



**Smart Chemistry Corporation**

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U.S. SMALL BUSINESS ADMINISTRATION  
WASHINGTON, DC 20416

NOV 25 2002

Mr. Jong Pyng Hsu  
President  
Smart Chemistry Corporation  
3401 La Grande Boulevard  
Sacramento, CA. 95823

**REF: SDB Tracking #: WA00001-0010998**  
**Expiration Date – (Three years from date above)**

Dear Mr. Hsu:

We are pleased to inform you that your firm is certified as a Small Disadvantaged Business (SDB) under U.S. Small Business Administration (SBA) guidelines. You are now eligible to participate in the SDB Program. Certification is valid for three years from the date of this letter. Your firm will be added to SBA's list of certified SDBs found in PRO-Net, SBA's on-line registry, at <http://pro-net.sba.gov>.

The SDB Program regulations in Title 13 of the Code of Federal Regulations, Section 124.1016(b), require that during your three-year term you report within 10 days any changes in ownership and control or any other circumstances which could adversely affect the eligibility of your firm as an SDB. Failure to do this could result in the decertification of your firm. Please note also that in order for your firm to continue to participate as an SDB after its three-year term, you must reapply for the SDB Program. I wish you much success in your future business endeavors.

Sincerely,

A handwritten signature in black ink, appearing to read "Josephine F. Stallings", written over a horizontal line.

Josephine F. Stallings  
Assistant Administrator  
Division of Program  
Certification and Eligibility  
Office of Business Development

## Goal of SMART CHEMISTRY Corporation

**The goal of SMART CHEMISTRY Corporation is to provide service of environmental analytical chemistry to meet specific needs of industries and government. For non-routine analysis, SMART CHEMISTRY can set up procedures and instrumentation specifically tailored to client requirement. In the area of contract research and development, SMART CHEMISTRY can perform literature search, invention, pilot study and scale up at the cost plus or fixed price basis.**

## History of SMART CHEMISTRY Corporation

**SMART CHEMISTRY Corporation was formed in November 25, 1998 in Sacramento, CA by Dr. J. P. Hsu, who has more than 18 years of industrial experiences in contract research and development in the area of environmental chemistry. In the past, he worked as a director of Department of Environmental Chemistry for a large not-for-profit research and development organization for last thirteen years. As shown in Appendix I, he has developed many large programs in the areas of**

1. Environmental monitoring and analysis,
2. Air monitoring and analysis,
3. Cleanroom air/water analysis and problem solving,
4. Human exposure to pesticides,
5. Pesticides registration,
6. Pesticides in produce,
7. Mixed waste analysis.

## Personnel and Facility

**SMART CHEMISTRY is located in a 12,000 square feet modern laboratory with the all necessary security and safety equipment (Appendix II). The facility is on a one acre land with fenced parking lot. Currently, SMART CHEMISTRY has three senior chemists and is specialized in the trace analysis of volatile/semivolatile organic compounds and pesticides in various different matrices, especially in air. However, SMART CHEMISTRY is willing to accept any challenge and discuss with clients about their problems or specific needs. SMART CHEMISTRY will then response it with a proposal to describe in detail our approach and associated cost. Upon approval, SMART CHEMISTRY will do its best to reach project goal within the approved budget.**

## Project Experiences

In the past two year, SMART CHEMISTRY Corporation has set up and performed air canister, tedlar bag, charcoal, phenol and pesticides analysis of the contaminants in air for

- URS

This project includes daily analysis of air samples sampled from many treatment plants in McClellan AFB. Most of the air samples were collected in tedlar bag and a few in canisters and analyzed using

1. gas chromatographs with Electrolytic Conductivity Detector (ELCD) and Photo Ionization Detector (PID) (EPA Method 8021B),
2. gas chromatograph/mass spectrometer (EPA Method TO-14/15),
3. gas chromatograph with Flame Ionization Detector.

All the analytical results were reported within 24 hours.

Duration: November 1998 to May, 1999.

- Versar

This project includes the analysis of

- . more than 100 samples of charcoal tubes for volatile organic compounds by carbon disulfide desorption and then GC/FID analysis, and
- . 50 samples of XAD-7 for phenol by methanol desorption and then HPLC analysis.

Both of the charcoal tubes and XAD-7 tubes were used to trap volatile organic compounds and phenol in air, respectively.

Duration: January to February, 1999

- Montgomery Watson

This project includes monthly analysis of air samples sampled from many treatment plants in Mather AFB. All the air samples were collected in canisters and analyzed using TO-14/15.

Duration: December 1998 to January 2001.

- William Environmental

This project includes daily analysis of air canisters sampled from the ambient air surrounding a site under remediation. All the air samples were collected in canisters and analyzed using TO-14/15.

Duration: December 1998 to January 2002.

- IT Corporation (McClelland AFB)

This project includes biweekly analysis of air samples sampled from a treatment plants in McClellan AFB. All the air samples were collected in canisters and analyzed using TO-14/15.

Duration: June 1998 to present

- IT Corporation (Mobile Lab at Guadalupe River)  
This project includes on site mobile laboratory analysis of pesticides and diesel of the soil samples from the sides and bottom of Guadalupe River in San Jose. The project lasted six days with the turnaround time of two hours from sample receipt on site.

Duration: October 12 to 19, 1999

- IT Corporation (Chemical Sale Project)  
This project includes analysis of approximate 40 air canisters from Chemical Sales project in Denver, CO at 24 hour turnaround time. SMART CHEMISTRY did not miss any turnaround during the project performance.

Duration: December 1999 to June 2000

- IT Corporation (Crows Landing, Hunters Point and Treasure Island Projects)  
This project includes analysis of approximate 500 air canisters from Crows Landing, Hunters Point Shipyard and Treasure Island Projects for TO14, gasoline and fixed gaseous analysis of oxygen, carbon monoxide, methane and carbon dioxide. This project includes EDD, Level III and IV deliverables.

Duration: August 2000 to present.

- County of Sacramento 2000 to Present

Canister sampling or analysis of hydrogen sulfide, methyl/ethyl/butyl mercaptans, ammonia, methane, and TO14.

- California Laboratory Service (CLS) 1999 to present

Analysis of hydrogen sulfide or methane/ethane/ethane in water samples.

- Airgas 2000 to present

Analyze trace impurities in zero air and nitrogen.

- Consolidated Freight Way  
Mobile laboratory analysis of volatile organic compounds using a GC/PID.

Duration: December 1998

- Blymer

Mobile laboratory analysis of soil vapor samples for BETX by a GC/MS and methane GC/FID. The soil vapor samples from specific depth after soil boring were collected using syringes.

Duration: October 3, 1999

- Harding Lawson  
Mobile laboratory analysis of soil vapor samples for methane by a GC/FID using a Supelco PLOT column packed with molecular sieve.

Duration: October 20, 1999

- Tourtelot Cleanup Project of Earth Tech  
Assist Onsite Environmental Labs to perform HPLC analysis of polynuclear aromatic hydrocarbons on mobile laboratory for one month.
- Ecology & Environment, Inc. July 2001 to June 2002

Method Verification – verify TO15 methods on TO15 compounds, MIC, MITC, trichloronitromethane, and phosphene at low detection limit of 0.2 ppbv.

Sample Analysis – There are totally four sampling events, in which Smart Chemistry Corporation certifies canisters before sampling to make sure no compounds were detected at 0.1 ppbv and canister leak free. Analyze composite samples at the detection limits of 0.2 ppbv at stringent criteria. EDD and Level IV data package are required. During the performance of the projects, Smart Chemistry Corporation always meets all the analytical criteria and turns in data packages less than two weeks after the last samples received.

- Wangtec Technologies, Inc., May 2001 to present

Assist Wangtec Technologies to evaluate Wangtec Hydrogen transformer for fuel cell. Three different tests have been performed using fuel methanol, natural gas, ethanol, gasoline, and LPG. Smart Chemistry Corporation (SCC) performs exhaust sampling using canister and chemical analyses of exhaust, which includes hydrogen, fixed gases, methane/ethane/ethane, propane/propene, water, methanol and TO14 target compounds plus tentatively identified compounds. SCC also analyzes the data and comes up with a reaction mechanism.

- Dimensional Technology Chemical Systems, July 2002 to present

Develop organic synthesis procedures for many new chemical compounds and expand the usage of Hycat<sup>TM</sup> catalyst developed by DTCS.

- Gascapes, July 2002 to present

Sample and analyze natural gas samples by TO-13 for PCBs and polynuclear aromatics and TO-14/15 for volatile organics. Also perform the sampling and analysis of the exhaust while burning natural gas by TO-13 and TO-14/15.

- Broadbent Associates, Inc. January 2003 to present

Analyze dissolved propane/propene and ethyl mercaptan in water samples and air samples in tedlar bags.

- Stuart Energy Systems, February 2003 to present

Analyze trace contaminants in hydrogen. The trace contaminants include water, nitrogen, oxygen at 5 ppmv detection limit level and total petroleum hydrocarbons, argon, carbon monoxide, carbon dioxide, methane, ethane, ethane, ethyne, hydrogen sulfide, and mercaptans at 1 ppmv detection limit.

## References:

Dr. Bob Louis, EPA, Research Triangle Park, (919)541-3065

Catherine Clarkin, Ecology & Environment, 562-435-6188, ext. 224.

Chris Vail, Focus Environmental, 865-694-7517

# Smart Chemistry Corporation

## ANALYTICAL EQUIPMENT LIST

### Organics

<b>Instrumentation -</b>	<b>Manufacturer/Model</b>	<b>Quantity</b>
Ion Mobility Spectroscopy (IMS)	PCP Phemto Chem 100	1
Gas Chromatograph with Mass Spectrometer	Hewlett Packard 6890 GC with HP 5973 MSD, purchased on Year 1999	1
Gas Chromatograph with Mass Spectrometer	Hewlett Packard 6890 GC with HP 5973 MSD, purchased on Year 2000	1
Gas Chromatograph with PID/ELCD/FID Detector	Hewlett Packard 5890 Series II	1
Gas Chromatograph with Dual ECD Detectors	Varian 3400	4
Gas Chromatograph with Dual FID Detectors	Hewlett Packard 5890 Series II	1
High Pressure Liquid Chromatograph	Waters 440 Absorbance Detector Waters 510 HPLC Pump	1
TurboVap II	Zymark TurboVap II, purchased on Year 2000	1
Purge and Trap Concentrator	OI Analytical 4560	1
Purge and Trap Concentrator	Tekmar LCS 2000	1
Autosampler	Tekmar ALS 2016	1
Autosampler	Entech 7100 Preconcentrator Entech Model 7016CA Canister Autosampler	1
Autosampler	Entech 7100 Preconcentrator Entech Model 7032-L Canister Autosampler	1
Autosampler	OI Analytical DPM 16	1
Autosampler	Hewlett Packard 7673 Injection Tower	2
Autosampler	Tekmar Thermal Trap Conditioner Model 5100	2
Autosampler	Tekmar Trap Autosampler (VOST 8 & 16)	4
Autosampler	CTC A200S	6
Fourier Transform Infrared Analyzer	Perkin Elmer 1600 Series	1



<b>Inorganics</b>		
<b>Instrumentation</b>	<b>Manufacturer/Model</b>	<b>Quantity</b>
Graphite Furnace Atomic Absorption Spectrophotometer	Perkin Elmer 4100ZL	1
Graphite Furnace Atomic Absorption Spectrophotometer	Zeeman 3080	1
Flame Atomic Absorption Spectrophotometer	Perkin Elmer 560	1
TOX	Mitsubishi Model TOX-10	1
<b>High Volume Sampler, Canister, Pressure Gauge and Sample Preparation Equipment:</b>		
<b>Instrumentation</b>	<b>Manufacturer/Model</b>	<b>Quantity</b>
High volume samplers	General Metal Works, Inc.	2
Summa Canisters	Meriter, Restek	100
24 hour Flow Canister Controllers	Meriter	12
24 hour Flow Canister Controllers	Entech	5
Pressure Digital Gauge	Validyne Model PS309	1
Barameter	Princo	1
Centridge	International Centridge	1
Nitrogen Evaporation	Organomation Associate, Inc.	1
Rotary Analytical (Soxhlet) Extractor	Organomation Associate, Inc.	1
Sonicator	Bramon Sonifier Tekmar Sonic Disruptor	2 2
Tissue Homogenizer	Tekmar Tissumizer	1
Furnace	Sybron Thermolyne (up to 1200 <sup>0</sup> C) Lindberg Laboratory Box Furnace	1 1
Water Bath	Tempette TE-80 Water Bath	4
Shaker	Eberback	1

**Computers & Software Equipment:  
Instrumentation**

<b>Instrumentation</b>	<b>Manufacturer/Model</b>	<b>Quantity</b>
GC/MS Operating Software	HP Chemstation w/ 75,000 compound library	2
Personal Computers	Pentium Pro, II & III	7
Printers	HP LaserJet 4	1
	HP LaserJert 4000	2
GC Software	Hewlett-Packard Chemstation	2

## J. P. Hsu (President)

JONG-PYNG HSU, Ph.D.

SMART CHEMISTRY Corporation, (916) 381-6000, (916) 381-1406 (fax),  
jphsu@smartchemistry.com

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### Education:

B.S. in Chemistry, Fu-Jen University, Taiwan, Republic of China, 1973

Ph.D. in Organic Chemistry, Washington University, St. Louis, MO, 1981

### Work History:

President, SMART CHEMISTRY Corporation, Sacramento, CA, Nov. 25, 1998 to Present  
Southwest Research Institute

Manager of Mass Spectrometry, 1985 - 1987

Manager of Organic Analysis, 1987 - 1990

Assistant Director, Department of Environmental Sciences, 1990 - 1991

Director, Department of Analytical & Environmental Chemistry, 1991 - July, 1998

Adjoin Professor, University of Texas at San Antonio, 1992-1996.

Organic Manager, NUS Corporation, Pittsburgh, PA, 1983 - 1985

Organic Analyst, Sverdrup Technology, Tullahoma, TN, 1981 - 1983

### Experience Summary:

Dr. Hsu has significant knowledge and experience in problem solving, technology development, operation set-up and project management.

Dr. Hsu has developed, from few people, both well known Analytical & Environmental Chemistry Department of Southwest Research Institute (SwRI) and full service environmental NUS organic laboratory. This development was fostered through his involvement with research, marketing and sale, project management, personnel hiring and training.

### **In the Area of Problem Solving**

Dr. Hsu has solved thousands of problems from chemical, environmental, soft drink, semiconductor, and food industries through his capability on research. Most of these problems were solved within short time frame. In addition to the environmental research and development described in next subject, he has involved in

- sampling and analysis of clean room air and reagent water, solving the crystal problems on wafer for semiconductor industries,
- the analysis of impurities in pure chemicals for chemical industries,
- reverse engineering, or figuring out unknown compositions,
- finding out the variation of taste in soft drinks,
- developing the procedures for rendering and processing of the EMU oil and scaling up the procedures to a pilot plant.

### **In The Area of Environmental Health**

In 1985, he worked as a project manager on an EPA sponsored program for method development for pesticides in indoor air. This program resulted in a method of collecting and analyzing pesticides and chlordane using a personal sampling pump with a polyurethane plug (PUF) as trapping medium, followed by extraction and GC analyses. The method was initially field tested successfully in a pilot study of five homes in Research Triangle Park and was later used to collect over two thousand indoor air samples for a non-occupational pesticide exposure project in Florida and Massachusetts. In addition, Dr. Hsu supervised the analyses for this program and developed automatic programs for the data processing and reporting. This sampling and analytical method was later published by the EPA as method TO-12. After this program, Dr. Hsu continued the method development for semivolatiles and pesticides in air and house dust. In the mean time, EPA was interested in dermal sampling to determine pesticide exposure of toddlers since their crawling and hand to mouth habits. He invented a PUF roller to sample pesticides from carpet or hard surfaces with a sampling efficiency equivalent to that of the human hand. This tool has been widely used by EPA and the industry for dermal sampling. Since 1988, he was directly, or indirectly involved in HIPES (Toddler/Infant Pesticides Exposure Study), NEFOES (NCI/EPA Farmer Occupational Pesticides Exposure Study), AHS (Agricultural Health Study), and Pesticides Exposure Studies around the U.S. Texas/Arizona and Mexico border and Women Breast Cancer Studies. All of these studies include air and dust sampling and analysis for pesticides.

### **In The Area of Air Analysis**

In 1981, while working for Sverdrup Technology, Dr. Hsu developed Tenax and charcoal tube collection and analytical methods for volatiles in air. From 1983 to 1985, he developed air analyses techniques using Tenax and charcoal tubes in conjunction with automatic thermal desorbers to perform several hundred volatile analyses collected at a superfund site in the Boston area. Additionally, he took a leading role in the method development for collection and analyses of semivolatile organics, pesticides and PCB's in air using polyurethane foam (PUF) plugs.

In 1988, he developed an analytical method for canisters at 1 ppb or less without using a Permapure dryer to remove both water and polar compounds. This method is similar to TO-15 and has been published and was presented at EPA's Third Air Toxics Workgroup Meeting. He was also the first chemist to develop canister cleaning equipment using diffusion pumps and Infrared heating lamps to clean 17 canisters in a batch. He developed a method to prepare a canister standard starting from neat compounds, making it possible to prepare standards for any air project with non-routine target compounds. Since then, more than a thousand canisters per year from

- many EPA superfund sites through EPA Special Analytical Services (SAS),
- the indoor air monitoring in the houses surrounding Kelly Air Force Base in San Antonio,
- Idaho National Engineering Lab, Rocky Flat in Denver, Lockheed Martin (currently called Bactel Jacobs) in Oak Ridge National Lab in TN,
- State of Missouri for ozone precursor compounds,
- environmental engineering firms, such as Jacobs Engineering, URS, Roy F. Weston, Medcaff Eddy, Radian International, etc. and
- many industries, such as clean room air sampling and analysis for semi-conducting industries, have been analyzed under Dr. Hsu supervision.

### **In The Area of Dioxins/Furans**

Dr. Hsu has set up the operation, automatic procedures and marketing strategy for dioxins/furans sampling and GC/high resolution mass spectrum (HRMS) analysis by TO-9, EPA Method 23, 8290 and 1613 for any sample matrices. He also trained personnel from EPA in Taiwan for stack gas sampling, extraction, clean-up and GC/HRMS analysis of dioxins/furans by EPA Method 23.

### **In The Area of Fast Turnaround Multiresidue Produce Pesticide Screen**

Dr. Hsu initiated a 10-years program with a large Texas Grocery Store chain for a multiresidue produce screening of 10 samples daily for approximate 150 pesticides, herbicides and carbamates at a turnaround time of six hours from sample receipt. For any pesticides over EPA tolerance, GC/MS confirmation will be performed within 24 hours. As a program manager, he led a group of chemists to set up the whole operation, which included developing the fast turnaround pesticides extraction and analytical method, setting up instrumentation operation, automating data processing and reporting, and QA/QC within two weeks. After this setup, all the samples received since 1989 (more than 25,000 samples) were reported on time and three papers were published, based on the analytical methods and results.

### **In The Area of Chemical Analysis by Good Laboratory Practice**

As a result of the success of the program of fast turnaround time produce screening, Dr. Hsu led SwRI through proposal effort to become an FDA research contract laboratory in 1994 to develop methods for food analysis, following good laboratory practice (GLP). Through his invention of the PUF roller for dermal exposure sampling, Dr. Hsu convinced a large pesticides manufacturing company to perform sampling and analysis following GLP for their effort on pesticides registration. This project led to many pesticide registration projects for SwRI until present.

### **In The Area of Mixed Waste Analysis**

In 1991, Dr. Hsu guided SwRI into the analytical areas of mixed waste analysis under NRC regulation and DOE NQA-1 quality criteria. In 1993, he set up both radiation and ICP/MS operations for radioactive and ultra-low trace metal analyses. Since then, SwRI became a major DOE mixed waste laboratory and has performed thousands of mixed waste analyses on various matrices by many methods, including non-routine analyses, geophysical measurement of soil properties, trace metals, dioxins/furans, air canister, and other environmental parameters for

- Idaho National Engineering Laboratory through EG&G and LITCO (Lockheed Idaho Technology Company),
- Oak Ridge National Laboratory through Lockheed Martin and Bachtel/Jacob LLP.
- DOE Rocky Flat through EG&G,
- DOE Hanford Site through Bachtel.

### **In The Area of Environmental Analysis**

For environmental analyses of samples from superfund sites, such as EPA contract laboratory programs (CLPs), EPA special analytical service (SAS) and New York State CLPs for the analysis of volatile organics, semivolatile organics and pesticides in Superfund samples, Dr. Hsu set up operation of these programs for both SwRI and NUS. In addition, Dr. Hsu was the project manager for an EPA drinking water program in which volatile organics, pesticides and phenols in drinking water were analyzed by GC/Hall/PID, GC/ECD and GC/MS following EPA drinking water methods. Since 1991 to 96, Dr. Hsu with his department has performed all the environmental analyses for EPA Region VII RECAP (Regional Environmental Collection and Analysis Program). Most of the analyses were non-routine, extremely low detection limit, and difficult matrix. In 1997, Dr. Hsu has led an extensive proposal effort to the continuity of this program - EPA RECAP II.

### **In The Area of Emergency Response**

Dr. Hsu has joined three emergency responses for disasters. In these disasters, he worked with emergency response contractors to work up the sampling/analytical plan and determine target

compounds. He then led a team to perform sampling for air by canister, water, soil, and wipe and environmental analyses with 24 to 48 hours turnaround time. For each case, Dr, Hsu reported all the analytical results on time at the lowest possible detection limits.

### Publications

1. J. P. Hsu. The Mechanistic Study of the Rearrangement of Arylcarbenes in the Gas Phase. Ph.D. Dissertation, Washington University, St. Louis, MO, 1981.
2. D. S. Weinberg and J. P. Hsu. Comparison of Gas Chromatographic and Gas Chromatographic/Mass Spectrometric Techniques for the Analysis of TNT and Related Nitroaromatic Compounds. *J. Of High Resolution Chromatogr. And Chromatogr. Commun.*, **1983**, *6*, 404-418.
3. Peter P. Gaspar, J. P. Hsu, and Sarangan Chari. The Phenylcarbene Rearrangement Revisited. *Tetrahedron* **1985**, *41*(8), 1479-1507.
4. J.P. Hsu, Herbert G. Wheeler, David E. Camann, Herbert J. Schattenberg III, Robert G. Lewis and Andrew E. Bond. Analytical Methods for Detection of Nonoccupational Exposure to Pesticides. *J.of Chromatographic Science* **1988**, *26*(4), 181-189.
5. Rebert G. Lewis, Andrew E. Bond, Donald E. Johnson, and J. P. Hsu. Measurement of Atmospheric Concentrations of Common Household Pesticides: A Pilot Study. *Environmental Monitoring and Assessment*, **1988**, *10*, 59-73.
6. J.P. Hsu, Greg Miller and Victor Moran III. Analytical Method for Determination of Trace Organics in Gas Samples Collected by Canister. *J. of Chromatographic Science* **1991**, *29*(2), 83-88.
7. J. P. Hsu, Herbert J. Schattenberg III, and Martha M. Garza. Fast Turnaround Multiresidue Screen for Pesticides in Produce. *J. Assoc. Off. Anal. Chem.* **1991**, *74*(5), 886-892.
8. Herbert J. Schattenberg III and J. P. Hsu. Pesticides Residue Survey of Produce from 1989 to 1991. *J. Assoc. Off. Anal. Chem.*, **1992**, *75*(5), 1-10.
9. Herbert J. Schattenberg III, Paul W. Geno and J. P. Hsu. Effect of Household Preparation on Levels of Pesticides Residues in Produce. *J. Assoc. Off. Anal. Chem.*, **1996**, *79*(6), 1447-53.
10. J. P. Hsu. High and Low Resolution GC/MS in Environmental Science. *VG Monographs in Mass Spectrometry*, *6*, (1994).

### Patents

1. J.P. Hsu, Dermal Exposure Testing Method and Apparatus Therefor. U.S. Patent 5,243, 865, September 14, 1989.
2. J. P. Hsu, Cigarette Filter Which Removes Carcinogens and Toxic Chemicals. U. S. Patent 6,273,095, August 14, 2001.

### Presentations/Abstracts

1. J. P. Hsu. The Gas Chromatographic/Mass Spectrometric Analysis of Nonextractable, Nonvolatile Trace Organic Compounds in Water. Presented at the Mid-South Chromatography Symposium, Memphis, TN, 1981.
2. J. P. Hsu. Gas Chromatographic/Mass Spectrometric Analysis of Organic Compounds Absorbed on Charcoal Tubes. Presented at 34<sup>th</sup> Annual Southeastern Regional Meeting of the American Chemical Society, Birmingham, AL, November, 1982.
3. J. P. Hsu. Gas Chromatographic/Mass Spectrometric Analysis of Trace Amounts of TNT and Related Compounds. Presented at the 34<sup>th</sup> Annual Southeastern Regional Meeting of the American Chemical Society, Birmingham, AL, November 1982.

# Smart Chemistry Laboratory Diagram

3401 La Grande Blvd, Sacramento, CA 95823, (916)391-3300, (916)391-3440 (fax), [www.smartchemistry.com](http://www.smartchemistry.com)  
Building: 11,737 Square Ft Fenced Parking Lot, Front Yard and Building: 1 Acre

4. J. P. Hsu. Gas Chromatographic/Mass Spectrometric Analysis of Ethylene Glycol and Terephthalic Acid in Water Stream. Presented at 34<sup>th</sup> Annual Southeastern Regional Meeting of the American Chemical Society, Birmingham, AL, November 1982.
5. J. P. Hsu. Using Fused Silica Column as Trapping Device for Semivolatile Organics in Air. Presented at the Pittsburgh Conference, March 1984.
6. J. P. Hsu. Evaluation of Analytical Methods for Measurement of Selected Pesticides in Indoor Environments. Presented at the Pittsburgh Conference, March 1986.
7. J. P. Hsu. Introduction to Organic Analytical Methods of Wastewater, Waste Soil, and Drinking Water. Presented at Union Chemical Laboratories, Industrial Technology Research Institute, Taiwan, Republic of China, December 1987.
8. J. P. Hsu. Non-occupational Pesticides Exposure Study. Presented at Union Chemical Laboratories, Industrial Technology Research Institute, Taiwan, Republic of China, December 1987.
9. J. P. Hsu. Air Sampling Analysis. Presented at Union Chemical Laboratories, Industrial Technology Research Institute, Taiwan, Republic of China, December 1987.
10. J. P. Hsu. The Capillary Column Analysis of Volatile Organics in Drinking Water. Presented at the Pittsburgh Conference, February 1988.
11. J. P. Hsu, H. G. Wheeler, Jr., H. J. Schattenberg III, P. V. Kuhrt, H. J. Harding, and D. E. Camann. Analytical and Sampling Methods of the Non-Occupational Pesticides Exposure Study (NOPES). Presented at the 1988 EPA/APCA Symposium on Measurement of Toxic and Related Air pollutants, Raleigh, NC, May 1988. This paper was published in APCA Publication VIP-10, Pittsburgh, PA, pp 34-41, May 1988.
12. J. P. Hsu and H. G. Wheeler, Jr., LC/MS Analysis of Appendix IX Compounds. Presented at the U. S. Environmental Protection Agency Symposium on Waste Testing and Quality Assurance, July 11-15, 1988, in Washington, D.C.
13. J. P. Hsu, G. P. Miller, and H. J. Schattenberg III. Analytical Method for Determination of Trace Organics in Gas Samples Collected by Canister. Abstracts of Papers, 1989 EPA/AWMA International Symposium on Measurement of Toxic and Related Air Pollutants, May 2, 1989. This paper was published in APCA Publication VIP-13, Pittsburgh, PA, pp. 51-54, May 1989.
14. J. P. Hsu. Analytical Improvements to Methods TO-14 Applicable to the Organic Statement of Work. Presented at the U. S. EPA's Third Air Toxics Workgroup Meeting, Research Triangle Park, NC, February 21, 1990.
15. J. P. Hsu, H. J. Schattenberg III, M. Kyle, M. Garza, S. DeViney, and L. Meeker. Fast Turnaround Multiresidue Produce Pesticide Screen. Presented at the Pittsburgh Conference, New York City, March 5-9, 1990.
16. J. P. Hsu, D. Camann, H. Schattenberg III, B. Wheeler, K. Villalobos, M. Garza, P. Millard, and R. G. Lewis. New Dermal Exposure Sampling Technique. 1990 EPA/Air & Waste Management Association International Symposium on Measurement of Toxic and Related Air Pollutants, Raleigh, NC, April 30-May 4, 1990. This paper was published in AWMA Publication VIP-17, Pittsburgh, PA, pp 489-497, May 1990.
17. J. P. Hsu, Hebert J. Schattenberg III, Michele V. Kyle, Martha M. Garza, and Sam DeViney. Fast Turnaround Multiresidue Screen for Pesticides in Produce. Presented at the 27<sup>th</sup> Annual Pesticide Residue Workshop, St. Petersburg, FL, July 15-18, 1990.
18. J. P. Hsu, JoAnn Boyd, and Sam DeViney. Environmental Analytical Laboratory Set-Up Operation and QA/QC. Presented at the Hazardous Materials Control Research

# Smart Chemistry Laboratory Diagram

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Building: 11,737 Square Ft      Fenced Parking Lot, Front Yard and Building: 1 Acre

Institute/Hazardous Materials Conference-South 1991 Conference and Exhibition, Houston, Texas, April 24-26, 1991.

19. J. P. Hsu, Herbert Schattenberg III, Kevin Villalobos, and Greg P. Miller. Application for Supercritical Fluid Extraction of Pesticides from Polyurethane Foam Plug and House Dust. Presented at the 1991 Environmental Protection Agency/Air & Waste Management Association Symposium, Durham, NC, May 6-10, 1991.
20. J. P. Hsu, Greg Miller, and Victor Moran III. Analytical Method for Determination of Trace Organics in Gas Samples Collected by Canister. 1990 Science, Engineering, and Technology Seminars (SETS) Proceedings, American Association of Chinese Professionals, Houston, Texas, pp T6 8-11, June-July 1990.
21. J. P. Hsu, J. C. Pan, and Greg P. Miller. Supercritical Fluid Extraction of Dioxins/Furans from PUF. Presented at the 7<sup>th</sup> Annual Waste Testing and Quality Assurance Symposium, Washington, D.C., July 11-14, 1991.
22. J. P. Hsu, Herbert Schattenberg III, and Martha M. Garza. Fast Turnaround Multiresidue Screen for Pesticides in Produce. Presented at Microencapsulation as Related to Food Science, San Antonio, Texas, May 30-31, 1991.
23. J. P. Hsu. Analytical Method for Determination of Trace Organics in Gas Samples Collected by Canister. Presented at Modern Engineering and Technology Seminar 1992, Environment Protection Session, Taipei, Taiwan, Republic of China, December 8, 1992.
24. J. P. Hsu. New Dermal Exposure Sampling Technique. Presented at Modern Engineering and Technology Seminar 1992, Environment Protection Session, Taipei, Taiwan, Republic of China, December 8, 1992.
25. J. P. Hsu. Air Canister Analysis by GC/MS and GC/HRMS. VOST Tube Preparation and Analysis. Environmental Laboratory Management and QA/QC. Presented at National Institute of Environmental Analysis, EPA, Republic of China, December 14, 1992.
26. J. P. Hsu. Trace Analysis of PCDD/PCDF by Gas Chromatography/High Resolution Mass Spectrometry. Presented at Environmental Hazardous Material Monitoring Seminar. Taiwan University, Taipei, Republic of China, December 15, 1992.
27. J. P. Hsu. Mass Spectrometry in Environmental Sciences. Department of Chemistry, University of Texas at San Antonio, Texas, April 14, 1993.
28. J. P. Hsu. Mass Spectrometry in Environmental Sciences. 1993 Science, Engineering and Technology Seminars (SETS), American Association of Chinese Professionals, Houston, Texas, May 30, 1993.
29. J. P. Hsu, Greg P. Miller, and J. Pan. Canister Analysis by Gas Chromatography/High Resolution Mass Spectrometer. 9<sup>th</sup> Annual Waste Testing and Quality Assurance Symposium, Arlington, VA, July 12-16, 1993.
30. J. P. Hsu, David Camann, and P. Geno. Sampling and Analytical Methods for House Dust and Dermal Exposure. 10<sup>th</sup> Annual Waste Testing and Quality Assurance Symposium, Arlington, VA, July 11-15, 1994.
31. J. P. Hsu. Air Analysis for Organic Compounds: Volatiles, Semi-Volatiles, Pesticides and Dioxins. Presented at Symposium entitled, "Environmental Air Analysis, Regulations, Sampling, Analysis and Modeling", Duquesne University, December 3, 1994.
32. J. P. Hsu. Total Human Pesticides Exposure, 1995 International Chinese Environmental Protection Conference, February 21, 1995.



## Smart Chemistry Laboratory Diagram

3401 La Grande Blvd, Sacramento, CA 95823, (916)391-3300, (916)391-3440 (fax), [www.smartchemistry.com](http://www.smartchemistry.com)

Building: 11,737 Square Ft

Fenced Parking Lot, Front Yard and Building: 1 Acre

- 33.** J. P. Hsu, Greg Miller, and J. Pan. Air Analysis by Using Gas Chromatography/High Resolution Mass Spectrometry. Presented at the 1995 Air & Waste Management Association International Symposium on Measurement of Toxic and Related Air Pollutants, Durham, NC, May 16-19, 1995.
- 34.** J. P. Hsu and J. Pan. Photolysis of Laboratory Dioxins/Furans Waste. Presented at 11<sup>th</sup> Annual Waste Testing and Quality Assurance Symposium, Washington, DC, July 23-28, 1995.



# Smart Chemistry Laboratory Location

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