

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>				1. CONTRACT ID CODE *****	PAGE OF PAGES 1   2																								
2. AMENDMENT/MODIFICATION NO. 0001		3. EFFECTIVE DATE 04 SEP 22	4. REQUISITION/PURCHASE REQ. NO. 62200 /42105675		5. PROJECT NO. (If applicable)																								
6. ISSUED BY NSWC CARDEROCK DIVISION 5001 S. BROAD STREET, CODE 3353 PHILADELPHIA PA 19112-1403 BUYER/SYMBOL: S. THOMPSON		CODE N65540	7. ADMINISTERED BY (If other than item 6)		CODE																								
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)			(X)	9A. AMENDMENT OF SOLICITATION NO. N65540 04 Q 0564																									
			X	9B. DATED (SEE ITEM 11) 04 SEP 13																									
				10A. MODIFICATION OF CONTRACT/ORDER NO.																									
CODE				10B. DATED (SEE ITEM 13)																									
FACILITY CODE																													
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>																													
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended.																													
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods. (a) By completing items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of the amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.																													
12. ACCOUNTING AND APPROPRIATION DATA (If required)																													
<b>13. THIS ITEM APPLIES ONLY TO MODIFICATION OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>																													
<input checked="" type="checkbox"/> A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.																													
<input type="checkbox"/> B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103 (b).																													
<input type="checkbox"/> C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:																													
<input type="checkbox"/> D. OTHER (Specify type of modification and authority)																													
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.																													
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)																													
1. THE SCHEDULE SHOWN IN BLOCK 11 ON PAGE 1 OF THIS REQUEST FOR QUOTATION (RFQ) IS CHANGED TO READ AS FOLLOWS:																													
<table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">ITEM</th> <th style="text-align: left;">DESCRIPTION</th> <th style="text-align: left;">QTY</th> <th style="text-align: left;">UNIT</th> <th style="text-align: left;">PRICE</th> <th style="text-align: left;">AMOUNT</th> </tr> </thead> <tbody> <tr> <td>0001</td> <td>FTIR SPECTROMETER SYSTEM LESS IR MICROSCOPE</td> <td>1</td> <td>EA</td> <td></td> <td></td> </tr> <tr> <td>0002</td> <td>IR MICROSCOPE</td> <td>1</td> <td>EA</td> <td></td> <td></td> </tr> <tr> <td>0003</td> <td>INSTALLATION SERVICES FOR ITEMS 0001 &amp; 0002</td> <td>1</td> <td>LOT</td> <td></td> <td></td> </tr> </tbody> </table>						ITEM	DESCRIPTION	QTY	UNIT	PRICE	AMOUNT	0001	FTIR SPECTROMETER SYSTEM LESS IR MICROSCOPE	1	EA			0002	IR MICROSCOPE	1	EA			0003	INSTALLATION SERVICES FOR ITEMS 0001 & 0002	1	LOT		
ITEM	DESCRIPTION	QTY	UNIT	PRICE	AMOUNT																								
0001	FTIR SPECTROMETER SYSTEM LESS IR MICROSCOPE	1	EA																										
0002	IR MICROSCOPE	1	EA																										
0003	INSTALLATION SERVICES FOR ITEMS 0001 & 0002	1	LOT																										
2. THE ARTICLES TO BE FURNISHED SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE FTIR SPECTROMETER/IR MICROSCOPE SYSTEM SPECIFICATIONS																													
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, asheretofore changed, remains unchanged and in full force and effect.																													
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)																										
			C. GUERRA, CONTRACTING OFFICER																										
15B. CONTRACTOR/OFFEROR		15C. DATE SIGNED	16B. UNITED STATES OF AMERICA		16C. DATE SIGNED																								
(Signature of person authorized to sign)			BY _____		(Signature of Contracting Officer)																								

CONTINUATION SHEET

DOC. NO. N65540-04-Q-0564 ORDER CALL 00000001

PAGE NO. 002 OF 2

VENDOR:

DESCRIPTION OF AMENDMENT/MODIFICATION

PROVIDED AS ATTACHMENT 1 TO THIS AMENDMENT.

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3. THE DELIVERY SCHEDULE SHOWN ON PAGE 2 OF THIS RFQ IS CHANGED TO READ AS  
FOLLOWS:

ITEMS 0001 & 0002 - WITHIN 60 DAYS AFTER DATE OF ORDER

ITEM 0003 - WITHIN 75 DAYS AFTER DATE OF ORDER  
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4. THE DUE DATE FOR THE RECEIPT OF QUOTATIONS IS EXTENDED TO 1:00 PM ON  
MONDAY, 27 SEPTEMBER 2004.

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ATTACHMENT 1 - FTIR SPECTROMETER/IR MICROSCOPE SYSTEM SPECIFICATIONS (2 PAGES)

## FTIR Spectrometer / IR Microscope System Specifications

The **Fourier Transform Infrared (FTIR) Spectrometer / Infrared (IR) Microscope System** will be used to identify organic compounds in various samples, including elastomers, single fibers, and layers of paint.

The FTIR Spectrometer / IR Microscope system shall consist of the following:

- FTIR Spectrometer
- IR Microscope
- Standard IBM compatible PC computer
- Single bounce Horizontal Attenuated Total Reflectance (HATR) accessory
- Air Dryer System
- Installation
- Training
- 1 year warranty

The FTIR Spectrometer and all other system components except for the IR Microscope will be covered by Item 0001.

The IR Microscope will be covered by Item 0002.

The installation services shall be covered under Item 0003.

### 0001 FTIR Spectrometer

#### I. General System Description

The Fourier Transform Infrared Spectrometer must be high performance, optically flexible, rugged and user serviceable. The instrument is to be operated using vendor supplied software on a standard IBM compatible PC computer (to be included). The software must operate under Microsoft Windows 2000, or Windows XP. The instrument must incorporate a modular system design and be fully upgradeable to accommodate potential future applications in near- and far-infrared spectroscopy. The instrument must be upgradeable to accommodate a GC-IR interface, a TGA-IR interface, and/or an FT-Raman Accessory or an infrared microscope. The system must also be field upgradeable to do step scanning and other dual channel measurements.

1. The system shall be a benchtop FTIR spectrometer requiring no external utilities other than 120/220 VAC power.
2. The system shall be sealed and desiccated to protect the hygroscopic internal optics (including the beamsplitter and detector window) from moisture.
3. The spectrometer shall be operated using vendor-supplied software on a standard IBM compatible Pentium PC computer or a laptop computer, connected through an USB 2.0 interface. All data processing functions are to be performed using the PC computer.
4. Must include Single bounce Horizontal Attenuated Total Reflectance (HATR) accessory that allows flat or trough crystal plate and to include zinc-selenide (ZnSe) and a germanium (Ge) flat plate crystal. Must handle small sample sizes down to 2 mm.
5. Air dryer system capable of providing a continuous supply of carbon-dioxide free purified purge gas at less than -73 degrees Celsius dew point.

#### II. Performance Specifications

1. Resolution: The standard resolution of the spectrometer shall be better than  $0.50 \text{ cm}^{-1}$  apodized (Triangular or Happ-Genzel) measured full width at half height (FWHH) using a gas sample of CO at 4 torr pressure.
2. Spectral Range: The standard mid-infrared spectral range must be  $7400 - 350 \text{ cm}^{-1}$ .

## FTIR Spectrometer / IR Microscope System Specifications

3. Signal-to-Noise Ratio: The spectrometer shall be capable of achieving a signal-to-noise ratio of better than 45,000:1 peak-to-peak in a one minute measurement time at  $4\text{ cm}^{-1}$  resolution with triangular apodization using a KBr beamsplitter and TGS detector.
4. ASTM Linearity: The spectrometer shall provide less than 0.07% deviation from 0.0%T (100%-0% scaling) for the optically thick peaks in 3 mil thick polystyrene when measured at  $4\text{ cm}^{-1}$  resolution.

### III. System Software

1. The software must be fully compatible with Microsoft Windows 2000 and/or Windows XP. True multitasking in which searching, plotting, word processing, data collection etc., can be performed simultaneously is required. The software must support dynamic data exchange of infrared spectra through Windows cut, copy and paste. The Windows undo function must also be present. Systems operating under OS/2 or proprietary operating systems are not acceptable.
2. A real time display of a fully ratioed spectrum, single beam curve or interferogram at full resolution is required during data collection.

### IV. Warranty

1. The system must be warranted for one year from the date of installation.

## 0002 Infrared (IR) Microscope

### I. General System Description

1. The infrared microscope must be designed for a multi-user environment and maximum versatility. Therefore, the microscope must have the capability of visual viewing and infrared collection simultaneously. The visual image must be live and in real-time.
2. The system must be supplied with a trinocular viewer. In addition, the system must be supplied with a color video camera, video capture board, associated optics, and cables. This video capture board must reside in the PC and allow a real-time display of a video image on the PC screen. Software must be supplied that allows annotation, measuring, storing and printing of the video image. Also, the software must allow control of the aperture sizing and rotation.
3. The system must be able to utilize the ATR objective for use exclusively on the infrared microscope. In addition, an applied force feedback device must be supplied when the ATR option is selected.
4. The microscope must be outfitted with a 0.25mm MCT detector. A hold time of up to 18 hours without icing is required. The minimum spectral range of this detector must be to  $600\text{ cm}^{-1}$ .

## 0003 FTIR Spectrometer / IR Microscope Installation Services

1. Installation must be performed by factory trained service personnel. The contractor will install the FTIR Spectrometer / IR Microscope System in a workmanship fashion. Entire system must be installed within 40 days of contract award. Any damage to adjacent areas of the work site or building will be restored to existing condition at the contractor's expense. Work hours will be between 8 am and 5 pm, Monday through Friday (excluding holidays). All workers on the job will require proof of U.S. citizenship and will be required to obtain a valid pass for the duration of the contract. All work practices will be in accordance with applicable occupational health and safety regulations. Security regulations at PNBC will be enforced.