respect to injection quantity must be provided.

The laser intensity must be possible to vary between 10 and 100%.

4) Laser monitor

The MALS detector must be equipped with a laser monitor, positioned behind the measuring cell, which measures the intensity (amount of primary light) of the laser before it enters the measuring cell.

The MALS detector must feature an idle mode, which reduces the voltage of the laser at rest.

5) Forward monitor

The MALS detector must have a forward monitor, i.e. a detector directly behind the measuring cell.

6) Low maintenance and on-site serviceability

The MALS detector must have an ultrasonic cleaning unit for the flow cell. The cleaning must be automated and software controlled *in situ* so that particles adhering to the cell can be removed after a measuring sequence without having to remove the flow cell.

It must be possible for the endusers to remove and clean the flow cell themselves without having to send the device to the manufacturer.

The design of the device must be such that most repairs can be carried out on site.

7) Checking the system status

The MALS detector must feature a System Ready Monitor, which allows the user to directly read the status and measurement readiness of the system at any time, without the need to start the operating software on separate computer. If the system is not ready to measure, health indicators (noise, wander, forward monitor, drift) must give an overview of what procedure needs to be followed.

8) Refraction cell

The MALS detector must be equipped with a refraction cell.

9) Upgradeability

The user must always be able to install the latest updates and firmware versions on the devices.

10) Compatibility

The system must be compatible with standard FPLC systems.

2. Refractive Index Detector

1) Calibration

The refractive index detector must be calibrated ex factory, so that the sample concentration and its amount in the peak can be determined by just using the dn/dc value. The calibration must be valid for at least two years.

2) Absolute refractive index

The refractive index detector must be able to determine the differential refractive index, as well as the absolute refractive index.

3) Wavelength

The refractive index detector must feature a LED with the same wavelength as the laser in the light scattering detector. Additionally, the wavelength of the dRI instrument must be changeable by the user; LEDs or other light sources must be available in order to change the wavelength of measurements in a matter of minutes to 660 nm, 690 nm, 633 nm, 488 nm and other standard values.

4) Temperature control

The refractive index detector must be capable to cool the eluent and the sample while passing the measuring cell. The temperature must be adjustable between 4°C and 50°C with a precision better than $\pm 0.005^\circ\text{C}$.

It must contain Peltier temperature control.

5) Sensitivity

The refractive index detector must feature a 512-diode array with a wide linear working range and a high sensitivity. The working range must be better than -0.0045 RIU to 0.004 RIU. The sensitivity in this range must have a peak-to-peak noise of 1×10^{-9} RIU.

3. Software

1) Determination of the radius distribution

The analysis software must allow the determination of the radius distribution of particles without the need for a concentration signal.

2) Method development and data analysis

The software for analysis of the detector data must feature a wizard that allows inexperienced users to create methods quickly. The data analysis (peak selection, setting of baselines) must also be fully automated.

3) Display of measurement inaccuracy

In addition to the absolute molar mass, the gyration radius (RMS radius) and, if applicable, the hydrodynamic radius, the software must also indicate the respective measurement accuracy or an error.

4) System check

In case of problems it must be possible to read out the device history and all system parameters with a software and send it to the support team.

5) Band broadening correction

The software must feature an algorithm to correct band broadening effects.

6) Standard deviation

The software must calculate the statistical standard deviation and indicate it for each measurement.

7) Adsorption correction

The software must feature an adsorption correction procedure.

8) Compatibility

The software must be able to operate external FPLC system.

The software must be able to read signal from external UV cell.

The RI detector must be controlled using the same analysis software as the MALS detector.

License agreement concerning use of the software:

- 1) The Contractor hereby grants to the Contracting Authority from the moment of acquisition of the ownership right to the Equipment the license for use of the software in the extent necessary for fulfilment of the purpose of this Agreement. The Contractor grants to the Contracting Authority a non-exclusive, territorially unlimited license to software for unlimited period of time.
- 2) The Contractor declares that the Contracting Authority shall not be obliged to make any paid modification or upgrade of the software, which would condition fulfilment of the purpose of this Agreement and operation of the Equipment. Any modification or upgrade of the software necessary for operation of the Equipment for the whole guarantee period shall be done by the Contractor free of charge.

- 3) The Contractor declares that he is entitled to grant the license to the Contracting Authority in the above stated extent.

The Contractor declares that the Equipment meets the above mentioned technical requirements, whereas the Contractor states the concrete specification of the Equipment as follows:

1. Multi-Angle Light Scattering Detector (MALS)

1) Measurement range and number of angles

The Multi-Angle (Static) Light Scattering (MALS) detector must make static light scattering measurements at 3 or more angular locations, simultaneously, in order to quantify molar mass of macromolecules in solution from 200 Da to 10 MDa and rms radius from 10 nm to 50 nm (up to 150 nm with shape specific models).

Determination of molar mass of glucose and sucrose standards must be provided. The peak average molar mass of glucose must be between $180.2 \pm 4\%$, the peak average molar mass of sucrose must be between $342.3 \pm 4\%$. Measurement data of absolute molar mass in respect to retention time must be provided.

The miniDAWN meets these requirements.

The miniDAWN static light scattering detector enables measurements at 3 angular locations, simultaneously, in order to quantify absolute molar mass of macromolecules in solution from 200 Da to 10 MDa and rms radius from 10 nm to 50 nm (up to 150 nm with shape specific models).

Molar mass measurements of glucose and sucrose are given in figure 1.

2) Calibration

The determination of molar mass and its distribution with the MALS detector must be possible without the need of molar mass or size standards.

It must be possible to perform the calibration with toluene (light scattering standard). Measurements must be independent from the concentration of the sample, its conformation and the used solvents and buffer conditions.

End-users must be able to perform the calibration themselves. This must take less than 15 minutes. The MALS detector must be delivered and installed calibrated ex factory.

The miniDAWN meets these requirements.

The miniDAWN determines the absolute molar mass and its distribution, thus there is no need of using molar mass or size standards.

The calibration of the miniDAWN can be performed using a clean organic solvent, such as toluene (light scattering standard). Thus, the measurements are independent from the concentration of the sample, its conformation and the used solvents and buffer conditions.

Furthermore, the end user can perform the calibration himself. This is only recommended once a year and does not take longer than 15 minutes. The miniDAWN is calibrated ex factory.



3) Sensitivity

The MALS detector laser source must operate at least at current of 100 mA (@2.4 Vdc). It must be possible to determine the molar mass of 25 ng of a 100 kDa polystyrene in THF and 500 ng BSA in aqueous buffer, respectively.

Measurement data of absolute molar mass in respect to injection quantity must be provided.

The laser intensity must be possible to vary between 10 and 100%.

The miniDAWN meets these requirements.

The miniDAWN operates with current of 100 mA (@2.4 Vdc).

The miniDAWN determines the correct molar mass even if just 25 ng of a 100 kDa polystyrene in THF or 500 ng BSA in aqueous buffer are injected, as shown in figure 2. In addition, it is possible to vary the laser intensity between 10 and 100%.

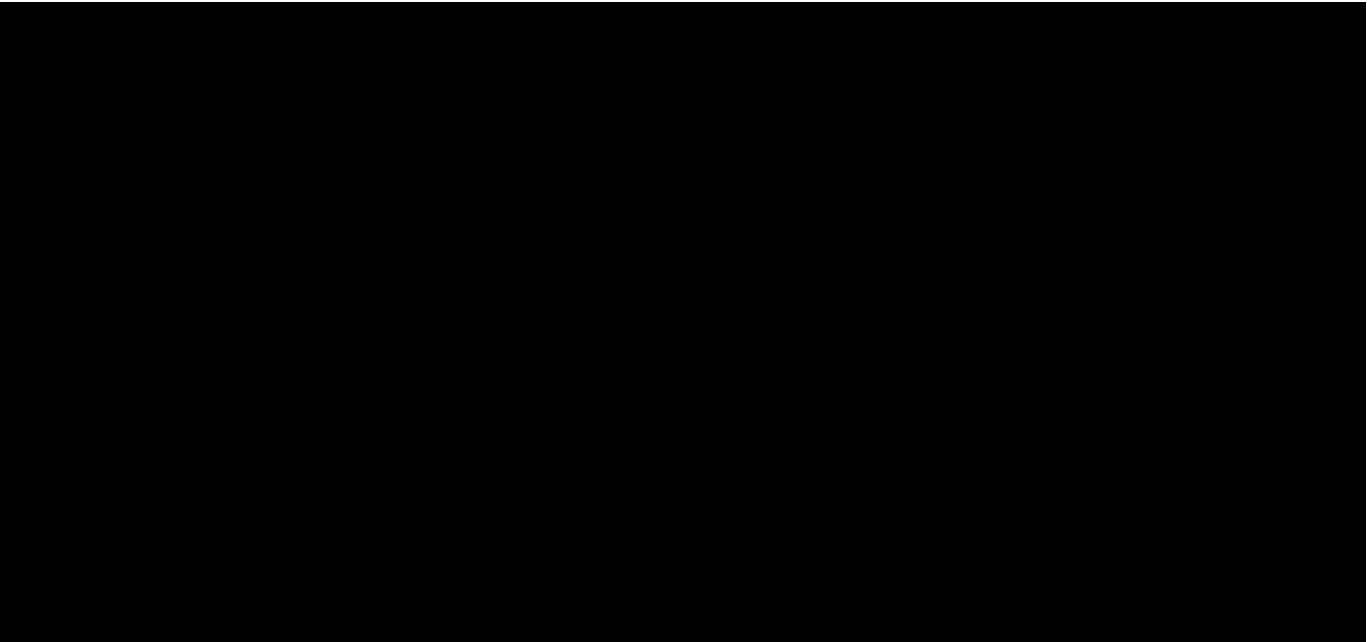


Figure 2: Sensitivity of the miniDAWN: Left plot: Even with an injection quantity of 25 ng of a 100 kDa polystyrene in THF, the molar mass can still be reliably determined. Right plot: For BSA (monomer 66 kDa), the limit for the injection quantity is 500 ng. In this case the measured values were 101 ± 2 kg/mol (polystyrene in THF) and 69 ± 2 kg/mol (BSA), respectively.

4) Laser monitor

The MALS detector must be equipped with a laser monitor, positioned behind the measuring cell, which measures the intensity (amount of primary light) of the laser before it enters the measuring cell.

The MALS detector must feature an idle mode, which reduces the voltage of the laser at rest.

The miniDAWN meets these requirements.

The miniDAWN features a laser monitor, positioned behind the measuring cell, which measures the intensity (amount of primary light) of the laser before it enters the measuring cell.

In addition, the miniDAWN uses an idle mode, which reduces the voltage of the laser at rest.

5) Forward Monitor

The MALS detector must have a forward monitor, i.e. a detector directly behind the measuring cell.

The miniDAWN meets these requirements.

The miniDAWN features a forward monitor, a detector directly at 0° behind the measuring cell.

6) Low maintenance and on-site serviceability

The MALS detector must have an ultrasonic cleaning unit for the flow cell. The cleaning must be automated and software controlled in situ so that particles adhering to the cell can be removed after a measuring sequence without having to remove the flow cell.

It must be possible for the end users to remove and clean the flow cell themselves without having to send the device to the manufacturer.

The design of the device must be such that most repairs can be carried out on site.

The miniDAWN meets these requirements.

The miniDAWN uses an ultrasonic cleaning unit for the flow cell. It is automated and software controlled *in situ* so that particles adhering to the cell can be removed after a measuring sequence without having to remove the flow cell.

In addition, it is possible for the user to remove and clean the flow cell himself without having to send the device to the manufacturer.

The design of the miniDAWN is modular, thus it enables our service engineers to carry out 90% of all repairs on-site.

7) Checking the system status

The MALS detector must feature a System Ready Monitor, which allows the user to directly read the status and measurement readiness of the system at any time, without the need to start the operating software on separate computer. If the system is not ready to measure, health indicators (noise, wander, forward monitor, drift) must give an overview of what procedure needs to be followed.

The miniDAWN meets these requirements.

The miniDAWN is equipped with a System Ready Monitor, which allows the user to directly read the status and measurement readiness of the system at any time, without the need to start the software on the computer. If the system is not ready to measure, health indicators (noise, wander, forward monitor, drift) will give an overview of what needs to be done.

8) Refraction cell

The MALS detector must be equipped with a refraction cell.

The miniDAWN meets these requirements.

The miniDAWN is equipped with a refraction cell.

9) Upgradeability

The user must always be able to install the latest updates and firmware versions on the devices.

The miniDAWN meets these requirements.

The user can always install the latest updates and firmware versions on the devices.

10) Compatibility

The system must be compatible with standard FPLC systems.

The miniDAWN meets these requirements.

The miniDAWN is compatible to standards FPLCs, such as ÄKTA (Cytiva) or Bio-Rad systems.

2. Refractive Index Detector

1) Calibration

The refractive index detector must be calibrated ex factory, so that the sample concentration and its amount in the peak can be determined by just using the dn/dc value. The calibration must be valid for atleast two years.

The Optilab meets these requirements.

The Optilab is calibrated ex factory. The sample concentration and its amount in the peak can be de-termined by just using the dn/dc value. The calibration is valid for several years.

2) Absolute refractive index

The refractive index detector must be able to determine the differential refractive index, as well as the absolute refractive index.

The Optilab meets these requirements.

The Optilab is able to determine the differential refractive index (dRI) and the absolute refractive index (aRI).

3) Wavelength

The refractive index detector must feature a LED with the same wavelength as the laser in the light scattering detector. Additionally, the wavelength of the dRI instrument must be changeable by the user; LEDs or other light sources must be available in order to change the wavelength of measurements in a matter of minutes to 660 nm, 690 nm, 633 nm, 488 nm and other standard values.

The Optilab meets these requirements.

The Optilab is equipped with a LED light source which operates at the same wavelength as the mini-DAWN MALS detector (660 nm). The LED can be changed by the user or the Wyatt Service. It is also possible to use light sources with other wavelength, such as 690 nm, 633 nm and 488 nm or others.

4) Temperature control

The refractive index detector must be capable to cool the eluent and the sample while passing the measuring cell. The temperature must be adjustable between 4°C and 50°C with a precision better than $\pm 0.005^\circ\text{C}$.

It must contain Peltier temperature control.

The Optilab meets these requirements.

The Optilab is capable to cool the eluent and the sample while passing the measuring cell. The temperature can be set between 4°C and 50°C. The precision is better than $\pm 0.005^\circ\text{C}$.

5) Sensitivity

The refractive index detector must feature a 512-diode array with a wide linear working range and a high sensitivity. The working range must be better than -0.0045 RIU to 0.004 RIU. The sensitivity in this range must have a peak-to-peak noise of 1×10^{-9} RIU.

The Optilab meets these requirements.

The Optilab is equipped with a 512-diode array. It features a wide linear working range which is better than -0.0045 RIU to 0.004 RIU. The sensitivity in this range has a peak-to-peak noise of 1×10^{-9} RIU.

3. Software

1) Determination of the radius distribution

The analysis software must allow the determination of the radius distribution of particles without the need for a concentration signal.

The software meets these requirements.

ASTRA determines the radius distribution of particles without the need for a concentration signal.

2) Method development and data analysis

The software for analysis of the detector data must feature a wizard that allows inexperienced users to create methods quickly. The data analysis (peak selection, setting of baselines) must also be fully auto-mated.

The software meets these requirements.

ASTRA comes with a wizard that allows even unskilled users to create methods fast. Typical steps for data analysis, like peak selection and the setting of baselines, can be fully automated and requires only a few clicks by the user.

3) Display of measurement inaccuracy

In addition to the absolute molar mass, the gyration radius (RMS radius) and, if applicable, the hydrodynamic radius, the software must also indicate the respective measurement accuracy or an error.

The software meets these requirements.

ASTRA indicates the measurement accuracy for the absolute molar mass, the radius of gyration (RMS radius) and the PDI.

4) System check

In case of problems it must be possible to read out the device history and all system parameters with a software and send it to the support team.

The software meets these requirements.

The provided software allows to create a log file, based on the recent system parameters. The log can be send to the support team.

5) Band broadening correction

The software must feature an algorithm to correct band broadening effects.

The software meets these requirements.

Band broadening effects are corrected using a special algorithm.

6) Standard deviation

The software must calculate the statistical standard deviation and indicate it for each measurement.

The software meets these requirements.

ASTRA calculates the statistical standard deviation and indicates it for each measurement.

7) Adsorption correction

The software must feature an adsorption correction procedure.

The software meets these requirements.

The software has an adsorption correction procedure.

8) Compatibility

The software must be able to operate external FPLC system.

The software must be able to read signal from external UV cell.

The RI detector must be controlled using the same analysis software as the MALS detector.

The software meets these requirements.

ASTRA receives the UV signal of the FPLC system using an analogue cable between the FPLC and the MALS detector. The start of the measurement (injection by autosampler or manual injection valve of the FPLC) in ASTRA is triggered by an analogue signal using an additional cable between the FPLC system and the MALS detector. A programmed sequence in the FPLC software can thus also be reproduced in ASTRA, without the need to manually start each experiment. ASTRA will automatically start and stop recording data. However, the direct control of the FPLC, such as flow rate, UV and pressure settings, is still incumbent on the FPLC software. ASTRA will be used to record MALS, UV and RI data as well as to compute the molar mass profile, while the FPLC software is used to control the injection, the flow rate and the pressure.

License agreement concerning the use of the software

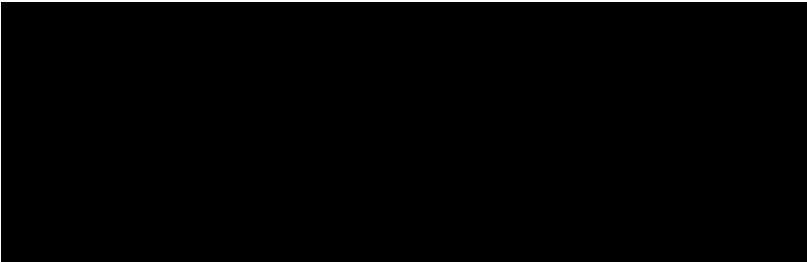
1) The Contractor hereby grants to the Contracting Authority from the moment of acquisition of the ownership right to the Equipment the license for use of the software in the extent necessary for fulfilment of the purpose of this Agreement. The Contractor grants to the Contracting Authority a non-exclusive, territorially unlimited license to software for unlimited period of time.

2) The Contractor declares that the Contracting Authority shall not be obliged to make any paid modification or upgrade of the software, which would condition fulfilment of the purpose of this Agreement and operation of the Equipment. Any modification or upgrade of the software necessary for operation of the Equipment for the whole guarantee period shall be done by the Contractor free of charge.

3) The Contractor declares that he is entitled to grant the license to the Contracting Authority in the above stated extent.

Appendix 2 – List of subcontractors or declaration of honour of the Contractor stating that the subcontractors shall not be used for performance of this Agreement

The Wyatt Technology Europe GmbH hereby declares on their honour that no



e of this Agreement.

Wyatt Technology Europe GmbH
Dr. Dierk Roessner, Managing Director