



## **Terry Munson**

President and Founder

Foresite, Inc.

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### **Professional Experience:**

1992-Present Foresite, Inc. – Kokomo, IN  
President and Founder

- Created a battery of service offerings including failure analysis, process and material qualifications, and cleanliness assessment and validation for the printed circuit board processing industry
- Company has grown to support 15 full time employees and achieve over \$2.0 million in annual sales
- Has built a clientele base of over 650 companies including Intel, Bayer, NASA and Dell
- Works with a full range of electronics OEMs and small subcontractors including industries such as medical devices, automotive manufacturers, computer manufacturers and consumer electronics manufacturers
- As to the printed circuit board processing industry, specializes in failure analysis working back to the root cause, identifying process sources in root cause, recommending changes to optimize the process and eliminate the root cause, and finally qualifying the new process and putting monitoring parameters in place to avoid future issues
- Primary author of the IPC test method for Ion Chromatography
- Developed and patented the C3 tester for localized residue assessment (patent # 5,783,938 7/98)
- Foresite is ISO 9001:2000 Certified

1988-1992 Delco Electronics (Now Delphi Electronics) – Kokomo, IN  
Director, Corrosion Studies Laboratory

- Developed Ion Chromatography applications for the electronics and wafer fabrication industries.



- Worked as a critical team member to completely eliminate the use of 22 million pounds of CFC materials per year, and created a cost savings of 29 million dollars as a team.
- Worked as a critical team member of the Q1000 cleanliness supplier specification.
- Implemented training courses for all divisions of Delco Electronics for cleanliness standards
- Worked in all manufacturing areas from wafer fab to water soluble hybrids to Engineer Control Modules looking at residue levels and their effects on electronic product performance

1985-1988 Duke Memorial Hospital – Peru, IN  
Second Shift Lab Technician

- Worked in autopsy investigations
- Supported the hospital wards and emergency room for all analytical lab and blood banking needs.

1980-1984 U.S. Military – Air Force  
Military Specialist

- Worked as medical lab technician & EMT
- Also trained in chemical weapons detection, field operations for disaster recovery and pilot reconnaissance

## Training

1989-1990 Delco Electronics (Now Delphi Electronics)

- Attended Delco Electronics Engineering courses I, II, and III in statistical analysis
- Part of FMEA failure analysis research group

1989-Present IPC Trade Association

- Obtained IPC 610 inspector and instructor certification
- Attended all advanced ESD courses
- Participant in solvent replacement manufacturing technology research and educational offerings

1980-1984 U.S. Military – Air Force Reserves and Active Duty

- Trained and certified as a medical lab technician
- Trained in chemical weapons detection



- Trained in field operations for disaster recovery
- Certified EMT
- Trained in pilot reconnaissance

### **Teaching Experience**

- Certified IPC 610 instructor Trainer
- Trained employees and management of companies such as Bayer and Phoenix International in proper cleanliness parameters to put in place for electronics manufacturing
- Hosted the IPC No-Clean Conference in Minneapolis, MN in 1995

### **Conference Presentations**

- IPC APEX Conference – 2004 – Poster presentation on “C3 Localized Cleanliness Tester and Localized Extraction Methods for Usage with Ion Chromatography”
- International Ion Chromatography Symposium (IICS) – 2003 – Poster presentation on “C3 Localized Cleanliness Tester Extraction Techniques”
- International Ion Chromatography Symposium (IICS) – 2003 – Presentation on “Applying Ion Chromatography in the Electronics Industry”
- Presented 3 years in a row at the Nepron International Conference in the mid-nineties

### **Grants & Research Projects**

- 1988 – Developed and Authored IPC TM 650-2.3.28 for Identifying and Quantifying Process Residues Utilizing Ion Chromatography
- 1993 – Army SBIR Funding - \$20,000 – Worked on development of Sequential Electrochemical Reduction Analysis (SERA)
- 1994 – DARPA Funding (division of DOD) – \$1.3 million – Funding for Low Residues Solvent Task Force: Project enacted to prove that no-clean fluxing technologies could be used for military class 3 hardware specifications
- 1996 – EPA Funding - \$1.4 million – Follow up to Low Residues Solvent Task Force project – CCAMTF study to determine alternative surface finishes for bare boards
- 1996 – ARPA Funding - \$2.3 million – Joint project with Georgia Tech University and U.S. military – Study to prove long term reliability of water soluble fluxes in military hardware
- 1997 – Navy SBIR funding - \$25,000 – Studied development of selective conformal coating removal processes



- 1998-1999 – Designed Umpire Board Test Vehicle as a substrate by which to qualify electronics manufacturing processes using SIR testing methodologies
- 1999 – 21<sup>st</sup> Century Funding Grant - \$350,000 – Joint undertaking with Rose Hulman University – Project helped to fund the development of the C3 Localized Cleanliness Tester
- 2004 – KTC (Kokomo Technology Center) – Helping to development non-profit center for high technology companies to perform industry forwarding research

### **Bibliography of Industry Publications**

- 1996 – Present - *Circuits Assembly* – monthly column entitled “Process Rx” – some highlighted columns include:
  - July 2004 – “Is this White Residue a Reliability Risk?”
  - May 2001 – “Incoming Components as a Source of Contamination”
  - June 2001 – “Cleanliness Specifications”
  - March 1997 – “The Crystalline Entity”
  - May 1997 – “Talk About Being Canned”
  - June 1997 – “But I’m Wearing Finger Cots!”
  - February 1997 - “Leakage, Leakage, Leakage”
  - September 1996 – “Garbage In = Garbage Out”
- 2000 – *Future Circuits International* - “The Failure of a Circuit: Reliability Effects of Process Residues”
- 2001 – *Cleanliness Symposium* – “ Correlating Ion Chromatography Results with Electrical Performance Testing”
- 2004 – *Circuitnet* – publishes monthly column entitled “Residues.com” – some highlighted columns include:
  - October 2004 – “Field Performance Problems”
  - September 2004 – “Failure of a Circuit”
- Has published over 150 industry relevant articles since Foresite’s inception

### **Professional Memberships & Offices Held**

- Has been a member of the IPC Association Connecting the Electronics Industry since 1988
  - Current chairman of the Rework Cleaning Task Group for IPC
  - Has held chairman or co-chairman leadership roles in 7 other task groups
  - Is a member of 17 other IPC task groups
- Member of Instruments Systems Association (ISA) since 2001



## Awards

- 1995 – 19<sup>th</sup> Annual Electronics Manufacturing Seminar – Advancing Technology Award
- 1995 – Sandia National Laboratory’s President’s Quality Award
- 1996 – Growth 100 Award – Awarded by Indiana University School of Business’s Center for Entrepreneurship and Innovation (CEI)
- 1996 – EPA Stratospheric Ozone Protection Award to the Low Residues Soldering Task Force in Recognition of Exceptional Contributions to Global Environmental Protection
- 1997 – Indiana Electronics Manufacturing Association’s Certificate of Appreciation for Presentation at the 1997 IEMA Electronics Technology Conference
- 1998 – US Patent 5,783,938 – Patent awarded for Method and Apparatus for the quantitative measurement of the corrosive effect of residues present on the surface of electronic circuit assemblies
- 2000 – Distinguished Committee Service Award for Participation in Drafts of Standards and Test Methods – Awarded by IPC Association Connecting Electronics Industry
- 2001 – IPC President’s Award for Contributions to the Advancement of the Electronics Industry
- 2002 – Distinguished Committee Service Award for Significant Effort in the Release of IPC-TR-583 – Awarded by IPC Association Connecting Electronics Industry
- 2003 – Distinguished Committee Service Award for Participation in IPC SIR Round Robin Test Program – Awarded by IPC Association Connecting Electronics Industry