

**INSTRUCTIONAL EQUIPMENT REQUEST**  
**2017-2018**

**RECEIVED**

NOV 8 2017

STEMPS Division  
Las Positas College

Internal Use  
IE #: FALL-30  
Total \$: 22,450.79

Requester Name: Michael Ansell Division Name: MSEPS

**SECTION 1: SUMMARY INFORMATION**

**Brief Title of the Request:**

Updated/Replacement Fourier Transform Infrared Spectrometer (FT-IR)

Equipment Location Building: L1800 Room: 1806

**Location Comments:**

Room 1806 is the Chemistry Instrumentation room and already houses many instruments including the older instrument that will be replaced with this instrument.

11/16/17  
sam

## **SECTION 2: EQUIPMENT DESCRIPTION**

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The equipment is:    A Replacement    An Upgrade    New Equipment/Technology

**Describe the specific equipment requested and how it will be used to replace, upgrade or provide new technology to LPC from what is currently in place:**

The Thermo Scientific Nicolet IS-5 Infrared Spectrometer is an instrument commonly used to analyze hydrocarbons as found in Organic Chemistry and Environmental Analysis. It can quickly be used to determine whether a sample is an alcohol, an ester, an alkene, or a carboxylic acid, for example. You can determine the products of reactions or the types of molecules that can be found in solutions. Only a drop of sample is needed and the instrument is rugged and easy to maintain. This is one of the key techniques in Organic Chemistry and a critical part of the curriculum that prepares students for careers in chemistry or related fields. The instrument is similar to the FTIR purchased a decade ago, but is smaller, better designed, and has much more powerful software to identify and analyze products.

This instrument is designed to easily measure samples by reflectance, transmission, KBr pellet, or even gaseous samples. All of these techniques are important for students to learn.

**SECTION 2: EQUIPMENT DESCRIPTION (contd)**

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**If applicable, describe the legal requirement, mandate, or safety concern for purchase of this equipment, making specific reference to the legal requirement or regulation:**

N/A

### SECTION 3: LPC MISSION STATEMENT AND LPC PLANNING PRIORITIES

#### LPC MISSION STATEMENT:

LPC is an inclusive learning-centered institution providing educational opportunities and support for completion of students' transfer, degree, basic skills, career-technical, and retraining goals.

#### LPC PLANNING PRIORITIES:

- ❖ **Accreditation:** Establish regular and ongoing processes to implement best practices to meet ACCJC standards.
- ❖ **Curriculum:** Provide necessary institutional support for curriculum development and maintenance.
- ❖ **Tutoring Services:** Expand tutoring services to meet demand and support student success in Basic Skills, CTE, and Transfer courses.
- ❖ **Professional Development:** Coordinate available resources to address current and future professional development needs of faculty, classified professionals, and administrators in support of educational master plan goals.

#### **Specify how the equipment supports *LPC's Mission Statement and Planning Priorities:***

The equipment being requested supports both the mission of the College and the Program to provide educational opportunities and academic support to transfer students. Students taking Organic Chemistry are transfer students majoring in Biology, Chemistry, some Engineering fields, or pre-med/dental. The equipment will have substantial impact on the program curriculum for students because:

- 1) Organic Chemistry is required for all biology and chemistry majors and some engineering majors. This course is a requirement for the proposed transfer model curriculum for Chemistry. The course outlines for 12A/12B which are used for course articulation and C-ID approval list a minimum of 16 laboratory techniques that students should learn how to do and be able to apply in these courses. The equipment being requested is required for these experiments. Having this equipment will ensure that students learn these techniques to fulfill the articulated learning outcomes
- 2) The additional and replacement equipment will allow us to sustain three sections of Organic Chemistry. This has always been a high-demand course, especially now that all universities are accepting them for transfer. Chabot College, our sister campus, purchased the identical FTIR during the same IER cycle a decade ago. Our instrument is still working, but theirs failed more than two years ago. They have two instruments, so they were able to serve students for the year with a single FTIR. We only have the one instrument and we are concerned that if it fails, we will not be able to teach this valuable technique while waiting for the year-long approval process.
- 3) The instrument also prepares students for entry level CTE technician positions such as analytical labs and environmental analysis that all use FTIR technology for analysis.

## **SECTION 4: EDUCATIONAL ITEMS – PROGRAM REVIEW**

### **Specify the educational programs this equipment supports:**

The equipment will have substantial impact on the Chemistry program curriculum for students because:

1) Many students taking Organic Chemistry are transfer students majoring in Biology, Chemistry, some Engineering fields, or pre-med/dental. The Organic Chemistry series (12A/12B) is required for all biology and chemistry majors and some engineering majors. This chemistry course series also fulfills degree requirements for both the AS-Chemistry and the AA-Chemistry Education degrees at LPC. The course outlines for 12A/12B which are used for course articulation and C-ID approval list a minimum of 16 laboratory techniques that students should learn how to do and be able to apply in these courses. The equipment being requested is required for these experiments. Having this equipment will ensure that students learn these techniques to fulfill the articulated learning objectives.

2) Purchasing an upgraded/replacement FTIR will ensure that students receive a quality of training and lab skills acquisition required by transfer institutions. This will allow Organic Chemistry students to continue to hone their abilities to work independently and assume full responsibility for their equipment. These are minimum requirements for laboratory scientists.

3) The upgraded/replacement equipment will allow us to sustain three sections of Organic Chemistry. This has always been a high-demand course, especially now that more universities are accepting them for transfer. The demand for these courses will only increase when the TMC for chemistry is finally approved.

### **If this equipment is included in your Program Review, please include the exact wording. If equipment is not included, explain why:**

#### Section One, Part B:

Supplies and equipment: More students in the program means more chemicals used, more glassware and other equipment needed, and higher frequency of use of instruments. With the 10% increase from last year in the number of sections offered and the addition of third sections of 12A and 12B, the Program has increased need for:

- Supplies budget to cover increase use of chemicals and glassware. In particular, the third section of the 12AB series requires special chemicals, locker equipment, and increased equipment maintenance and repair funding for instrumentation.

#### Section One, Part E:

Lack of funding for supplies and equipment

- We still lack funding to fully equip the third section of the Organic Chemistry.

#### Section One, Part F:

In 2017 – 2018, we plan to:...

- Request funding for Organic Chemistry additional locker equipment, kits, and glassware for the third section.

## SECTION 5: TEACHING AND LEARNING

### Describe in detail the impact this equipment will have on teaching:

We are requesting funding for standard laboratory equipment that fall under the definition: “‘Instructional’ shall mean equipment purchased for instructional activities involving...hands-on experience to enhance student learning and skills development.”

#### Impact on teaching:

As mentioned above, our course outline mandates a minimum of 16 laboratory techniques that students need to learn in the laboratory. The FTIR being requested is the minimum necessary to teach students these techniques through various lab experiments. Failing or outdated equipment is an impediment to teaching because time is wasted on fixing, replacing, or substituting items or not running the experiment at all.

Many of the Organic Lab activities rely directly on the FTIR. One example a lab where students perform a bromination of toluene. This is an example of an important family of reactions called Electrophilic Aromatic Substitution. We spend a significant amount of time discussing the theory of these reactions, but it is only by actively performing the reaction in lab and then analyzing the results with FTIR can the concept really come to life. No other instrument can reveal the results of these reactions like Infrared Spectroscopy.

### Describe in detail the impact this equipment will have on learning:

#### Impact on learning:

Chemistry is a hands-on subject. As stated above, the learning objectives stated in the course outline will not be met if there is not sufficient equipment to conduct the experiments to learn these techniques. Not having an FTIR will limit the types of labs that students can do in the lab. If students do not have the right equipment, they will be unable to prepare samples for analysis or synthesize molecules which affects their ability to use other instrumentation such as the NMR, GC-MS, GC, polarimeter, melting point apparatus for meaningful analysis. Most if not all of these students are studying to become scientists and work in labs. Taking responsibility for the care and maintenance of their own equipment to ensure procedural safety and accuracy is an important skill that they learn in these labs. See also responses in the SLO section.

Each academic year, this equipment will impact: <sup>6</sup> \_\_\_\_ # of classes/sections <sup>132</sup> \_\_\_\_ # of students

## **SECTION 6: OUTCOMES (SLOs)**

**Using your documented SLOs, specify how the equipment will enable student learning outcomes to be achieved.**

Chemistry is best learned and remembered by doing. The laboratory equipment being requested here will enable achievement of SLO's because our labs are designed for students to:

- 1) learn general experimental methods and techniques,
- 2) improve their analytical skills,
- 3) relate actual observations and experimental conclusions through the various activities that reinforce and enhance the learning of conceptual material.
- 4) work independently

Laboratory activities are directly tied to the Chem 12A/12B SLO's:

SLO outcomes for the 12A course require that students be able to predict products of an SN2 reaction. The learning of this concept is reinforced when they actually conduct and observe the reaction in the laboratory.

The SLO for the 12B is assessed using the American Chemical Society National Exam where students are asked various questions regarding laboratory techniques in synthesis, characterization, and analysis of compounds.

The equipment requested is the minimum required to fulfill these SLO's and those prescribed by the course outlines. It is also required for the program to fulfill its mission of supporting transfer students.

The 12A and 12B course SLO's also help students achieve the Program Learning Outcomes for both the AS-Chemistry and AA-Chemistry Education degrees as stated in the catalog: Students completing this degree should be able to demonstrate proficiency in solving complex problems in and conceptual understanding of Organic Chemistry as measured by the ACS Full-Year Organic Chemistry Exam.

### **What are the consequences related to learning outcomes if request is not funded?**

The equipment requested is the minimum required to fulfill these SLO's and those prescribed by the course outlines. Without this equipment:

- 1) We will not be able to sustain offering three sections of Chemistry 12A and 12B which reduces access for this high demand course for transfer students. Not being able to take these courses has delayed by at least a year the transfer process for some students in the past.
- 2) The quality of learning may go down if students do not have the necessary equipment to focus on learning in the lab. Students will have to share equipment which will affect the number of experiments conducted and techniques learned. In many occasions, individual students work on the same organic compound sample over a period of weeks requiring individual equipment.
- 3) Organic Chemistry is where the ability to work independently is reinforced and further developed. It is therefore imperative that every student has a chance for hands-on experience operating the equipment. Students directly use their knowledge of FTIR after transfer, in internships at national labs, in research positions, and in industry.

## **SECTION 7: TOTAL COST OF OWNERSHIP (FINANCIAL & SUSTAINABILITY)**

### **What is the potential life span of the requested equipment?**

The Infrared Spectrometer (FTIR), if used and maintained with care, can potentially last 10-20 years. We are concerned that the instrument at Chabot failed, but we are optimistic that we can take care of these instruments and that they can last much longer than they did at our sister college. Their long life span means that they don't need to be replaced often which saves resources. Students, instructors and lab technicians are instructed on how to take responsibility for the maintenance and care of equipment after every use.

### **If new storage is needed what are the storage requirements, location requirements, and costs associated with the new equipment: (NOTE: Specific storage costs should be detailed in the "Part A: Initial Start-up Costs" section below.)**

There is already space available for this instrument in room 1806. No additional storage will be necessary. The only costs will be to connect the instrument to the existing printer and operate the instrument with electricity. The amount of electricity needed is roughly comparable to two computer workstations.

### **If this equipment replaces old equipment but the old equipment will not be retired, are there on-going storage requirements, location requirements, and costs associated with the old equipment? If so, provide details.**

The instrument replaces an older FTIR, but we will continue to use the older FTIR as long as it is operational. There is currently room for both instruments. The new instrument has a smaller footprint and will save us space in the long run. The new instrument is actually small enough to be stored in a cabinet or transported to another lab if necessary. This is one of the many upgraded features of the new instrument.



**What will be required to maintain the equipment, such as regular servicing or upkeep? (Specific on-going costs should be detailed in the “Part B: On-Going Annual Operating Costs” sections below as applicable.)**

The FTIR has minimal maintenance requirements. The previous instrument only needed replacement of the laser after about 7-8 years. The new instrument has a more durable solid state laser that has a 10 year warranty included. We might have to change the dessicator at some point, but the instrument is sealed, designed for more humid environments than Livermore, and the old instrument has gone more than 10 years without needing new dessicant. Otherwise, only dusting and routine cleaning are required.

**Explain how this equipment meets or exceeds basic sustainability efforts and/or provides renewable resources to the college:**

Their long life span means that the FTIR instruments don't need to be replaced often which saves resources. The FTIR instrument being requested allows us to run experiments at the microscale level reducing the amount of chemicals used and waste generated. Microscale in this case means a drop of liquid or a speck of solid. This fulfills one of the 12 principles of green chemistry.

**Part A: Initial Start-up Costs**

<u>Item</u>	<u>Cost</u>	<u>Comments</u>
Equipment or Materials	\$20,503.00	includes optional sample holder (\$130)
Taxes (9.5%)	1947.79	
Shipping or Delivery Charge	NA	
Installation Costs *	0	includes delivery
Miscellaneous Costs:	0	
Facilities Modifications	0	
Operator Training	0	
Maintenance & Repair Training	0	
Storage	0	
Other: _____		
Vendor Discount		\$10,000 educational discount included
<b>Grand Total:</b>		\$22,450.78

\*For items requiring installation, requesters are required to check with District Purchasing (Victoria Lamica) regarding District policies.

**Part B: On-Going Annual Operating Costs**

<u>Item</u>	<u>Cost</u>	<u>Comments</u>
Annual Service or Maintenance	0	
Estimated Parts Replacement Per Year	0	
Outside Standardization or Calibration Costs	0	
Storage Costs	0	
New Supply Costs	0	
Miscellaneous Costs:	0	
Maintenance & Repair Labor	0	
Other: <u>possible dessicant replacement</u>	200	
<b>Annual Operating Costs:</b>		200

Indicate the source of funding for on-going annual operating costs:

N/A

**Part C: Incremental Labor Costs**

**OPERATOR:**

Indicate the key operator: Michael Ansell

Is this in their current scope of duties? Yes

Indicate cost to train key operator (include in Initial Start-up Costs above): N/A

Indicate amount of time per month key operator will use equipment: 5-10 hours

**MAINTENANCE & REPAIRS:**

Indicate the person performing maintenance and repairs: Michael Ansell

Is this in their current scope of duties? Yes

Indicate cost to train for maintenance and repairs: 0

Indicate amount of time per month maintenance will be required: 5 minutes of basic cleaning

**APPROVALS**

Funded requesters will be expected to respond to a brief RAC feedback survey by a requested deadline. Requests for computer-related equipment and printers must be reviewed by the LPC IT Department.

Signatures:

Michael Ansell  
Requester

11/8/17  
Date

\_\_\_\_\_  
IT Department (if required)

\_\_\_\_\_  
Date

nan H  
Dean/Manager

11-9-17  
Date

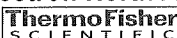
[Signature]  
Vice President

[Signature]  
Date

## Sales Quotation

## Thermo Electron North America

Create Date	Quote No.	Exp. Delivery Time
11/8/2017	0110817LPC-2	3-4weeks ARO
Contact Info		Phone No.
Mark McMahon		408/205-0195
Payment Terms		Valid To
Net 30 Days		12/30/2017
Inco 1	Inco 2	Shipping Method
Origin	PREPAY AND ADD	Vendor's Choice
Submitted To:		

  
 a division of  
 5525 Verona Road  
 Madison WI 53711-4495

To place an order contact: Kerry Hackett  
 Call: 408-965-6208  
 Fax: 412-200-6542  
 email: [kerry.hackett@thermofisher.com](mailto:kerry.hackett@thermofisher.com)

Name: Michael Ansell  
 Company: Los Positas College  
 Address1:  
 Address2: 3000 Campus Hill Drive  
 City St Zip: Livermore, CA  
 Email: [mansell@laspositascollege.edu](mailto:mansell@laspositascollege.edu)  
 Tel: 1 707-695-4664

Please contact :

Mark McMahon  
 Sales Engineer  
 Office: 800-648-5456  
 Cell: 408/205-0195  
 Fax: 408/383-0318  
[mark.mcmahon@thermofisher.com](mailto:mark.mcmahon@thermofisher.com)

All purchase orders must show the vendor name of Thermo Electron North America LLC at the address below:

Thermo Electron North America LLC  
 5225 Verona Road  
 Madison, WI 53711

Additional instructions, terms & conditions on last page

Item	Material No.	Description	Unit Price	Total Price	Quantity
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**NICOLET iS5 FT-IR Mid IR SPECTROMETER with Diamond ATR**

The Thermo Scientific Nicolet iS5 FT-IR spectrometer offers an ideal solution for teaching labs or manufacturing facilities that require essential FT-IR capabilities at an affordable price. It integrates Thermo's high-performance optics into a small, rugged package, offering premium spectral performance in a compact form factor. Set up the iS5 in minutes for fast, dependable operation in virtually any setting. Its tough industrial design and integrated diagnostics provide worry-free operation, even in hot, humid operating environments. Designed for fast chemical identification, verifying product quality, and for general troubleshooting.

The Nicolet iS5 is available with a comprehensive line of plug and play Thermo Scientific iD Family accessories featuring automatic recognition, diagnostic checks, experiment parameter setup and multimedia tutorials. Configured with an iD3 or iD5 ATR sampling accessory, you can count on high-quality spectra in seconds, with little or no sample preparation. The iD Base adapter can be used to adapt many common 3rd party accessories for use with the Nicolet iS5, supporting re-use of existing accessories or specialized cells.

Thermo's award-winning OMNIC software provides an intuitive user interface for collecting, analyzing, and reporting lab results. Helpful step-by-step getting started tutorials assist new users in learning OMNIC, with detailed explanations of more sophisticated data processing features only an F1 keyboard button away.

912A0690

Nicolet iS5 FT-IR, KBr Windows

\$13,350.00

- The Nicolet iS5 spectrometer comes standard with:
- ~ Sealed and Desiccated spectrometer with BaF2- coated KBr Windows
  - ~ Dynamically aligned interferometer for continuous signal optimization
  - ~ Auto-align energy optimization
  - ~ High-Performance - Deuterated Triglycine Sulfate detector
  - ~ KBr / Ge coated beamsplitter (7800-350 cm-1)
  - ~ EverGlo™ mid IR source, externally mounted and user-replaceable
  - ~ Integrated heat and humidity electronic sensors to protect the bench from potential damage due to extreme environments
  - ~ Metal case desiccant canister (regenerable), and color-coded humidity indicator
  - ~ System electronics board with USB2 personal computer communication port
  - ~ 0.8 cm-1 Standard Resolution (variable resolution from 32 to 0.8 cm-1)
  - ~ 1 minute signal to noise of better than 22,000:1
  - ~ Spectral Range 7800-350 cm-1

iD1 Transmission accessory

Included

~ Allows transmission analysis with suitable holders (optional)

- for polymer films, liquid cells, emulsion cells, KBr pellets, gas cells and cuvettes up to 10 cm long. Can be optionally purged.
- ~ System Performance Verification (SPV) to automatically monitor system status including:
- ~ Hardware Diagnostics to ensure key system components are working properly
- ~ Performance Verification, based on ASTM E1421, to test and document system operation
- ~ System Suitability to ensure analysis consistency, including your sampling accessory
- ~ Spectral Quality Checks ensure your sample is collected as you expect
- ~ Scheduled Maintenance monitor warns operator when Preventative Maintenance is due
- ~ Internal 1.5 MIL (38 micron) NIST traceable polystyrene (supplied with certificate)

OMNIC Lite includes these standard features:

Included

- ~ Complete collection of spectral processing and analysis tools
- ~ Easy to set up parameters, live display of data collection, and spectral data preview
- ~ Customizable toolbar, menu, and user options with logins and password protection
- ~ Display capabilities: zoom, roll, stack, overlay, offset and interactive display tools
- ~ Peak analysis tools: peak area, peak height, cursor, annotation
- ~ Data processing: baseline correction (automatic and manual), smooth, blank and straight line, first and second derivative, spectral math, subtract (manual and automatic)
- ~ Data conversion and corrections: Kubelka Munk, Kramers Kronig, Photoacoustic, ATR correction including settings for crystal material, reflections, angle and sample refractive index
- ~ QCheck correlation for QC/QA verification of samples against one or many reference spectra; includes standard correlation and unique high sensitivity compare with pass/fail thresholds
- ~ Spectral Search: high-resolution library generation, customizable information fields, single or multi-region search, library management, with over 600 sample spectra in included libraries
- ~ Infrared spectral interpretation with online interpretation guide
- ~ Spectral peak picking and annotation
- ~ Non-editable audit trail history log
- ~ Direct conversion of JCAMP and other vendors spectral files and user libraries
- ~ Spectral group statistical analysis: variance, average, and range
- ~ Automatic atmospheric suppression to remove H2O and CO2 interferences (no standards needed)
- ~ Full-featured report generator and electronic laboratory notebook
- ~ Extensive on-line help and tutorials
- ~ Quant prediction for PLS, PCR, Beer's Law, CLS, peak ratio, and Discriminant Analysis

833-062700

OMNIC 9 Lite to OMNIC 9 Standard Add-On

\$

799.00

- ~ Additional: Macros Basic 9
- ~ Additional TQ Analyst EZ Edition for OMNIC 9
- ~ OMNIC Spectra Material Characterization -FTIR Standard
- ~ Unique task-based user interface significantly improves identification of unknowns
- ~ Advanced data management capability treats your entire hard drive as a database
- ~ Exclusive Multi-Component and Contaminant Search
- ~ Support for FT-IR and Raman spectral data
- ~ Data collection for Nicolet iS10, iZ10 and 6700 FT-IR Spectrometers
- ~ A total of 9,181 infrared spectra in high resolution format in the OMNIC Spectra General Chemicals collection of hydrocarbons, alcohols, phenols, aldehydes, ketones, esters, anhydrides, lactones, dyes, indicators, alkynes, nitro and azo compounds phosphorous and sulphur containing compounds, inorganic, and silanes

Included

699-120900	<u>iS5 English Language Kit</u>	No charge
840-223300	<u>Power Cord 3-Wire U.S. 120v Plug</u>	No charge
869-172900	<u>iD7 ATR Optical Base for Nicolet iS5</u> ~ Crystal plate not included - must select at least one ~ High pressure tower with two tips plus volatiles cover ~ Automatic accessory recognition ~ Includes a 5-year parts-only warranty ~ Latest OMNIC Service Pack required for existing system installations	\$ 2,280.00
869-168800	<u>AR Diamond Crystal Plate for Smart iTX and iD7 ATR</u> ~ Single Reflection Diamond Crystal Plate - High Throughput ~ Spectral range with KBr/DTGS optics: 7,800 - 400 cm-1 ~ Best overall performance monolithic diamond crystal ~ Includes a 5-year parts-only warranty	\$ 4,150.00
833-037600	<u>OMNIC Spectra Upgrade FT-IR Standard to Complete</u> ~ A total of 10,709 infrared spectra in high resolution format libraries which include: ~ Hummel polymers library (2,011 spectra) ~ Polymers and plasticizers ATR library format (204 spectra) ~ Polymers, additives, and plasticizers library (1,799 spectra) ~ Infrared Spectroscopy of Polymers book, in digital format ~ Georgia State Crime Lab Drug (1,940 spectra) ~ Comprehensive Forensic (4,286) ~ Industrial Coatings (1,961 spectra) ~ White powders and common materials ATR library (469 spectra)	\$ 7,225.00
833-041800	<u>OMNIC 9 Lite Upgrade for Nicolet 380 FTIR Spectrometer</u> ~ Allows use of new OMNIC 9 Features with your old Nicolet 380 FTIR ~ Allows full compatibility with Windows 7, 8 and 10 computers	\$ 1,100.00
0016-213	<u>Universal Sample Holder - 13mm</u> ~ 2 x 3 Slide mount spring-clip holder ~ Ideal for films or transmission windows ~ Optimized for 13mm windows ~ 10mm optical aperture	\$ 130.00
701-676600	<u>iS5 Field Service Installation</u> ~ Unity Lab Services on-site installation of Nicolet iS5	\$ 1,142.00
912A0916	<u>*Dell Optiplex Ci5 Workstation Windows 10 Professional 64-bit</u> Includes: ~ Basic Workstation ~ Dell OptiPlex Mini Tower Chassis ~ Intel Core i5-6600 Processor 3.3GHz ~ 4GB RAM, 2133MHz DDR4 ~ 500GB Hard Drive with 16MB DataBurst Cache ~ Keyboard and Mouse ~ 16X DVD+/-RW, Data Only, ~ Audio Ports: Line-In, Line-Out, ~ Integrated Audio and Internal Speaker ~ Comm Ports: Six External USB 2 Ports, Four External USB 3 Ports, ~ 1 Serial, 2 Display Ports, 1 HDMI ~ 4 Expansion Slots: 1 Full Height PCI, 1 Full Height PCIe x1, 2 Full Height PCIe x16 ~ Chassis intrusion switch ~ RoHS Compliant Lead Free Chassis and Motherboard ~ Dell 3 Year Economy Support Plan	\$ 1,050.00
840-223900	<u>"22" Flat Panel Widescreen Monitor</u> ~ Dell UltraSharp 22" Widescreen Flat Panel Display (or equivalent) ~ Signal Input, DVI and VGA ~ Dell 3 Year Economy Support Plan	\$ 377.00
	<u>Spectrometer Installation</u> ~ Model IS-5 is so simple to install, most customers prefer to do it themselves	Not Included
	<b>NICOLET IS-5 KBr FT-IR SPECTROMETER SYSTEM SUB-TOTAL</b> <i>Includes transmission, Diamond ATR, computer and 20,000+ FTIR Libraries</i>	<b>\$31,603.00</b>
	less Academic Discount CAMPAIGN CODE: 7016000000ZoLw special software upgrade for Los Positas College	(\$10,000.00) (\$1,100.00)

**NICOLET IS-5 KBr FT-IR SPECTROMETER SYSTEM TOTAL**  
NOTE: total does not include taxes or shipping charge

**\$20,503.00**

**STANDARD FTIR SYSTEM WARRANTY**

Nicolet iS5 includes one year of return to Depot warranty coverage.  
The system warranty period is 12 months from the date of installation or  
14 months from the date of shipment, whichever is less. The system also  
includes warranties on the following parts:

Parts Only Warranty applies to: Interferometer (10-year), laser (10-year), source (2-year)

**THERMO ELECTRON NORTH AMERICA LLC TERMS AND CONDITIONS OF SALE**

UNLESS OTHERWISE EXPRESSLY AGREED IN WRITING, ALL SALES ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

- 1. GENERAL.** THERMO ELECTRON NORTH AMERICA LLC ("Seller") hereby offers for sale to the buyer named on the face hereof ("Buyer") the products listed on the face hereof (the "Products") on the express condition that Buyer agrees to accept and be bound by the terms and conditions set forth herein. Any provisions contained in any document issued by Buyer are expressly rejected and if the terms and conditions in this Agreement differ from the terms of Buyer's offer, this document shall be construed as a counter offer and shall not be effective as an acceptance of Buyer's document. Buyer's receipt of Products or Seller's commencement of the services provided hereunder will constitute Buyer's acceptance of this Agreement. This is the complete and exclusive statement of the contract between Seller and Buyer with respect to Buyer's purchase of the Products. No waiver, consent, modification, amendment or change of the terms contained herein shall be binding unless in writing and signed by Seller and Buyer. Seller's failure to object to terms contained in any subsequent communication from Buyer will not be a waiver or modification of the terms set forth herein. All orders are subject to acceptance in writing by an authorized representative of Seller.
- 2. PRICE.** All prices published by Seller or quoted by Seller's representatives may be changed at any time without notice. All prices quoted by Seller or Seller's representatives are valid for thirty (30) days, unless otherwise stated in writing. All prices for the Products will be as specified by Seller or, if no price has been specified or quoted, will be Seller's price in effect at the time of shipment. All prices are subject to adjustment on account of specifications, quantities, raw materials, cost of production, shipment arrangements or other terms or conditions which are not part of Seller's original price quotation.
- 3. TAXES AND OTHER CHARGES.** Prices for the Products exclude all sales, value added and other taxes and duties imposed with respect to the sale, delivery, or use of any Products covered hereby, all of which taxes and duties must be paid by Buyer. If Buyer claims any exemption, Buyer must provide a valid, signed certificate or letter of exemption for each respective jurisdiction.
- 4. TERMS OF PAYMENT.** Seller may invoice Buyer upon shipment for the price and all other charges payable by Buyer in accordance with the terms on the face hereof. If no payment terms are stated on the face hereof, payment shall be not thirty (30) days from the date of invoice. If Buyer fails to pay any amounts when due, Buyer shall pay Seller interest thereon at a periodic rate of one and one-half percent (1.5%) per month (or, if lower, the highest rate permitted by law), together with all costs and expenses (including without limitation reasonable attorneys' fees and disbursements and court costs) incurred by Seller in collecting such overdue amounts or otherwise enforcing Seller's rights hereunder. Seller reserves the right to require from Buyer full or partial payment in advance, or other security that is satisfactory to Seller, at any time that Seller believes in good faith that Buyer's financial condition does not justify the terms of payment specified. All payments shall be made in U.S. Dollars.
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