



Research Chemist Opportunity

Highlights:

You'll be...

- Joining a dynamic forensics team with many opportunities to grow professionally
- Working with other forensic experts in various fields to support the FBI and TEDAC missions
- Experiencing a unique opportunity to work with the FBI laboratory
- Obtaining some or enhancing your experience working in a fully functional government laboratory working closely with other forensics experts

Typical Day:

Work within the TEDAC Improvised Explosives Detection and Synthesis (TIEDS) Center, an FBI Laboratory Division, Department of Homeland Security (DHS) Science and Technology Directorate, and Transportation Security Administration (TSA) collaborative project created to rapidly assess the hazards and performance characteristics of improvised explosives (IEs), assess the potential lethality of IE-based articles and/or devices, and to define IE parameters in explosives detection technologies.

Tasks:

- Synthesize or otherwise prepare IEs and various mixtures at various scales for utilization in TIEDS programs and projects.
- Provide analytical and range support to the Chemical Facilities Anti-Terrorism Standards (CFATS) program. This effort will include fuel-oxidizer (FOX) mixtures based on powdered metals. This program will require mixing, small-scale safety testing, thermal analyses, physical characterization, and explosive output characterization.
- Purchase and inventory chemicals and laboratory equipment, prepare chemical solutions, maintain glassware, perform basic chemical synthesis of energetic and non-energetic molecules and materials as needed, isolate reaction products, and manage wastes.
- Conduct analyses of samples and extracts using headspace analysis, gas chromatography, liquid chromatography, mass spectrometry, thermal analyses, spectroscopic techniques, and other laboratory instrumentation.
- Assist with the procurement, tracking, and analysis of explosive materials from foreign and domestic sources.
- Support operations at the Department of Homeland Security Detection Technology Center (DTC), by supplying IEs and test articles, assisting with explosives and device handling, and retrieving the articles following detection analysis.
- Generate project plans/procedures, record and analyze test data, write test reports, perform small scale chemical synthesis, conduct process scale up and formulation, perform chemical and physical characterization using advanced instrumentation, run explosives hazard testing, carry out explosives' performance evaluation, and assist with test article and/or IED construction and lethality assessment across scales ranging from mg to kg quantities.
- Assist in course development and act as instructional support to courses conducted by TIEDS.
- Aid in energetic material characterization efforts designed to understand small-scale explosives hazards.
- Possess knowledge of policy and procedures related to hazardous and non-hazardous waste generation as well as waste disposal.
- Update and maintain information in the databases and information repositories both owned by or supported by TIEDS or the FBI.
- Perform both technical and administrative reviews of TIEDS reports, SOPs, Testing Methods, or any other documentation required, verifying accuracy, and compliance with TIEDS standard formatting.



Required Qualifications:

- BS degree in Chemistry, Biology, Physics, or Materials Science. For assisting with synthetic and laboratory operations, at least two (2) full semesters of Organic Chemistry with corresponding labs are required. For assisting with laboratory analysis of explosives at least two (2) semesters of Analytical Chemistry and associated lab courses are required.
- For assisting with explosive performance characterization, a minimum of two (2) semesters of calculus-based physics is required. In lieu of the courses, documented experience performing organic syntheses and/or analytical chemistry and/or explosive performance characterization may be considered.
- Comfortable working with a wide variety of energetic materials to provide support to the TIEDS Synthesis supervisor and other TIEDS scientists with three (3) years of experience in a chemical research environment.
- Must have at least a working knowledge of chemical characterization instrumentation such as, but not limited to: Fourier Transform Infrared spectroscopy (FTIR), Raman spectroscopy, Nuclear Magnetic Resonance spectroscopy (NMR), Liquid Chromatography (LC), Scanning Electron Microscopy (SEM), Gas Chromatography (GC), Mass Spectrometry (MS), Thermogravimetric Analysis (TGA), and Differential Scanning Calorimetry (DSC).
- Knowledge of policy and procedures related to chemical use, waste generation, and waste disposal are essential.
- Willingness to learn about chemical processes necessary to prepare energetic materials and the techniques used to characterize energetic materials and explosive formulations.
- Ability to interpret research findings in terms of the potential impact on the direction of IEs research efforts is desired.
- Competence in describing observations and preparing concise and informative reports based on data collected from the characterization efforts.

Location: Huntsville, AL

Shift: Normal Day Shift

Citizenship: US citizenship required.

Ideal Innovations, Inc. is an Equal Opportunity Employer:

All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, sexual orientation, gender identity, disability, or veteran status.

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