

Industry	Company Size	Need	Available Expertise	Service Provided	Outcome
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Automotive and Transportation	Small	Product characterization/Improvement	Analytical instrumentation and expertise	X-ray diffraction, and scanning electron microscopy studies	A better understanding and ultimately a reformulation of their products
Manufacturing	Small	Product characterization	Numerical modeling and analytical instrumentation	Strength measurements and finite element analysis of carbon fiber composites	A product data sheet for advanced applications
Automotive and Transportation	Small	New market development	Chemistry and Mechanical Engineering experts	Physical, chemical and electrical characterizations	Data supports the feasibility of using the company's proprietary carbon aerogels materials in rechargeable lithium-sulfur batteries
Electronic Materials	Medium	Process improvement	Polymer chemistry experts and instrumentation	Identification of a synthetic replacement for a naturally occurring material	Process improvements
Agriculture & food	Small	Product characterization	Analytical Instrumentation	Characterization of Nanoparticles in Mineral Suspensions	Data collection and analysis of antimicrobial activity
Manufacturing	Medium	New market development	Fiber and polymer science experts	Development and testing of UV absorbing Nano particles on polyethylene fibers	Polymer fibers that change color when exposed to sunlight
Recreation & Sports	Medium	Product optimization	Numerical modeling experts	Finite element analysis of helmet padding was done for impact loadings	A better understanding of their new technology
Healthcare & Medical Devices	Startup	Medical device development and construction	Chemistry and nanomaterials experts	Chemical synthesis of organic dyes and characterization of Nano materials	SBIR award with the Hutchinson Cancer Research Center in Seattle WA
Automotive and Transportation	Small	Product and process improvement	Materials science experts and instrumentation	Physical, chemical and elemental characterizations	Process control improvements
Manufacturing	Small	Product development	Chemistry and fiber science experts	Search for new materials with desired thermal and surface area characteristics	SBIR awarded for further development
Agriculture & food	Medium	Process/recipe improvement	Food Engineers	recipe reformulation and process change recommendations made	500% production increase New national customer and no relocation or costly expansion
Chemical	Small	New market development	Biological imaging experts	Testing of new fluorescent dyes for biomedical imaging	Demonstration of product sensitivity for biomedical imaging
Manufacturing	Small	New market development	Theoretical mechanics experts	Measurement of ultrasonic wave propagation through powdered materials	A detailed theoretical model for predicting product performance

Healthcare & Medical Devices	Small	Product development	Polymer chemistry and mechanical engineering experts	Materials development and testing of rapid curing resins	Printing of tactile letters using commercially available inkjet technology for visually impaired people
Agriculture & food	Small	Health and safety review of a new product	Food Scientists and Mycological experts	Beer brewing mycological testing and evaluation	Confirmation of the health benefits of a new product
Energy harvesting	Startup	Product characterization	Analytical tools and technical interpretation	Physical and electrical characterization of conducting polymer Nano structures	Process control and improvements made
Ceramics	Small	New market development	Thin film processing and analytical tools	Production and characterization of thin metal films	Data collection and analysis
Lighting	Small	Prototype development and construction	Electrical Engineering experts	optimization of the maximum power output of an existing radio frequency amplifier design	20% improvement over the previous design
Agriculture & food	Startup	Product improvement	Polymer chemistry experts and instrumentation	Product testing and evaluation	A water-soluble agricultural ground cover system
Textiles and Paper	Small	Product improvement	Fiber science experts	Preparation and characterization of nanomaterials	Results lead to further product development
Healthcare & Medical Devices	Startup	Product safety improvement	Nano materials expert	Development and testing of UV absorbing Nano particles	UV absorbing paint additive
Manufacturing	Medium/Large	Product improvement	Polymer chemistry experts	Data collection on rheological and tribological properties of various seal materials	Data provided helped identify the optimal seal materials
Imaging/Optics	Small	Product improvement	Electrical and plasma physics experts	Design and testing of a modified radio frequency circuit	A fundamental understanding of product performance
Imaging/Optics	Small	Prototype development and construction	Physics and optics experts	Design and testing of a microscope attachment that analyzes the physical properties of biological tissues	Product sales and a new standard catalog item
Manufacturing	Small	Product improvement	Electrical Engineering experts	Computer simulations and fabrication of high-frequency ultrasonic transducers	A promising prototype transducer design
Manufacturing	Small	Process improvement	Metallurgical and Nano material experts	Characterization of the physical properties of 3D printed materials	Data collection and analysis helped guide process and design improvements
Automotive and Transportation	Small	Prototype development and construction	Fiber scientists	Knitted and woven fiber materials were embedded in self fusing tapes	A new roll-to-roll production process
Automotive and Transportation	Small	Product improvement	Mechanical and Computer engineering experts	Computer simulations and software development	Custom software code to predict fatigue damage

Electronic Materials	Small	QA/QC product characterization	Polymer chemistry experts and instrumentation	Characterization of polymer coated nanoparticles	Identification of additional processing steps lead to improved product quality
Electronics	Small	QA/QC improvements	Analytical instrumentation	Polymer material characterization	Purchase of new inspection tools
Battery	Startup	Product development and scale up	Chemical and electrical experts	Assembled and performance testing of battery materials	Demonstration of full size pouch style battery cells resulted in venture capital funding
Energy harvesting	Startup	Prototype development and construction	Mechanical and aerodynamic expertise	Computational Fluid modeling on a novel vertical wind turbine design	Optimum operating conditions and airfoil design
Energy harvesting	Startup	Prototype development and construction	Thin film processing and analytical tools	Production and characterization of Aluminum Nitride piezoelectric thin films	A process recipe for producing of low-stress piezoelectric thin films
Energy Storage	Startup	Product validation	Chemical and electrical experts	Electrical measurement of charge/discharge characteristics of a hybrid Ultracapacitor	Demonstration of a new hybrid Ultracapacitor
Lighting	Startup	Prototype development and construction	Organic chemistry experts	Chemical synthesis and characterization of several molecular glass molecules	Two US Patent applications and a working OLED device
Battery	Small	product development	Polymer chemistry experts and instrumentation	Synthesis and characterization of thin polymer membranes on fixed electrodes	Data collection and analysis
Healthcare & Medical Devices	Startup	Product validation	Veterinary resources and supplies	Whole canine blood was used as a reference standard for coagulation measurements	Measurements of whole blood coagulation in tiny volumes
Mining	Startup	New market development	Polymer chemistry experts and instrumentation	Characterization of a polymer-(natural nanotube) composite	Improvement in the physical properties of the base polymer
Construction	Startup	Product development	Materials testing	Strength measurements of recycled plastic composite boards	Greater process control and product performance
Textiles and Paper	Small	New product development	Fiber science experts	Development of new high temperature fibers through the incorporation of ceramic nanofibers	Identification of ceramic nanofibers for increased high temperature ratings of fabrics
Battery	Small	Product characterization	high-energy X-Ray analysis	In situ chemical analysis was done on specially prepared working battery cells	Understanding the mechanisms and reliability of their materials has greatly increased
Chemical	Startup	New product development	Chemical and biological materials experts	Characterization of various self-cleaning and disinfecting coatings	Data allowed the company to pursue additional funding opportunities
Mining	Medium	Product improvement	Polymer scientists	Characterization of a polymer filled with naturally occurring Wollastonite particles	Improvement in the physical properties of the base polymer

Electronic Materials	Small	New market development	Polymer scientists	Data collection and analysis of a new and novel sensing material	Successful micro-printing of pressure sensitive materials
Textiles and Paper/Recycled Materials	Medium	New product development	Seed science experts	Controlled seed growth, soil moisture monitoring, and weed suppression measurements	A viable new product that uses paper sludge to grow seeds and inhibits weed growth
Imaging/Optics	Medium	Process improvement	Engineering experts and analytical instrumentation	Zeta potential data was obtained for a verity of materials	Improved production methods
Agriculture & food	Startup	Product improvement	Nano-Materials experts	Chemical encapsulation of Nano particles	50% increase in the sensitivity of a diagnostic medical test
Battery	Small	Product improvement	polymer scientists and engineers	Experiments with various polymerization technique were carried out	A promising technique was identified for future study
Recreation & Sports	Small	Prototype development and construction	Fashion design and fiber experts	Garment design, materials selection, prototype assembly, and testing	Development of a novel construction method with high performance materials
Chemical	Small	Product development	Cornell technologies	A Cornell technology tailored to suite a specific company need	A novel material that promotes adhesion to polypropylene surfaces
Manufacturing	Medium	New market development	Thin film processing and analytical tools	Production and characterization of thin metal films for heat transfer applications	A stress and crack free coating that improves thermal absorption
Ceramics	Small	Product validation	Materials testing	Simulated long-term testing under controlled conditions	A demonstrated 50% increase in lifespan over comparable products
Textiles and Paper	Small	Technology validation	Fiber science experts	Fire retardancy testing on electromagnetic interference shielding fabrics	Data provided an approach worthy of further development
Healthcare & Medical Devices	Small	Product improvement	Polymer scientists	Selection and testing of foam materials for improved comfort	Data provided help guide new product design changes
Healthcare & Medical Devices	Startup	Prototype development and construction	Biological engineering experts and instrumentation	Identification and measurement of enzyme containing polymer films	Data provided helped guide the selection of future coatings
Energy conservation	Startup	Prototype development and construction	Mechanical and electrical engineering expertise	Design and construction of a working prototype water conservation device	A functioning prototype allowed the company to pursue additional funding opportunities
Imaging/Optics	Small	New market development	Electron microscopy experts	High resolution Electron Microscopy studies of ultrathin silicon support grids	New product commercialization with sales of \$500K annually
Chemical	Small	Product improvement	Polymer scientists	Characterization of Nano- clay filled silicone rubber materials	Improvement in the physical properties of the base polymer
Automotive and Transportation	Medium/Large	Product improvement	Polymer chemistry experts and instrumentation	Side by side study of traditional vs. Nano particle- filled greases and lubricants	\$600K NSF funded project with eventual company acquisition by a large corporation

Construction	Small	New product development	Polymer and engineering experts	Structural data was provided on a novel weld free coupling for traffic light poles	Data collection and analysis supported further new product development
Lighting	Small	Product improvement	Electrical engineering and thin film processing tools	Design, fabrication, and testing of solid state multiple quantum well structures	Proof of concept prototype that allowed the company to pursue additional funding opportunities
Construction	Small	Development of a "Green" product line	Concrete Experts	Concrete materials development and testing	Determination of acceptable levels of postindustrial materials in concrete blocks
Mining	Small	Upcycling a waste byproduct	Civil engineering experts and instrumentation	Data collection and analysis of natural and manufactured sands for making concrete	A sand blend that is both workable and stronger than either of the individual components
Healthcare & Medical Devices	Startup	Prototype development and construction	Electrical engineering and fashion design experts	Design of electrical components and a wearable garment	A patent protected vest was designed, constructed, and tested for its stress reduction effectiveness
Energy harvesting	Startup	Prototype development and construction	Thin film processing and analytical tools	Production and characterization of thin metal films for solar cell production	Two SBIR grants and \$10M in Series A financing
Textiles and Paper	Small	Product and technology validation	Fiber science and microbiology experts	Fabrics were repeatedly challenged with bacteria and measured for contamination	Confirmation of marketing claims by independent validation of resistance to bacterial contamination
Healthcare & Medical Devices	Small	Prototype development and construction	Fashion design and fiber experts	Designed and prototyped a disposable adhesive patch	Sales of an FDA approved device for long-duration ultrasonic pain therapy
Health and Safety	Medium	New product development	Fashion design and fiber experts	Designed and prototyped a telltale fiber patch	New company formed to commercialize the innovation
Energy harvesting	Startup	Product development	Material Scientist experts and advanced instrumentation	Characterization of thin conducting polymer membranes electrodes	Data analysis provided direction for future research avenues
Electronic Materials	Startup	New Material synthesis	Organic chemistry expert	Materials synthesis and characterization	New Organic LED materials were synthesized and prototype devices developed leading to further federal funding
Recycled Composite Material	Small	Process and product improvement	Fiber and composite materials experts	Materials testing and process improvements	Development of a new recycled plastic board product designed to match the strength of conventional plywood
Recreation & Sports	Small	Prototype development and construction	Fiber and Fashion Expert	Design and prototype construction	Design and construction of a new neck guard for hockey players
Quality Control	Small	New Materials development	Thin Film Material Scientist	Thin Film process development	Method development for thin chromium foil production
Medical Diagnostic	Startup	Nano particle characterization	Electron microscopy experts	CryoTEM micrographs and data collection on Metal Clusters Incorporated in polymeric nanoparticles	Characterization supported a successful National Cancer Institute (NIH) - SBIR Grant 1 proposal

Energy Materials	Startup	Material characterization	Polymer Chemistry expert	Data collection and analysis of polymeric membranes	Development of a Materials property Data sheet
Medical Diagnostic	Startup	Prototype development and construction	Organic chemistry expert	Prototype construction and testing	Development of a novel sensor for detecting cyanide gas in blood
Chemical production	Startup	New Materials development	Polymer chemist fiber science expert	Materials synthesis and characterization of porous polymer fibers	Developed a series 3D printed porous support structures
Health and Safety	Medium	Prototype development and construction	Theoretical mechanical engineering on ropes and cables	Design and testing of high performance polymer cables	Developed a retrofit plastic cable for navy rescue helicopters
Healthcare & pharmaceutical	Startup	New Material synthesis	Organic Chemist	Synthesis development for a synthetic lubricant that mimics the natural protein Lubricin	New synthesis method enabled larger quantiles of product to be produced in each reaction
Textiles and Paper	Startup	Product development	Fiber scientist	Materials synthesis and process development for the production of linoleum	Process developed for production of an all natural floor covering
Health and Safety	Startup	New technology validation	Biomechanics Expert	Product comparison using student athletes wearing backpacks	Publication in a peer reviewed journal
Health and Safety	Startup	Prototype development	Fashion design expert	Prototype design and construction of a flexible glove for biometric monitoring	Design and materials documentation provided for contract manufacturing
Construction	Medium	New test method development	Ultrasonic expert	Test method development	Proof of concept developed for a new non destructive test method
Automotive and Transportation	Medium	Process improvement	Metallurgical and electron microscopy experts	Data collection and analysis	Data analysis provided information for process improvements
Cosmetic	Startup	Process improvement	Food Scientists	Development of an emulsion chemistry process	Extended the lifetime of a fragrance in an all natural deodorant
Manufacturing	Small	New Product Development	Polymer scientist	Materials synthesis and characterization	Developed a method to disperse small amounts of heavy metals in plastic
Lighting	Startup	New product development	Plant scientists and greenhouse experts	light ray modeling and hardware testing	Development of a new high power LED system for greenhouse operation
Medical Diagnostic	Startup	Process improvement	Materials Scientist and advanced instrumentation	Data collection and analysis of foil substrates	Data used to improve substrate manufacturing process
Advanced Composites	Startup	Mechanical testing and Characterization	Carbon composite material expert	Data collection and analysis of high performance graphite tubes	Data used to improve tube manufacturing process
Energy harvesting	Startup	New technology validation	Cornell PRODAIRY economic development experts	Economic model of a waste to energy technology applied in a New York dairy operation	Data used as validation for future sales in the dairy industry

Manufacturing	Medium	Product improvement	Mechanical Engineering and polymer materials expertise	Data collection on rheological and tribological properties of various seal materials	Data provided helped identify seal materials for extended lifetimes
Electronic Materials	Small	Process improvement	Materials Scientist and advanced instrumentation	Characterization of a premium grade activated carbon material	Data used to improve the pre processing carbonization and activation steps
Agriculture & food	Startup	New technology validation	Plant ecology and ecosystem expert	Trace analysis of chemicals living plants	Data used as validation for future sales in the agriculture industry
Cosmetic	Startup	Scaleup material synthesis	Organic Chemist	Chemical synthesis of an active ingredient	New synthesis method enabled larger quantities of product to be produced in each reaction