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11 Laurier St./ 11 rue, Laurier

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Gatineau, Québec K1A 0S5

Bid Fax: (819) 997-9776

**SOLICITATION AMENDMENT  
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise  
indicated, all other terms and conditions of the Solicitation  
remain the same.

Ce document est par la présente révisé; sauf indication contraire,  
les modalités de l'invitation demeurent les mêmes.

**Comments - Commentaires**

**Vendor/Firm Name and Address**

Raison sociale et adresse du  
fournisseur/de l'entrepreneur

**Issuing Office - Bureau de distribution**

Scientific, Medical and Photographic Division /  
Division de l'équipement scientifique, des produits  
photographiques et pharmaceutiques  
L'Esplanade Laurier  
140 O'Connor Street,  
East Tower, 7th Floor  
Ottawa  
Ontario  
K1A 0S5

<b>Title - Sujet</b> Simultaneous Thermal Analyzer	
<b>Solicitation No. - N° de l'invitation</b> 23375-220276/A	<b>Amendment No. - N° modif.</b> 002
<b>Client Reference No. - N° de référence du client</b> 23375-220276	<b>Date</b> 2022-06-15
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$\$PV-899-81222	
<b>File No. - N° de dossier</b> pv899.23375-220276	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> Eastern Daylight Saving Time EDT <b>on - le 2022-06-20</b> Heure Avancée de l'Est HAE	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Van Den Hanenberg, Stephen	<b>Buyer Id - Id de l'acheteur</b> pv899
<b>Telephone No. - N° de téléphone</b> (343) 540-8371 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b>	

Instructions: See Herein

Instructions: Voir aux présentes

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

Amendment 002 is raised to reply to questions from the industry and modify the RFP as detailed below.

### **Questions and Answers**

- Q1:** I want to make sure that quoting in USD is okay. I read that it allows USD to be quoted and you will convert to CAD.
- A1:** This is correct. Please review *4.1.2 Financial Evaluation* for all of the details.
- Q2:** How many points of detection are you looking?
- A2:** For the STA, the maximum data acquisition rate should be at least 250 points per Kelvin and at least 500 points per minute.
- Q3:** What gases are you looking to monitor for?
- A3:** The carrier/supply gases are Air, N<sub>2</sub>, H<sub>2</sub>, He, Ar, and CO<sub>2</sub>. Monitoring will be required for CO<sub>2</sub> and the non-diatomic gases evolved from samples which includes low concentrations of CO<sub>2</sub>, CO, H<sub>2</sub>O, some low chain hydrocarbons (e.g., CH<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>4</sub>, C<sub>3</sub>H<sub>8</sub>), and possibly SO<sub>2</sub> and HCl.
- Q4:** What type of communication is required?
- A4:** Communication between the system and our computer must be via a Type A Universal Serial Bus Connection.

### **Modifications to the RFP**

At Annex A of the RFP, delete Mandatory Technical Requirements in it's entirety and replace with the following:

Item #	Mandatory Technical Requirements
<b><u>1.0</u></b>	<b><u>STA Instrument</u></b>
1.1	The STA Instrument must include sample loading that must be a top-loading (vertical) design to support the natural convective gas path and minimize condensation problems caused by evolved gases at elevated temperatures.
1.2	The STA Instrument must be equipped with a high temperature furnace with a controllable temperature range of ambient to 1000 °C with a precision of +/- 0.1 °C. The high temperature furnace must provide heating and cooling ramps over the entire temperature range.
1.3	The STA Instrument must be equipped with a high-resolution balance (digital resolution ≤ 0.1 µg) with high stability (≤ 0.1 µg or +/- 0.001%) over the temperature range of ambient to 1000 °C.
1.4	The STA Instrument must have low isothermal and dynamic (gas buoyancy effect) drifts of < 10 µg/h for the temperature range of ambient to 1000 °C.
1.5	The STA Instrument must purge the balance chamber with a protective gas.

Contract No. - N° de l'invitation  
23375-220276/A  
Client Ref. No. - N° de réf. du client  
23375-220276

Amd. No. - N° de la modif.  
002  
File No. - N° du dossier  
pv899.23375-220276

Buyer ID - Id de l'acheteur  
pv899  
CCC No./N° CCC - FMS No./N° VME

1.6	The STA Instrument must have two gas inlets for the sample compartment.
1.7	The STA Instrument must control of gas flow for the 3 gas inlets (1 protective + 2 purge gases) of up to 250 mL/min with a resolution of 1 mL/min with N <sub>2</sub> .
1.8	The STA Instrument must include gas delivery and switch reactive gases under a programmed sequence.
1.9	The STA Instrument's balance chamber must be vacuum-tight with a pressure of 10 <sup>-2</sup> mbar or better.
1.10	The STA Instrument must have a vortex cooler and a connection for a compressed air supply.
1.11	The STA Instrument must have a sample carrier that holds up to 35 g and the sample carrier must include one sample crucible for TGA tests.
1.12	The STA Instrument must have a dual sample carrier with a radiation shield for TGA-DSC measurements and two crucibles with capacities of up to 50 mg.
1.13	The STA Instrument must resist corrosive damage from reactive atmospheres, including both oxidizing and reducing gas and corrosive gases including but not limited to O <sub>2</sub> , SO <sub>x</sub> , NO <sub>x</sub> , HCl, CO <sub>2</sub> , CO, and H <sub>2</sub> .
1.14	The STA Instrument must perform single TGA, single DSC, simultaneous TGA-DTA, and TGA-DSC measurements.
1.15	The STA Instrument's DSC signal must have an enthalpy precision of better than ± 1 %.
1.16	The STA Instrument must provide measurement of specific heat (c <sub>p</sub> ) with a TGA-DSC sensor.
1.17	The STA Instrument must have an integrated display which displays: a) the current temperature; b) the status of the measurement; c) the remaining measurement time; d) gas flow rate for three different gases; and e) the current sample mass.
1.18	The STA Instrument must include data analysis and interpretation software that provides: a) raw data of actual sample weight, sample temperature and flow rates; b) generates derivative profiles and provides transition temperatures; c) peak deconvolution providing percent weight loss and compound evolution rate; d) data on heat flow measurement for calculating enthalpy of reaction; and e) exports of all above data to Microsoft Excel.

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1.19	The STA Instrument must include control and acquisition software that interoperates with a Windows 10 64-bit operating system.
1.20	The carrier and supply gases the STA Instrument must meter include but are not limited to Air, N <sub>2</sub> , H <sub>2</sub> , He, Ar, and CO <sub>2</sub> .
1.21	The STA must have a maximum data acquisition rate of at least 250 points per Kelvin and at least 500 points per minute.
1.22	The STA must provide communication via a Type A Universal Serial Bus Connection.
<b>2.0</b>	<b><u>FTIR Instrument</u></b>
2.1	The FTIR instrument must be connected to the TGA/DSC instrument by at least one heated transfer line. The FTIR Instrument gas sampling flow rate must not disturb the TGA/DSC operation.
2.2.	The FTIR instrument gas sampling and analysis must be simultaneous with the TGA/DSC measurement, including the TGA-DSC-FTIR and TGA-FTIR measurements.
2.3	The FTIR instrument must include control and acquisition software that interoperates with a Windows 10 64-bit operating system.
2.4	The FTIR instrument must provide both qualitative and quantitative measurements of gas composition.
2.5	The carrier and supply gases the FTIR Instrument must monitor include but are not limited to H <sub>2</sub> O, CO, and CO <sub>2</sub> .
2.6	The FTIR must provide communication via a Type A Universal Serial Bus Connection.

**ALL OTHER TERMS AND CONDITIONS OF THE SOLICITATION  
REMAIN THE SAME**