

## Smith Purdum | Laboratory Manager – Forensic Chemist

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### Professional Summary:

Mr. Purdum's experience focuses on evidence handling, sample preparation and analysis using knowledge of organic, physical, analytical, and forensic Chemistry. As a laboratory manager and forensic Chemist at the chemical and microbiology laboratory in Rocklin, CA, he is responsible for chemical analyses, maintaining intake and operation flow of the laboratory, as well as quality assurance. Mr. Purdum's core activities include fire debris analysis, primarily for ignitable liquid residue as well as compounds prone to spontaneous heating. Analysis of fire debris for ignitable liquids is strictly performed under the ASTM E1618 method and analysis for compounds prone to spontaneous heating is strictly performed under the ASTM E-2881 method. He also routinely utilizes chemical testing including gas chromatography, gas chromatography-mass spectrometry, and Fourier transform infrared-radiation spectroscopy. Mr. Purdum is an educator, with experience instructing in chemical theory, analysis, and safety.

### Areas of Expertise:

- Forensic and Analytical Chemistry specialist
- Fire Debris Analysis for ILR – ASTM E1618
- Processed and analyzed over 10,000 samples for ignitable liquid residue (ILR)
- Fire debris Analysis for Poly-Unsaturated Fatty Acids - ASTM E2881
- Evidence Handling – ASTM E1492
- Educator in Chemical Theory
- American Board of Criminalistics Certified in Fire Debris Analysis

### Licenses and Certifications:

Certified in Fire Debris Analysis, American Board of Criminalistics, 2022

Undergraduate Award in Analytical Chemistry, Department of Chemistry, California Polytechnic University Humboldt, 2018-2017

### Expert Witness History:

Litigation CV available upon request.

### Professional Experience:

EFI Global Incorporated, Chemical Laboratory Manager, Rocklin, CA, 2022 – present

EFI Global Incorporated, Forensic Specialist, Rocklin, CA, 2018 – 2022

California Polytechnic University Humboldt, Supplemental Instructor, Arcata, CA, 2016- 2018

### Education:

Bachelor of Arts, Chemistry, California Polytechnic University Humboldt, Arcata, CA, 2018

Masters, Chemistry, Sacramento State University, Sacramento, CA, 2020 – Present

Graduate Thesis “Chemometric-based machine learning to characterize self-heating polyunsaturated fatty acids in fire debris for forensic identification according to the methodology of ASTM-E2881”

“Advanced Fire Debris Analysis”, University of Central Florida, Orlando, FL, 2022

### Affiliations:

American Standards in Testing Materials (ASTM)  
-Voting member on E30 committee

International Association of Arson Investigators (IAAI)

California Conference of Arson Investigators (CCAI)

-Attended 2019 training conference and passed written exam demonstrating proficiency regarding current updates in GC-MS research techniques, real life burn scenarios and incendiary devices.