FZU Institute of Physics of the Czech Academy of Sciences

Purchase Contract

(hereafter the "**Contract**")

1. CONTRACTUAL PARTIES

1.1 **Fyzikální ústav AV ČR, v. v. i.** (Institute of Physics of the Czech Academy of Sciences),

with registered offices at: Na Slovance 1999/2, 182 00 Praha 8, Czech Republic,
represented by: RNDr. Michael Prouza, Ph.D., Director,
registered in the Register of public research institutions of the Ministry of Education, Youth and Sports of the Czech Republic.
ID No.: 68378271

Bank: [redacted]
Account No.: [redacted]

(hereinafter referred to as the "**Buyer**")

and

1.2 **Thermo-Calc Software AB,**

with registered offices at: Råsundvägen 18 – 20, SE-169 67 Solna, Sweden,
represented by: Johan Bratberg, Vice President, Thermo-Calc Software AB,
registered in Stockholm.
ID No.: 556540-6138 (Registration number)
Tax ID No.: SE556540613801 (VAT No)

Bank: [redacted]
Account No.: IBAN: [redacted]

(hereinafter referred to as the "**Seller**")

(the Buyer and the Seller are hereinafter jointly referred to as the "**Parties**" and each of them individually as a "**Party**").

2. FUNDAMENTAL PROVISIONS

2.1 The Buyer is a *Partner with a financial contribution* in the project "**Ferroic Multifunctionalities**" (**FerrMion**) under the *Operational Programme Jan Amos Komenský* within the framework of EU funds, project registration number **CZ.02.01.01/00/22_008/0004591** (hereinafter referred to as the "**Project**"). The subject of performance under this Contract is intended for the Project and mainly financed from the support provided for its implementation.

2.2 The Seller has been selected as the winner of a public procurement procedure announced by the Buyer in accordance with Act No. 134/2016 Coll., on Public Procurement, as amended (hereinafter the **"Act"**), for the public contract with the title **"Software for calculation of phase equilibria and thermodynamic and thermo-physical properties"** (hereinafter the "**Procurement Procedure**").

2.3 The documentation necessary for the implementation of the subject of performance hereof consist of

2.3.1 **Technical specifications** of the subject of performance hereof attached as **Annex No. 1** hereto.

2.3.2 The Seller´s bid submitted within the Procurement Procedure in its parts which describe the subject of performance in technical detail (hereinafter the "**Seller's Bid**"); the Sellers's Bid forms **Annex No. 2** to this Contract and is an integral part hereof.

2.4 The Seller acknowledges that it is essential for the Buyer that the Seller delivers and handovers the subject of performance within the specified time and in the specified quality as stated in Annexes No. 1 and 2 of this Contract (including invoicing). If the Seller fails to comply with the contractual requirements, the Buyer may incur damages.

3. SUBJECT-MATTER OF THE CONTRACT

3.1 The subject of this Contract is the Seller's obligation to deliver and transfer into the Buyer's ownership:

a **software for calculation of phase equilibria and thermodynamic and thermo-physical properties** specified in detail in Annexes No. 1 and No. 2 hereto

(hereinafter the **"Software"**)

and the Buyer's obligation to accept the Software and to pay the Seller the purchase price as defined below.

3.2 The following activities are an integral part of the performance to be provided by the Seller:

3.2.1 Electronic download of the Software;

3.2.2 Verification of the functionality of the Software and compliance with technical parameters according to Annexes No. 1 and 2 after installation;

3.2.3 Electronic download of detailed instructions and manuals for the Software operation and maintenance in English or Czech, in electronic form (MS Office or PDF format);

3.2.4 at least 4 hours of on-line training of 1 operator;

3.2.5 provision of a perpetual network license (NWL) for all software relevant to all installed individual parts of the Software for at least 1 user, including free software updates during the warranty period;

3.2.6 Free-of-charge warranty Software service during the warranty period;

3.2.7 Free-of-charge provision of technical support in the form of consultations (at least telephone and email support in Czech or English on working days), e.g. regarding fine tuning of the Software. The Seller shall provide the Buyer with this support during the warranty period.

3.3 The Seller shall be liable for the Software and related services to be in full compliance with this Contract, its Annexes and all valid legal regulation, technical and quality standards and shall also be liable that the Buyer will be able to use the Software for the defined purpose. In case of any conflict between applicable standards, it is understood that the stricter standard or its part shall always apply.

4. PERFORMANCE PERIOD

4.1 The Seller undertakes to deliver and hand over the Software to the Buyer within **2 months** of the conclusion of the Contract.

5. PURCHASE PRICE, INVOICING, PAYMENTS

5.1 The purchase price is based on the Seller's submitted bid and amounts to 108.200,00 **EUR** (in words: One-hundred-eight-thousand-two-hundred) excluding VAT for the Software (hereinafter the **"Price"**).

5.2 VAT shall be settled in accordance with the valid Czech regulation.

5.3 The Price includes any and all performance provided by the Seller in connection with meeting the Buyer's requirements for the proper and complete delivery of the Software hereunder, as well as all costs that the Seller may incur in connection with the installation and testing of the Software upon handover.

5.4 The Parties agreed that the Price shall be invoiced after the handover protocol in accordance with Section 10.4 (hereinafter the "**Handover Protocol**") will have been signed; in the case the Software will be handed over with defects, this part of the Price shall be invoiced after removal of these defects.

5.5 The invoice issued by the Seller must contain all information required by the applicable laws of the Czech Republic and, in addition, they must

5.5.1 contain registration number of this Contract, which the Buyer shall communicate to the Seller based on Seller's request before the issuance of the first invoice,

5.5.2 state that the Software is supplied for the purposes of the project "**Ferroic Multifunctionalities**" with the registration number **CZ.02.01.01/00/22_008/0004591**,

5.5.3 comply with the double taxation agreements, if applicable.

5.6 Invoices shall be payable within thirty (30) days of the date of their delivery to the above address. Payment of the invoiced amount means the date of its remittance to the Seller's account.

5.7 If an invoice is not issued in conformity with the payment terms stipulated by the Contract or if it does not comply with the requirements stipulated by law, the Buyer shall be entitled to return the invoice to the Seller as incomplete, or incorrectly issued, for correction or issue of a new invoice, as appropriate, within five (5) business days of the date of its delivery to the Buyer. In such a case, the Buyer shall not be in delay with the payment of the Price or part thereof and the Seller shall issue a

corrected invoice with a new and identical maturity period commencing on the date of delivery of the corrected or newly issued invoice to the Buyer.

5.8 The Buyer shall be entitled to unilaterally set off any of their payments against any receivables claimed by the Seller due to:

5.8.1 damages caused by the Seller,

5.8.2 contractual penalties.

5.9 The Seller shall not be entitled to set off any of his receivables against any part of the Buyer's receivable hereunder.

6. OWNERSHIP TITLE

The ownership right to the Software and at the same time the associated risk of damage shall pass to the Buyer upon proper handover and acceptance of the Software according to Section 9.2, i.e. by drawing up the Handover Protocol and its signature by an authorized representative of the Buyer.

7. PLACE OF PERFORMANCE

The place of performance, i.e. the place of installation and handover of the Software, shall be the Fyzikální ústav AV ČR, v.v.i., Na Slovance 1999/2, 182 00 Praha 8, Czech Republic.

8. INTERACTION OF THE PARTIES

8.1 The Seller undertakes to notify the Buyer of any obstacles on his part, which may negatively influence proper and timely delivery and/or handover of the Software.

8.2 The Seller undertakes to provide the Buyer with cooperation in the event of inspections by authorized entities in connection with the Projects.

9. INSTALLATION, HANDOVER AND FINAL ACCEPTANCE

9.1 The Seller shall assist the Buyer in installing the Software and verifying its functionality, to the maximum extent possible, i.e. in the form of telephone consultations, video calls, etc.

9.2 The handover procedure shall be completed by handover of the Software confirmed by the Handover Protocol containing the following mandatory information:

9.2.1 Identification of the Seller, the Buyer and any subcontractors;

9.2.2 Description of the Software;

9.2.3 List of technical documentation according to Section 3.2.3 of the Contract;

9.2.4 Confirmation of the training according to Section 3.2.4 of the Contract, including a list of participants and information on its extent;

9.2.5 Buyer`s possible objections to minor defects of the Software including the manner of and deadline for their removal and

9.2.6 Signatures of authorized representatives of the Buyer and the Seller, with the date indicated.

9.3 Handover of the Software does not relieve the Seller from liability for damage caused by its defects.

9.4 The Buyer shall not be obliged to accept the Software or any part thereof which is defective (even if such defects - on their own or in connection with other defects – do not constitute an obstacle to the use of the Software). In such a case, the Buyer shall issue a report containing the reason for his refusal to accept the Software or its part. If the Software or its part upon handover does not meet the parameters defined in Annexes No. 1 and 2 to this Contract, such non-compliance is considered a defect of the Software.

9.5 Should the Buyer not exercise his right not to accept the Software or its part with a defect, the Seller and the Buyer shall list all defects detected in the Handover Protocol, including the manner of and deadline for their removal. Should the Parties not be able to agree in the Handover Protocol on the deadline for removal of the defects, it shall be understood that all above shall be removed / rectified within 10 days of handover.

10. REPRESENTATIVES, NOTICES

10.1 The Seller authorized the following representatives to communicate with the Buyer in all matters relating to the Software delivery, installation and handover:

[redacted]
e-mail: [redacted]
tel. [redacted]

10.2 The Buyer authorized the following representatives to communicate with the Seller in all matters relating to the Software delivery, installation and handover:

[redacted]
e-mail [redacted]
tel [redacted]

10.3 The representatives according to Sections 10.1 and 10.2 can be changed by a unilateral written declaration of the Buyer / Seller delivered to the Seller / Buyer.

10.4 All notifications to be made between the Parties hereunder must be made out in writing and delivered by hand (with confirmed receipt) or by post (to the address of the Seller's or Buyer's registered offices), or in the form of electronic delivery incorporating electronic signature (qualified certificate) to epodatelna@fzu.cz in the case of Buyer and to [redacted] in the case of the Seller.

10.5 In all technical and expert matters (discussions on the Software testing, notification of the need to provide warranty or post-warranty service, technical assistance etc.), electronic communication between technical representatives of the Parties will be acceptable using e-mail addresses specified in Sections 10.1 and 10.2.

11. TERMINATION

11.1 This Contract may be terminated early by agreement of the Parties or withdrawal from the Contract on the grounds stipulated by law or in the Contract.

11.2 The Buyer is entitled to withdraw from the Contract without any penalty from the Seller in any of the following events:

11.2.1 The Seller is in delay with the delivery of the Software longer than 4 weeks after the date pursuant to Section 4.1 hereof.

11.2.2 The Seller is more than 2 weeks in delay with the removal of Software defects listed in the list of detected defects of the Handover Protocol according to Section 9.5.

11.2.3 The technical parameters or other conditions set out in the technical specifications defined in Annexes No. 1 and 2 to this Contract and in the relevant applicable technical standards will not be met by the Software at handover.

11.2.4 The Seller was legally found guilty of committing a misdemeanor or other serious illegal act within the framework of labor law regulations and regulations related to employment and health and safety at work as part of the proceedings initiated by a public authority,

11.2.5 The Seller was legally found guilty of committing a misdemeanor or other serious illegal act within the framework of environmental law as part of the proceedings initiated by a public authority.

11.3 In all cases according to Section 11.2, the Buyer may also withdraw from the Contract only to the extent of the part relating to the mentioned breach of the Contract.

11.4 The Seller is entitled to withdraw from the Contract in the event of the Buyer is in default with the payment for more than 1 month except of the cases if the Buyer refused an invoice due to defect on the Software or its part or due to the breach of the Contract by the Seller.

11.5 Withdrawal from the Contract shall be effective on the date the notice of withdrawal is delivered to the Seller / Buyer. In the event of withdrawal, the performances received under this Contract (or its part in the case of withdrawal according to Section 11.3) prior to withdrawal shall be duly returned.

12. WARRANTY TERMS

12.1 The Seller shall provide warranty for the quality of the Software for a period of **12 months**.

12.2 The warranty period shall commence on the day following the date of signing of the Handover Protocol pursuant to Section 9.2 hereof or, in the event that the Software has been handed over with minor defects, on the day following the date of removal of all such defects.

12.3 The Seller undertakes to provide free Software updates for the entire warranty period according to this Contract.

12.4 Should the Buyer discover a defect, he shall notify the Seller to remove such defect using the e-mail address: [redacted]. The Seller is obliged to notify the Buyer without delay about any change of this e-mail address. The Seller shall be obliged to review any warranty claim within 72 hours (within business days) from its receipt.

12.5 During the warranty period, the Seller shall be obliged to ensure maintenance and support of the Software and remove any claimed defects within 5 days from receipt of the warranty claim. In case of unusual defects, the Seller shall be obliged to remove the defect within a period corresponding to the nature of the defect and to set a deadline for handing over the repaired Software.

12.6 During the warranty period, any and all costs associated with defect removal / repair shall be always borne by the Seller.

13. CONTRACTUAL PENALTIES

13.1 The Buyer shall be entitled to a contractual penalty in the amount of 0,1 % of the Price for each commenced day of delay with the performance pursuant to the relevant part of Section 4.1 hereof.

13.2 The Buyer shall be entitled to a contractual penalty in the amount of 0.05 % of the Price for each commenced day of delay with the performance pursuant to Section 12.4 hereof and with the removal of defects claimed within the warranty period pursuant to Section 12.5 hereof.

13.3 In the event of default in payment of any due receivables (monetary debt) under the Contract, the defaulting Party (the debtor) shall be obliged to pay a contractual penalty of 0.05 % of the amount due for each commenced day of delay in payment.

13.4 The total amount of contractual penalties for the Seller shall not exceed 30% of the Price and the same shall apply to the Buyer.

13.5 Contractual penalties are payable within 30 days of receipt of the demand for payment.

13.6 Payment of the contractual penalty shall be without prejudice to the rights of the Parties to claim compensation for damages incurred.

13.7 Payment of any contractual penalty cannot be demanded if the breach of the contractual obligation is caused by force majeure.

14. DISPUTES

Any and all disputes arising from or relating to this Contract shall be settled by the Parties by mutual negotiations. In the event that any dispute cannot be resolved by negotiations within sixty (60) days,

the dispute shall be resolved by a competent court in the Czech Republic upon a legal action brought by either Party; the competent court shall be determined by the location of the registered office of the Buyer. Disputes shall be settled exclusively under the law of the Czech Republic.

15. FINAL PROVISIONS

15.1 This Contract constitutes the entire agreement between the Parties. The relations between the Parties not regulated by this Contract shall be governed by Czech law, in particular by the Act No. 89/2012 Coll., the Civil Code, as amended (hereinafter the **"Civil Code"**).

15.2 This Contract may be amended or supplemented solely by written amendments. The Parties expressly refuse to amend the Contract in any other way.

15.3 The Parties expressly agree that the Contract as a whole, including all attachments, will be published in accordance with Act No. 340/2015 Coll. on special conditions for the effectiveness of some contracts, publication of these contracts and Contract Register, as amended. The Parties hereby declare that all information contained in the Contract and its Annexes is not considered trade secrets under § 504 of the Civil Code and grant permission for their disclosure without setting any additional conditions. This Contract becomes effective as of the day of its publication in the Contract Register, which shall be provided by the Buyer.

15.4 The following Annexes form an integral part of the Contract:

Annex No. 1: Technical specification on the subject of performance

Annex No. 2: Technical description of the Software as presented in Seller's bid

15.5 The Parties, manifesting their consent with the entire contents of this Contract, attach their signature hereunder.

In Prague
For the Buyer

[redacted]

RNDr. Michael Prouza, Ph.D.
Director

- 6. 09. 2024

In Solna
For the Seller

[redacted]

Johan Bratberg, Ph.D.
Vice President

[redacted]

[redacted]

Annex No. 1 - Technical specification

The Software will be used for thermodynamic calculations (phase diagrams, phase compositions at certain conditions, stabilities of intermetallic phases, thermo-physical properties. etc.), for simulations of diffusion behaviour (diffusion profiles, homogenization conditions, etc.) and diffusion-controlled phase transformations, and for simulations of additive manufacturing process. The software must include all necessary databases for the modelling and simulation of the aforementioned processes and properties of the high entropy alloys and allow to create outputs treatable in further independent software, for example based on the Python language. It must meet the technical conditions and include components listed in this table.

Description and minimum specification of the Software as defined by the Buyer	Description and specification of the Software offered by the Seller	Complies YES/NO
Base software for thermodynamic calculations (perpetual Network License for 1 user)	Our Base-Software Thermo-Calc allows for thermodynamic and property calculations (including phase diagrams, property diagrams, Scheil solidification simulations, and more). This Base Software and all below listed Add-On Modules and Databases are offered as perpetual Network licenses for 1 user. The Maintenance & Support Subscription (M&SS) is free of charge during the first year after the purchase. Thus, the warranty period stated in this contract shall be 1 year after the purchase as well.	**Yes**
Thermodynamic Database High Entropy Alloys Database (perpetual Database Network License 1 user)	TCHEA7 is our thermodynamic and properties database designed for use with High Entropy Alloys (HEAs), also known as Multi-principal Element Alloys (MPEA).	**Yes**
Diffusion Module (perpetual Network License 1 user)	The Diffusion Module (DICTRA) is an Add-on Module to Thermo-Calc that makes modeling multicomponent diffusion-controlled transformations simple and accessible. The Diffusion Module (DICTRA) is based on the numerical solution of the multicomponent diffusion equations and the CALPHAD approach.	**Yes**
Additive Manufacturing Module (perpetual Network License 1 user)	The Additive Manufacturing Module is an Add-on Module in Thermo-Calc that is primarily designed for modeling the powder bed fusion process in Additive Manufacturing. Special focus has been to have a unified treatment of alloy dependent material properties and process parameters when solving the multiphysics problem of a moving heat source that melts and solidifies metal powder. The multiphysics simulation involves thermal conduction, fluid flow, evaporation-, radiation- and convective-heat loss.	**Yes**
High Entropy Mobility Database (perpetual Database Network License 1 user)	MOBHEA3 is the corresponding mobility database to the thermodynamic database TCHEA7 needed for use with the add-on kinetic modules.	**Yes**

The possibility to create outputs treatable in further independent software (for example based on the Python language)	TC-Python is a Python™ language-based SDK available with Thermo-Calc which allows for easy and flexible coupling of Thermo-Calc calculations with other software programs. It was built in the popular language Python™ to give Thermo-Calc users access to many other programs, such as numerical packages like NumPy, SciPy, and TensorFlow, which can now be used in combination with our calculations.	**Yes**

Annex No. 2

The Seller's bid in the extent it describes technical parameters of the Software

Thermo-Calc
Thermo-Calc is the platform and powerful calculation engine that drives all of our other tools. The software platform includes several built-in calculators that allow you to perform a wide range of thermodynamic and property calculations, including phase diagrams, property diagrams, Scheil solidification simulations, and more.

Databases
Thermo-Calc is used in combination with materials-specific databases, which provide the data that drives the predictions. Users can select from over 40 high quality databases containing thermodynamic, mobility, and properties data developed by our team of highly skilled experts using the proven CALPHAD methodology.

Add-On Modules
Several Add-on Modules are available that allow users to extend the functionality of Thermo-Calc in your area of specialisation.

DICTRA
The Diffusion Module (DICTRA) is an Add-on Module to Thermo-Calc that makes modeling multicomponent diffusion-controlled transformations simple and accessible. The Diffusion Module (DICTRA) is based on the numerical solution of the multicomponent diffusion equations and the CALPHAD approach.

Additive Manufacturing Module
The Additive Manufacturing Module is an Add-on Module in Thermo-Calc that is primarily designed for modeling the powder bed fusion process in Additive Manufacturing.
Special focus has been to have a unified treatment of alloy dependent material properties and process parameters when solving the multiphysics problem of a moving heat source that melts and solidifies metal powder. The multiphysics simulation involves thermal conduction, fluid flow, evaporation-, radiation- and convective- heat loss.

TC-Python
TC-Python is a Python™ language-based SDK available with Thermo-Calc which allows for easy and flexible coupling of Thermo-Calc calculations with other software programs. It was built in the popular language Python™ to give Thermo-Calc users access to many other programs, such as numerical packages like NumPy, SciPy, and TensorFlow, which can now be used in combination with our calculations. It can also be used from within Jupyter notebooks or comparable interactive Python™ consoles.
Many outstanding open source programs are written in Python, so users who have a license for TC-Python have countless options for coupling with free, high-quality development tools. It is truly a tool for Integrated Computational Materials Engineering (ICME).
TC-Python can also be used to develop custom Property Models for the Property Model Calculator. User developed Property Models allow you to customize Thermo-Calc to meet your modeling needs.