Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government Services Canada/Réception des soumissions Travaux publics et Services gouvernementaux Canada
Room 100,
167 Lombard Ave.
Winnipeg
Manitoba
R3B 0T6
Bid Fax: (204) 983-0338

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet
Rheometer

Solicitation No. - N° de l'invitation	**Date**
5K003-171363/B	2018-03-05

Client Reference No. - N° de référence du client
5K003-171363

GETS Reference No. - N° de référence de SEAG
PW-$WPG-010-10489

File No. - N° de dossier	**CCC No./N° CCC - FMS No./N° VME**
WPG-7-40160 (010)	

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2018-03-13

Time Zone
Fuseau horaire
Central Daylight Saving Time CDT

F.O.B. - F.A.B.
Plant-Usine: ☐ **Destination:** ☑ **Other-Autre:** ☐

Address Enquiries to: - Adresser toutes questions à:	**Buyer Id - Id de l'acheteur**
Maki, Christie	wpg010

Telephone No. - N° de téléphone	**FAX No. - N° de FAX**
(204) 891-6126 ( )	(204) 983-7796

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
CANADIAN GRAIN COMMISSION
GRAIN RESEARCH LAB
1519-303 MAIN ST
WINNIPEG
Manitoba
R3C3G8
Canada

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
See Herein	

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Issuing Office - Bureau de distribution
Public Works and Government Services Canada - Western Region
Room 100
167 Lombard Ave.
Winnipeg
Manitoba
R3B 0T6

Canada

Rheometer

TABLE OF CONTENTS

PART 1 - GENERAL INFORMATION

1.1 Requirement

The requirement is detailed under Article 6.2 of the resulting contract clauses

1.2 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.3 Trade Agreements

The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA).

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.1.1 *SACC Manual* Clauses

B1000T (2014-06-26) Condition of Material-Bid

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 5 calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must

be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Manitoba.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that Bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (2 hard copies)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (1 hard copy)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that Bidders follow the format instructions described below in the preparation of their bid:

(a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
(b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html). To assist Canada in reaching its objectives, Bidders should:

1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and

2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid
In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid
Bidders must submit their financial bid in accordance with the Basis of Payment.

3.1.1 Exchange Rate Fluctuation

C3011T (2013-11-06), Exchange Rate Fluctuation

3.1.2 SACC Manual Clauses

Section III: Certifications
Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

(a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

(b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

Bidder must complete the Compliance Matrix detailed in Annex A, Requirement. Completion is defined as indication of compliance and cross-reference to each mandatory criterion as outlined in Annex A, Requirement**.**

4.1.2 Financial Evaluation

SACC Manual Clause A0220T (2014-06-26), Evaluation of Price

4.2 Basis of Selection

4.2.1 Basis of Selection – Mandatory Technical Criteria

SACC Manual Clause A0031T (2010-08-16) Basis of Selection – Mandatory Technical Criteria

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the Forms for the Integrity Regime website (http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the Ineligibility and Suspension Policy (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website (https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Requirement

The Contractor must provide the items detailed under the "Requirement" at Annex A.

6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

2010A (2016-04-04), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of issuance to approximately April 15, 2019 inclusive

6.4.2 Delivery Date

While delivery is requested by April 15, 2018, the best delivery that could be offered is _____ .

6.4.3 Delivery Points

Delivery of the requirement will be made to delivery point(s) specified at Annex A of the Contract.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Christie Maki
Title: A/ Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
Address: 100-167 Lombard Ave, Winnipeg MB R3B 0T6

Telephone: 204-891-6126
Facsimile: 204-983-7796
E-mail address: christie.maki@pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform

work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

6.5.2 Project Authority

The Project Authority for the Contract is: TO BE DETERMINED

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority, however the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Contractor's Representative

Name:_____

Title: _____

Organization: _____

Address: _____

Telephone: ___ ___ _____

Facsimile: ___ ___ _____

E-mail address: _____

6.6 Payment

6.6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm unit prices, as specified in Annex B for a cost of $ TO BE DETERMINED. Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

6.6.3 Multiple Payments

SACC Manual clause H1001C (2008-05-12) Multiple Payments

6.6.4 SACC Manual Clauses

A9117C (2007-11-30) T1204- Direct Request by Customer Department

6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

2. Invoices must be distributed as follows:
   a) The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.

6.8 Certifications and Additional Information

6.8.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Manitoba.

6.10 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

(a) the Articles of Agreement;
(b) the general conditions 2010A (2016-04-04), General Conditions - Goods (Medium Complexity);
(c) Annex A Requirement;
(d) Annex B Basis of Payment;
(e) the Contractor's bid dated _____ (*insert date of bid*)

6.11 *SACC Manual* Clauses

A9068C (2010-01-11), Government Site Regulations
B1501C (2006-06-16), Electrical Equipment
B7500C (2006-06-16), Excess Goods
C5201C (2008-05-12) Prepaid Transportation Costs

6.12 Inspection and Acceptance

The Project Authority is the Inspection Authority. All reports, deliverable items, documents, goods and all services rendered under the Contract are subject to inspection by the Inspection Authority or representative. Should any report, document, good or service not be in accordance with the requirements of the Statement of Work and to the satisfaction of the Inspection Authority, as submitted, the Inspection Authority will have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment.

6.13 Insurance – Specific Requirements

The Contractor must comply with the insurance requirements specified in Annex C. The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within ten (10) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. For Canadian-based Contractors, coverage must be placed with an Insurer licensed to carry out business in Canada, however, for Foreign-based Contractors, coverage must be placed with an Insurer with an A.M. Best Rating no less than “A-”. The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

ANNEX A

REQUIREMENT

ITEM:

The Canadian Grain Commission's (CGC) Grain Research Laboratory (GRL) Bread and Durum Wheat Research Unit has a requirement for the supply and delivery of one (1) Rheometer with plates, concentric cylinder, torsion emersion cell, and software for CGC supplied computer to apply fundamental approaches to study flow and rheological behaviors of bread wheat dough and mechanical properties of pasta during cooking. The unit must be installed on-site at the Canadian Grain Commission in Winnipeg, Manitoba, and basic training must be provided to staff.

BACKGROUND:

A dynamic rheometer can precisely monitor the flow/rheological behavior of dough and cooked pasta. By applying strain, stress and oscillatory measurement, the mechanical property of samples can be measured. The information generated can be related to the inherent structure of the materials. Building and understanding the interrelationships among functionality, structure and composition will facilitate quality improvement of Canadian wheat and durum.

From the perspective of bread wheat, baking quality of wheat flour is a function of rheological properties of dough, a semi-solid viscoelastic material. Traditional instruments for empirical dough rheology, such as Farinograph and Extensograph, can generate information about dough properties such as mixing requirement and tolerance, resistance to extension and extensibility. However, to understand the fundamental relationship between flour components and dough flow behavior, it requires a more precise tool/instrument for analysis at a very small dough sample size. Such fundamental understanding is very important for new variety development with improved quality. This can only be achieved by a dynamic rheometer.

In terms of durum wheat, pasta cooking property is a critical quality parameter of durum wheat. However, the rheological behavior of pasta during cooking in relation to quantity and quality of gluten protein has not been fully understood. When combining with the Torsion Immersion Cell (a geometry), rheometer is able to characterize the mechanical properties of pasta during cooking and investigate the impact of biochemical components on pasta cooking behavior. This will ultimately identify the key physicochemical factors which can impact the pasta cooking quality.

OBJECTIVE:

The Rheometer is required for research projects. Currently, there is no instrument which allows us to study the fundamental rheological behavior of bread wheat dough and pasta.

This equipment will apply fundamental approaches to study flow and rheological behaviors of bread wheat dough, and mechanical properties of pasta during cooking.

Delivery Date:

While delivery is requested by April 15, 2018, the best delivery that could be offered is _____

Delivery Location: Canadian Grain Commission
1447-303 Main Street
Winnipeg, Manitoba
R3C 3G8

MINIMUM MANDATORY PERFORMANCE SPECIFICATIONS- COMPLIANCE MATRIX

INSTRUCTIONS

A complete list of the minimum mandatory performance specifications are detailed below in Minimum Mandatory Performance Specifications-"Compliance Matrix". Bidders are to clearly demonstrate compliance with each mandatory specification.

1. Bidders are requested to provide the Manufacturer and model number offered.

2. It is requested that supporting technical documentation, including but not limited to, specification sheets, technical brochures, photographs or illustrations be provided with the bid at solicitation close and be cross-referenced on the Compliance Matrix for each performance specification to outline where in the supporting technical documentation it demonstrates compliance. It is the Bidders responsibility to ensure that the submitted supporting technical documentation provides detail to prove that the proposed product(s) meet the requirements of the Performance Specification. If published supporting technical documentation is not available, the Bidder should prepare a written narrative complete with a detailed explanation of how its bid demonstrates technical compliance.

3. If the supporting documentation referenced above has not been provided at bid closing, the Contracting Authority will notify the Bidder that they must provide supporting documentation within two (2) business days following notification. Failure to comply with the request of the Contracting Authority within that time period, will deem the bid non-responsive and the bid will be given no further consideration.

4. Canada will not evaluate information such as references to Web site addresses where additional information can be found.

5. Bidders must address any concerns with the performance specifications in written detail to the Contracting Authority before bid closing as outlined in the Request for Proposal (RFP) document.

6. Failure to meet each performance specification will result in the bid being deemed non-responsive, and be given no further consideration.

Minimum Mandatory Performance Specifications-"Compliance Matrix"

Requirement	Manufacturer Offered:	Model Number Offered:
One complete Rheometer with plates, concentric cylinder, torsion emersion cell, and software		

Item	Performance Specification Description	Specification being offered: Bidder should record in this column how they meet the performance specification by recording this information in this column	Cross Reference: In this column, Bidders should cross-reference where this performance specification is indicated in their supporting documents.	What's expected in your proposal
Mandatory Specification	The Canadian Grain Commission's (CGC) Grain Research Laboratory (GRL) Bread and Durum wheat research Unit has a requirement for they supply and delivery of one dynamic rheometer, with plates, concentric cylinder, torsion emersion cell, and software for CGC supplied computer. The unit must be installed on-site at the Canadian Grain Commission in Winnipeg, Manitoba, and basic training must be provided to staff.			
1	**Part 1: Rheometer Feature/Functionality Requirements**			
1.1	The rheometer must have a touch keypad on the instrument or software setting controls to control at minimum gap zero, trim gap, go to gap, raise and lower head, start and stop tests.			Provide detailed documentation, brochures with proposal to demonstrate compliance with the specifications of the solicitation.
1.2	The Rheometer must have at minimum a resolution of 10 nanoradians.			

1.3	The rheometer must perform torque measurement range at minimum of 2 Nano Newton Meter (nN.m) to 200 mN.m in oscillation measurements.			
1.4	The Rheometor must perform torque measurements as low as 10 nN.m in steady shear measurements.			
1.5	The inertia generated by the motor must be able to be compensated and not be influenced by temperature change in the drag cup.			
1.6	The rheometer must be able to apply maximum torque of 200 mN.m continuously in steady shear or creep mode for at least 15 minutes.			
1.7	The instrument must ensure precision positioning of the geometry with a resolution of ≤0.02 microns.			
1.8	The instrument software must report uncorrected torque applied by the motor (not sample torque corrected for moment of inertia).			
1.9	The step strain response time of instrument must be ≤ 30 ms (millisecond) to 99% of commanded value.			
1.10	The step rate response time of instrument must be ≤ 10 ms to 99% of commanded value.			
1.11	The rheometer must be able to conduct displacement measurements with a resolution as low as 10 nano radius (nrad).			
1.12	The rheometer must have an angular velocity range of 10^{-8} to 300 radius.			

1.13	The rheometer must have a frequency range of (in oscillation mode) 1.E-7 to 100 Hz (7.5E-7 to 628 rad/s).			
1.14	The rheometer must include the ability to control and measure normal forces over a force range of 0.005 to 50 Newton.			
1.15	The rheometer must be able to correct geometry expansion/contraction due to temperature change during the test.			
1.16	The rheometer must be able to test solid materials in dynamic bending and tension/compression modes using 3 Point-bend, Single/Dual Cantilever, Tension, Compression geometries to generate Young Modulus (E', E", and tan delta) over the entire temperature range of the Environmental Test Chamber temperature system (-150 to 600 °C).			
1.17	The rheometer must have automatic temperature system and geometry recognition (type, dimension and material) to minimize operator time, eliminate potential mistakes with configurations and test set-up.			
1.18	The instrument software must report both raw phase angle and corrected phase angle for oscillation measurements for validation of data quality.			
1.19	The rheometer system must display the oscillation waveforms real-time and store the waveform for each data point. The waveform must be viewable in order to provide an indication of the amount of noise, slip, or inertial correction for each point.			

1.20	The rheometer must include full large amplitude oscillatory shear (LAOS) testing capability. This includes the ability to collect correlated and transient oscillatory data, and a software analysis package capable of analyzing transient data and generating non-linear parameters including at minimum: G'M, G'L, n'M n'L, S, T, Q.			
1.21	The rheometer must be capable of operating in the following modes: a. Oscillation Mode Tests: i. Torque/Stress sweep (linear or log) at single frequency ii. Frequency sweep (linear or log) at single torque iii. Frequency sweep (linear or log) at single strain iv. Strain/angular displacement sweep (linear or log) at single frequency v. Temperature sweep at single frequency/torque vi. Superimposed stress oscillation and steady shear vii. Superimposed strain oscillation and steady shear viii. Multiple simultaneous frequencies superimposed on above modes b. Flow Mode Tests: i. Controlled stress or torque sweeps. ii. Controlled rate (1/s) or speed (rad/s) sweeps. iii. Stress stepped flow. iv. Equilibrium stress stepped flow (ensures material has time to respond to each level of stress). v. Temperature sweeps at constant stress or rate. vi. Squeeze flow and pull off. c. Creep Mode (transient) Tests: i. Constant stress creep and recovery.			

	ii. Automatic sensing of steady state during creep test. iii. Stress growth d. Stress relaxation (transient) test.			
1.22	The rheometer must be capable of running any of the available tests described in 1.22 in a one mixed procedure. In addition, while running the procedure, succeeding steps can be adapted or new steps added.			
2	**Part 2: Test Geometry Requirements**			
2.1	The rheometer must include at minimum, a stainless steel 40 mm diameter upper plate, stainless steel cross hatched (1 mm deep, 1 mm peak to peak), stainless steel 20 mm diameter upper plate, stainless steel 40 mm diameter, and a stainless steel 2 degree upper cone plate.			Provide detailed documentation, brochures with proposal to demonstrate compliance with the specifications of the solicitation.
2.2	The rheometer must come with auto recognition for all geometry attachments available.			
3	**Part 3: Lower Plate**			
3.1	Must provide a lower plate with a temperature range of -40 to 200 Celcius (°C) with controllable heating rates of up to 20°C/minute with temperature accuracy of ±0.1 °C.			Provide detailed documentation, brochures with proposal to demonstrate compliance with the specifications of the solicitation.
3.2	The lower place must have heating elements to cover the entire plate surface directly in contact with a copper surface with a hardened chrome surface.			
3.3	The lower plate must be able to work with lower geometry surface attachments including stainless steel plates; smooth, sandblasted and crosshatched plates and disposable plates.			

3.4	The lower plate must include standard solvent trap cover to eliminate any solvent loss during the experiment.			
3.5	The rheometer must be compatible with an upper heated plate system that can be used in conjunction with all lower plate models for use with 8, 25, and 40 mm diameter cones and plates (including disposable) and capable of a maximum temperature 150 °C. This accessory may be purchased at a future time; it is not required at time of initial delivery.			
4	**Part 4: Concentric Cylinder**			
4.1	Must provide concentric cylinder systems with temperature range of -20 to 150°C with a maximum heating rate up to 13°C/minute			Provide detailed documentation, brochures with proposal to demonstrate compliance with the specifications of the solicitation.
4.2	A Torsion Immersion Cell (or similar attachment) must be included/available and work with Concentric cylinder to allow rectangular bar-shaped samples to be clamped and characterized while immersed in a temperature-controlled fluid.			
4.3	When using Torsion Immersion cell, the mechanical properties of the rectangular bar shaped samples must be able to be analyzed with oscillatory experiments.			
5	**Part 5: Software Requirement**			
5.1	Software must be compatible with Windows 7 Enterprise			Provide detailed documentation, brochures with proposal to demonstrate compliance with the specifications of the solicitation.
5.2	Software must offer capabilities to update both instrument software and firmware.			

5.3	Software must have the ability to run the instrument and perform other tasks simultaneously such as data analysis, Microsoft Word, or Microsoft Excel.			
5.4	Software must be capabable of performing the following data analysis options include the following curve modeling or analysis /transformation functions: i. Mathematical model: straight line, onset point, modulus crossover, first and second derivative, integration, Polynomial, exponential, sine/cosine, Fourier series, ii. Flow: Newtonian, Casson, Bingham, Herschel-Buckley, Power Law, Sisko, Cross, Williamson, Ellis, Carreau, Best fit Polynomial. iii. Creep: discrete retardation spectrum, Burger model. iv. Oscillation: Discrete and continuous relaxation spectrum, Spriggs, Oldroyd and Coz-Merz v. Stress relaxation: Discrete and continuous relaxation spectrum vi. User defined model vii. Software must include transformations software transformations of G', G", G(t), J', J", J. viii. Time-Temperature Superposition, with automatic horizontal and vertical shift. Automatically generates master curves. After fitting with WLF or Arrhenius, curves can be generated for any temperature within the range tested. Shift parameters in the scalar database other than temperature can be chosen. Shifting direction (horizontal, diagonal) can be set for the selected curves. Time/Temp Superposition capability must be built into the software package and not a third party program. ix. The base software package must also include statistical analysis (column and page			

	based) including error bar generation and data (point) editing, FFT and spline smoothing, and data reduction and page merge functions. x. Fluid inertia corrections will be included in the software, as well as Berger's/Rabinowitch's correction. xi. Automatic determination of rheological parameters such as Zero Shear Viscosity, Plateau Modulus, Equilibrium Compliance, and Flow Activation Energy and savings in the scalar database xii. Advanced Mw and MWD calculations based on Double Reptation theory must be available.			

5.5	Advanced Analysis Modules: In addition to the standard rheological testing platform, the instrument must be capable of accepting the following modules to provide enhanced materials characterization functions: a. UV curing b. Asphalt c. SALS d. Interfacial e. Fourier Transformation Rheology Analysis Package: i. Sample the raw stress and strain data using SineStrain or Transient data collection in oscillation test modes ii. Conversion of temporal data to frequency data (DFT) iii. Extraction of the odd harmonics and calculation of Fourier and Chebyshev polynomial coefficients iv. Ability to recast the results as a function of the sweep parameter used (w,g,…) v. Calculation of non-linear parameters (G'_M, G'_L, η'_M, η'_L, S, T, Q) vi. Reconstruct temporal data. This function recalculates from the odd harmonics total stress, viscous and elastic stress.			
6	**Part 6: Other Tests and Geometries**			
6.1	Rheometer must be able to work with a wide range of accessories such as: an immersion ring (allow samples to be measured while fully immersed in a fluid), starch pasting cell (characterize the gelatinization process and final properties of starch products), environmental test chamber (temperature range of -160C to 600C with heating rate up to 60C/min), upper heated plate, modular microscope accessory (allow visual the flow of material during the rheological measurement) and pressure cell (to study the effect of pressure on rheoligcal properties), small			Provide detailed documentation, brochures with proposal to demonstrate compliance with the specifications of the solicitation

	angle light scattering (for simultaneous monitor rheological and structural characterization such as particle size, shape, orientation and spatial distribution).			
6.2	Must be able to perform Dynamic mechanical analysis such as film tension, three point bend, cantilever, and compression.			
7	**Part 7: Training**			
7.1	Must provide on-site training, for three (3) Canadian Grain Commission staff, by a qualified service engineer and/or applications chemist. Training must include instruction on all modes of operation of the instrument, all routine maintenance, and all features of the operating /data handling software.			Demonstrate your commitment to meeting this training requirement. Include a list of general topics to be covered during the training.
8	**Part 8: Health and Safety**			
8.1	The equipment must be approved by the Canadian Standards Association (CSA), CSA International OR a National Certification body for the Country of Manufacture (i.e. CE, UL) before shipping to the Canadian Grain Commission (CGC).			Provide detailed documentation, brochures with proposal to demonstrate compliance with the specifications of the solicitation
9	**Part 9: Electrical and Environmental Requirements**			
9.1	Capable of operating with 115 V and 15 A or 20 A with 3-prong grounded electrical cord and plug included			Provide details on electrical requirements for the proposed equipment.
9.2	Capable of uninterrupted continuous operation in a laboratory temperature range of 15 - 30 ° C and a relative humidity up to 75%.			
10	**Part 10: Documentation and Manuals**			
10.1	A complete set of current instrument operation and installation guides and maintenance, data system and software manuals must be included, in English. Printed or electronic formats are acceptable.			Confirm your commitment to the provision of documentation/technical manuals.

11	**Part 11: Warranty**			
11.1	Must provide a minimum 1 year full parts and labour warranty, which begins on the date of acceptance of the system.			Demonstrate your commitment to meeting this warranty requirement.
11.2	Warranty must provide on-site service by certified field service engineers.			
11.3	Warranty period must provide telephone consultation, without charge, for system operations and troubleshooting.			Identify the telephone support available.
11.4	Must be able to provide technical support after the warranty period for minimum 3 years.			Demonstrate your commitment to meeting this warranty requirement.

ANNEX B

BASIS OF PAYMENT

It is **MANDATORY** that Bidders submit firm prices/rates for the period of the proposed Contract for all items listed hereafter. **This section, when completed, will be considered as the Bidder's financial proposal.**

Bidders must provide bids as per unit of issued requested. It is the responsibility of the bidder to provide conversion to the unit of issue requested. Failure to do so will render the bid non-responsive without further consideration.

Should there be an error in the extended pricing it shall be corrected in the evaluation. Any errors in the quantities of the Bidder's proposal shall be changed to reflect the quantities stated in the RFP.

Prices quoted must remain firm for the period of the Contract. Prices MUST include ALL costs associated with providing the work in accordance with the Requirement, Annex A attached herein. GST, if applicable, is to be shown as a separate item on any resulting invoice. Payment will be made in accordance with the following pricing. Pricing must be in Canadian funds

FOB Destination: Canadian Grain Commission
1447-303 Main Street
Winnipeg, Manitoba
R3C 3G8

Item	Description	Qty	Unit of Issue	Unit Price
1	One Rheometer with plates, concentric cylinder, torsion emersion cell, and software in accordance with the mandatory performance specifications detailed in Annex A – Requirement. **Model Number: _____**	1	each	$
2.	**Installation** in accordance with the mandatory performance specifications detailed in Annex A – Requirement. All-inclusive price including materials, travel, accommodations and meals.	1	each	$

3.	**Training** in accordance with the mandatory performance specifications detailed in Annex A – Requirement. All-inclusive price including materials, travel, accommodations and meals.	1	each	$
4.	**Delivery charges**, including freight and off-loading charges to Canadian Grain Commission 1519-303 Main Street Winnipeg, Manitoba R3C 3G8	1	each	$

ANNEX C

COMMERCIAL GENERAL LIABILITY INSURANCE

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than $2,000,000 per accident or occurrence and in the annual aggregate.

2. The Commercial General Liability policy must include the following:
    a. Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
    b. Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
    c. Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.
    d. Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
    e. Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
    f. Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
    g. Employees and, if applicable, Volunteers must be included as Additional Insured.
    h. Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)
    i. Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
    j. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
    k. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.