



**Turning Materials Science
Into Materials Solutions**

Texas Research Institute/Austin (TRI/Austin) conducts advanced materials R&D and provides material testing services for the defense, oil & gas and commercial markets, providing superior and cost-effective solutions in specialty materials, composites engineering, polymers and material health assessment and monitoring systems. TRI/Austin's staff of highly qualified personnel works with strategic partners to transition proprietary technologies to production to meet the specific needs and requirements of our customers.



Values

TRI/Austin honors our commitments to our customers. We foster an environment where responsiveness, independence, initiative, and diligence are rewarded. Our scientists and engineers are encouraged to fully understand the problem in order to provide the best solution.

Expertise & Core Competencies

Advanced Polymer Development

We design, optimize, and prototype coatings, adhesives, sealants, foams, lubricants, and other custom polymer formulations for customers with demanding applications. Expertise includes epoxies, polyurethanes, polyureas, polysulfides, acrylics and silicones. Polymer products have been developed to resist high temperatures, explosive blasts, seawater, and extreme thermal and pressure cycling. Formulations include fire, smoke and toxicity compliant, and non-VOC.

Composite Design & Analysis

TRI/Austin can redesign an existing structure or design a new structure, as our composites capabilities cover the spectrum from materials development to final production, including resin formulation, materials selection, solid modeling, finite element analysis, structural analysis, materials testing and characterization, and manufacturing.

Materials Characterization Services

We have a fully equipped laboratory to perform physical, chemical and thermal testing of materials. All methods are traceable to MIL SPEC, ASTM or NACE standards.

Non-Destructive Testing & Evaluation

Our specialists determine the best NDE approach for each application. Where current techniques are insufficient, TRI develops new NDE and health monitoring methods and hardware employing ultrasonic, acoustic emission and eddy current and other techniques.

Accelerated Life Testing, Failure Analysis and Reliability Engineering

We have 25 years of experience performing accelerated life testing, including marine environmental exposure. The ability to determine reliability is key to developing, qualifying and fielding new materials. TRI can perform lifetime reliability predictions, stress analysis, failure analysis, failure modeling, and rate modeling on various materials and products.

Sustainment & Structural Health Monitoring

We have focused significant attention on the improved life and sustainment of aircraft, vehicles, ships, and submarines. TRI/Austin utilizes NDE, advanced D&DT analysis, and proprietary and other SHM equipment to develop improved life and sustainment capabilities for aircraft, vehicle, ship and submarine platforms.

Production

We produce advanced materials products from formulation through Low Rate Initial Production, both directly and through subcontractors. TRI/Austin also supports transitioning production to our commercial and defense partners.

Test Services

TRI provides materials characterization services, NDE testing, accelerated life testing, and failure analysis for the defense and oil & gas industries, and for a broad range of commercial clients.

Defense

Full range of MIL STD testing, ASTM-based mechanical property testing capabilities, niche testing methods for specific environments that mimic harsh operating conditions. Testing includes low and high temperature, tension, compression, shear, salt fog, and marine ALT.

Oil and Gas

Corrosive environment accelerated life testing, hydrostatic pressure testing, viscoelastic creep testing, test chamber development and failure analysis addressing pressure vessels, storage tanks, piping, underwater cables and connectors, hydrophones, transducers and towed streamers, followed by materials and process reliability improvement and evaluation.



Products

ecoMASS®

Lead-free compound with the same density as lead, fabricated into practice range ammunition. Also used for radiation shielding and custom density applications.

Proteckt®

Innovative, high-performance foam appliques designed to provide soldiers with superior cabin protection in tactical vehicles during blast events or common accidents.

Bond-coat™ NCC

Used on submarines, and for undersea and oilfield applications to protect rubber to metal bonds from cathodic delamination and harsh environments.

Low VOC rubber cement

Developed for use in the bonding of gaskets, door seals, bumpers, heater boots, and other applications during Naval aircraft maintenance and assembly operations.



Commercialization Opportunities

ThermaSafe™ Composites

Composite material system that meets MIL-STD-2031 Flame, Smoke and Toxicity safety requirements for use on surface ships and submarines. The composite material can be used in hull, machinery, structural, storage and container applications.

Divers Grease

TRI Synthetic Marine Grease developed for submarine dry dock shelter operating hatches to meet the need for an effective lubricating grease that will not off-gas and is resistant to seawater washout. The elimination of off-gassing, which occurs with hydrocarbon-based greases, ensures diver safety, while enhanced water washout resistant compared to fluorocarbon greases is more cost-effective by reducing the frequency of application.

LAHMP™ structural health monitoring system

Initially developed to monitor composite structures in flight, this on-board SHM system can also accommodate other types of sensors to perform a number of health monitoring functions.

Aircraft Battle Damage Repair Field Kits

Lightweight, high strength epoxy syntactic foam developed to cover large areas. UV curable composite skin repair system that does not use hot bonders and can be stored at room temperature.



Customers



Additional customers include AFRL/ Army Materials Technology Laboratory, RDT&E, Redstone Arsenal, ARL, ARO, TACOM and TACOM-ARDEC/ Defense Electronics Supply Center/ DSC Columbus/ Naval Air Warfare Center, Naval Postgraduate School, NRL, NSWC, NUWC, Navy Aviation Depot, Navy Ships Parts Control Center/ Boeing/ General Dynamics/ Lockheed Martin/ ARCO/ ExxonMobil/ Dow Chemical/ DuPont

Test Facilities

The principal laboratories of TRI/Austin are located on 40 acres in the Austin, Texas Hill Country. TRI/Austin occupies three buildings with a combined floor space of 27,800 feet. Over two-thirds of this space supports the technical requirements of our programs.

Our laboratory and facility capabilities include

- » Materials Testing
- » Chemistry
- » PEMS Evaluation
- » COPV Testing Facility
- » Accelerated Testing
- » Polymer Processing
- » Composite Prototyping and Fabrication
- » Nondestructive Testing
- » Software
- » Electronics
- » Machine Shop



TRI/Austin is an independent, third party firm providing testing and research services to the international community. TRI is unaffiliated with any manufacturer or engineering firm, and thus provides non-competitive services to regulators, manufacturers, engineering firms, contractors and installers.

TRI provides laboratory conformance/verification testing as well as performance related studies. In addition to routine index testing in accordance with ASTM, ISO, BS, DIN and GRI test methods, TRI also provides standardized interface friction, permeability, creep and stress-rupture, transmissivity, gradient ratio, UV-resistance, chemical resistance, and accelerated time-temperature creep and stress rupture testing.





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