



THIN FILM COATINGS

THE LEADER IN 21ST CENTURY COATING TECHNOLOGY
Thin Film Coating Services | Research & Development | Material Analysis | Coating System Equipment

www.acreetech.com

Objective

We seek customers who need advanced coatings and surface modification processes. We seek partners to develop and commercialize thin-film technology to improve their products. We seek partners who want to create the best possible products in the market.

Mission Statement

Acree Technologies mission is to be a world-class thin film coating company. Acree creates and commercializes leading-edge coating technologies. We work with clients to develop proprietary coating solutions for their unique needs. We provide cost effective production coating services and strive for 100% customer satisfaction.

Profile

Acree Technologies Inc. was founded in 2004 by a group of scientists formerly employed by large semiconductor manufacturers and national laboratories. Acree works with private industry, government agencies and universities in aerospace, medical and other high-tech industries. Acree specializes in thin film coatings applied using Physical Vapor Deposition (PVD). Acree develops coatings and deposition processes to improve the performance of a wide variety of products. We provide production coating services, research and development, materials characterization services, and coating equipment sales. Acree is a registered AS9100/ISO9001 company.







Products & Services

Products

- » **Biomedical Coatings:** Joint implants, Heart pumps, Catheters, Pacemaker electrodes
- » **Corrosion Resistant Coatings:** Marine components, Food processing
- » **Electro-Optical Coatings:** Anti-Reflective, Transparent Conductive Oxides, Electro-Magnetic Interference
- » **Erosion Resistant Coatings:** Impellers, Turbine blades, Pumps
- » **Erosion Resistant Coatings:** Multilayer coatings effective against most types of erosion
- » **Surface Modification:** Plasma nitride, Plasma carbonizing
- » **Temperature Resistant Coatings:** Thermal Barrier Coatings for turbine engines, aerospace parts, and sensors
- » **Wear Resistant Coatings:** Gears, Rotary components, Bearings, Tools
- » **Equipment Sales:** Complete coating systems, Deposition heads, Power supplies

Application Areas

- » **Aerospace:** Impellers, Turbine blades, High speed shafts, Bearing surfaces
- » **Aircraft:** Landing gear tubes, Mounting structures, Electrical connectors
- » **Automotive:** Fuel injectors, Valves, Cam components, Rocker arms
- » **Biomedical:** Joint implants, Heart pumps, Catheters, Pacemaker electrodes
- » **Tool Industry:** Drills, Punches, End mills, Cutting tools, Forming tools
- » **Oil Industry:** Oil pipelines, Valves, Drills

Services

- » **Custom Coating Development:** Coatings developed to solve unique problems and meet specifications required by clients in aerospace, biomedical, tool, and other industries
- » **Analytical Services:** Materials testing and characterization for a wide variety of properties such as: adhesion, hardness, corrosion, wear, erosion, fatigue, morphology, electrical, and optical
- » **Production Coating Services:** Acree solves your coating needs by coating your products in our facility. We work on the scale that is right for your business, from one piece up to a full scale production line



Core Competencies

Technology

- » World leader in energetic deposition processes that create better adhesion, coating density and hardness

Acree has developed coatings for:

- » Advanced Canopy and Window Materials for Improved Helicopter and Aircrew Survivability
- » Infrared-Transparent, Millimeter-Wave Bandpass, Missile Dome Design
- » Refractory Coatings on Mechanically Resilient Insulators
- » Resistant Coatings for Aircraft Components
- » Durable, Transparent Conductive Coatings
- » Diamond-like Carbon Coatings on Polymers
- » High Temperature Sensor Materials Optimization and Fabrication Methods
- » Miniaturization of Sensors on Flexible Substrates
- » Passive, Wireless Sensors for Extreme Turbine Conditions

R & D

- » Development of coatings and surface treatments to improve performance of materials
- » Computer modeling of materials properties
- » Coatings that we have developed include:
 - › Biomedical coatings for implants that are both wear resistant and lubricious
 - › Corrosion resistant coating for pacemaker electrodes for heart implants
 - › Erosion resistant coatings for high speed turbine blades and impellers
 - › Electro-optical coatings for aviation windscreens, canopies, and windows
 - › Multilayer optical coatings for high intensity discharge lamps

Production Coating Services

- » The best coating solution to satisfy both technical and budgetary requirements
- » The benefit of experience- our hard-earned knowledge ensures that we can meet your most demanding application requirements
- » Value through fair pricing and consistent yields
- » Quality control using appropriate testing and documentation
- » Quick turnaround and on-time delivery
- » Customer confidentiality and protection of intellectual property
- » Scalable production capability
- » Large capacity and throughput
- » Work pieces up to 140 cm x 140 cm x 140 cm (55" x 55" x 55")

Markets & Customers

Government

- » Naval Air Systems Command - NAVAIR
- » Naval Air Warfare Center – PAX
- » Naval Air Warfare Center – Cherry Point
- » Office of Naval Research – ONR
- » Air Force Research Laboratories – Kirtland AFB
- » Air Force Research Laboratories – Wright Patterson AFB
- » Air Force Office of Scientific Research – AFOSR
- » Defense Advanced Research Projects Agency - DARPA
- » US Army Research Office – RDECOM
- » Department of Energy – DOE
- » National Science Foundation – NSF

Private

- » BAE Systems
- » Boeing
- » Boston Scientific
- » BP Oil
- » Hamilton Sundstrand
- » Heartware
- » Honeywell Defense Division
- » Lockheed Martin
- » PPG Sierracin
- » Pratt & Whitney
- » Proteus Biomedical
- » Varian Medical Systems

Core Advantage

- » Research scientists with over 50 years combined R&D experience. Expertise in material science, coating technologies and plasma physics. Specialization in the deposition of thin films
- » Research and development facilities including 9 vacuum daaeposition systems
- » Analytical Testing Laboratory: Sophisticated testing lab including SEM, EDX, Profilometry, Ellipsometry, and Tribology equipment. Capable of materials analysis and characterization for a wide variety of properties such as: adhesion, hardness, corrosion, wear, erosion, fatigue, morphology, electrical, and optical
- » AS9100 and ISO9001 Certifications
- » Certified for FDA Class III medical device production

Sustainable Competitive Advantage

- » Patented coating technologies and equipment
- » Working partnerships with key companies in the coating industry
- » Highly developed relationships with significant users of coatings in numerous industries
- » Copyrighted software for precise process control
- » Experts in MEMS and NEMS technologies and applications
- » State of the art facilities and equipment

Projects

Erosion resistant coatings for high speed impellers
Funding agency: Naval Air Warfare Center

High Temperature MEMS/NEMS thermal barrier coatings for turbine engines
Funding agency: DARPA

Advanced electrically conductive transparent coatings for aircraft windscreens
Funding agency: Air Force Research Laboratories

Advanced electrically conductive transparent coatings for aircraft windscreens
Funding agency: Air Force Research Laboratories

Nanostructured exchange coupled magnetic materials
Funding agency: National Science Foundation

Development of biocompatible corrosion resistant coatings for human implants
Funding agency: Private Corporate Funding

Partners

Lawrence Berkeley National Labs –A world leader in the development of nanotechnologies, coating processes and surface modification & characterization techniques

University of Nebraska – Leading university in the development & characterization of nanostructured materials

University of Cincinnati – Developed ASTM specs for erosion and wear testing of surfaces. Dedicated erosion testing laboratory.

Ohio State University – Advanced corrosion testing laboratory and corrosion resistant materials development program

University of California Los Angeles UCLA – Micro and nano fabrication programs and laboratories



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