

Industrial Solutions

www.tuvris.com

 **TÜVRheinland[®]**
Industrial Solutions

TÜV Rheinland Industrial Solutions (TRIS)

TRIS is a full-service inspection, testing and certification company providing both field and laboratory inspection services, including all NDT methods, QC/QA functions, and physical testing. Laboratory and Field Services are ISO 17025 accredited. Mechanical Lab Services are both Nadcap and ISO accredited.

Why choose TRIS?

When you work with TÜV Rheinland Industrial Solutions you are partnering with a global company staffed by technically adept professionals who are ASNT Level II/EN 473 certified, among other training programs and certifications.

TRIS is a single-source supplier with a broad portfolio of services including a full range of destructive and non-destructive testing capabilities. With facilities strategically located throughout North America and outfitted with state-of-the-art equipment, TRIS offers extensive capacity for its production capabilities and in-depth analysis, allowing its clients to take advantage of cost-effective service delivery.

Overview

TRIS was created by combining TÜV Rheinland's pressure equipment and material technology capabilities with two new members of the TÜV Rheinland family — Non-Destructive Testing Services, Inc. and Unified Testing Services, Inc.

Service Offerings

TRIS provides welder and weld procedure qualifications, quality control and quality assurance functions and a diverse range of environmental and construction inspection services. TRIS also provides review, approval and certification of pressure equipment and materials according to European Directives, as well as international codes and requirements.

TRIS offers a diverse and growing range of testing, inspection and certification services that are used in a variety of processing industries. Our inspection services include:

- Ultrasonic
- Radiography
- Magnetic Particle
- Liquid Penetrant
 - Fluorescent & Visible
- Ground Penetrating Radar
- Eddy Current
- Positive Material Identification
- Tensile
- Fatigue
- Compression
- Impact Testing/Charpy
- Hardness
- Tear & Drop Weight
- Environmental
- Calibration Services
- Third Party Surveillance
- Failure Analysis

Industries Served

Our clients are diverse and include companies from a multitude of disciplines, including:

- Chemical & Petrochemical
- Automotive
- Wind Energy
- Utility (Power Generation)
- Civil (Infrastructure)
- Departments of Transportation (DOT)
- State & Local Government Agencies
- Medical & Prosthetics
- Electronics
- Casting & Forging
- Light/Heavy Manufacturing
- Building Management
- Universities
- Banking & Real Estate Institutions
- Paper Mills, Steel Mills & Fabrication Shops
- Filler Material Manufacturers
- Railroads
- Food Refrigeration Systems
- Manufacturers of:
 - Gas Cylinders (e.g. Airbags)
 - Pressure Vessels
 - Heat Exchangers
 - Steam Boilers
 - Valves
 - Cyclones
 - Accumulators
 - Cryogenic Equipment & More



TRIS Laboratory Services

TRIS laboratories provide sampling or “production run” inspection. Testing procedures comply with the highest quality, most efficient standards required in the automotive, aerospace, manufacturing, military and transportation industries.

Radiography

- Computed Radiography
- X-Ray: Film
- X-Ray: Real Time
- X-Ray: Micro Focus
- Gamma Ray
(Field or Shooting Vault)
 - Cobalt
 - Iridium

Magnetic Particle

- Wet Fluorescent
- Dry Visual
- Multi Directional
- Automated

Liquid Penetrant

- Fluorescent
- Visible
- Post Emulsified

Ultrasonic

- Flaw/Thickness
- Contact
- Immersion
- Phased Array

Eddy Current

- Flaw Detection
- Materials Sorting
- Hardness Sorting

Mechanical Lab Services

Materials testing is offered using a variety of mechanical techniques. Ferrous and non-ferrous metals, composites, elastomers, plastics, rubber, wood products, cables and rope — ranging from 3 to 180 inches long and up to 48 inches wide — may be tested. Tension and compression load testing capabilities range from 12 to 1.2 million pounds.

Material Testing Services

- Fracture
- Impact Testing
 - Charpy
 - Izod
- Drop Weight/Tear
- Flexural & Peel Testing
- Compression Testing
- Measured Tensile Properties
 - Modulus of Elasticity
 - N-Values
 - Reduction, Strength, Yield, Elongation
- Bend Test
- Hardness
 - Brinell / Mic-10 (UCI Method)
 - Rockwell

Specialty Material Test

- Bridge Bearing Pads
- Walls/Prisms
- Nuclear Fixtures
- #1 – #18 Rebar
- Wire Rope
- Crane Hooks

- Nylon Straps
- Railroad-Rail Slow Bend

Calibration Services

- Dial Gauges
- Load Cells
- Micrometers
- Calipers
- Pressure Gauges
- Torque Wrenches
- Loading Jacks
- Scales Verified
- Gauge Blocks
- Skidmores

Welding Evaluation Services – AWS Accredited Test Facility

- Procedure Qualification Records (PQR)
- Welding Procedure Specification (WPS)
- Welder Qualification Test (WQT)
- Mechanical Testing per Industrial and Government Codes
- EN 287,15614

Field Services

Field-based inspection services are available for industries including chemical, petrochemical, power generation, food processing, pulp and paper mills and general manufacturing. In addition, services are available to government agencies, storage facilities, architectural/engineering companies and education facilities. Inspectors are trained and certified to numerous industry standards.



NDT Services

- Magnetic Particle (MT)
- Ultrasonic (UT)
 - Thickness
 - Shear Wave
 - Phased Array
- Liquid Penetrant (PT)
- Visual (VT)
- Radiography (RT)
- Positive Material Identification (PMI)
- Hardness (HT)
 - MIC 10
- Eddy Current (ET)
- Strain Gauging

Structural Steel Bridge and Building Inspection

- Quality Assurance/Quality Control
- Shop & Field
- Paint & Galvanized Coating
- Expediting Services
- Weld Inspection, Consulting & Certification
- WPS, PQR & WQT
- Materials Sampling & Mechanical Testing
- Visual
- AWS-CWI
- Bolt Tensioning
- Roof & Floor Deck
- Window Testing
- Fireproofing
- Shear Stud

Sign & Light Structures

- Luminaries
- Cantilever
- Trusses
- Light Standards
- Field & Shop Inspections
- Inventory
- GPS Mapping
- Condition Rating

Structural Concrete Inspection Prestressed/Precast Plant Q.A.

- Aggregate Testing
- Tension Calculation & Monitoring
- Impac Echo
- Cylinder Results
- Material Certifications
- Pre-Fabrication Inspection
 - Rebar Steel Location
 - Cable Location
 - Location of Inserts
 - Concrete Placement
- Post Fabrication Inspection
 - Dimensional Assurance
 - Camber Measurements
 - Skew Verification
- Pullout Testing Rebar/Anchor Bolts
- Compression Test Monitoring on Concrete Cylinders

Personnel Certified to:

- Certified Welding Inspector (CWI)
- Tank (API-653)
- Pressure Vessel (API-510)
- Piping (API-570)
- Certified Paint Inspectors (SSPC & NACE)

- Certified NDT Inspectors
 - ASNT
 - SNT-TC1A
 - EN 473
 - MIL-STD-271
 - ACI & PCI Concrete Certifications

Cranes, Aerials & Ground Ladders

- NFPA Standards
- Aerial & Ground Ladders
- Annual & 5 Year Inspections

Training & Consulting

- NDT Level II Training
- Training Level I & II
- NDT Level III Services ASNT
- EN Standards
- EN 473 Examiner & Auditor

Mechanical Integrity Programs

- P & ID's – Piping and Equipment Identification
- OSHA 29 CFR 1910.119 Subparagraph (J) Mechanical Integrity
- Risk Based Inspection (RBI)
- Reliability Based Maintenance

Tank Inspection – API 653

Inspections Meet API Recommendations.

Above Ground Storage Tanks

- In-Service Inspections
- Out-of-Service Inspections
 - Settlement Surveys
 - Magnetic Flux Leakage
 - Ultrasonic Thickness Proof-Ups
 - Vacuum Box Examination
 - Floating Roof Examination



- Statement Reports With
 - Corrosion Calculations
 - Remaining Life
 - Recommendations

Specialized Equipment

- Borescope
- Tank Crawler
- Positive Material Identification (PMI)
- Magnetic Flux Leakage
- Ultrasonic (UT) Auto V-Scan
 - Phased Array
- Eddy Current Tube Inspection
- Mic 10 Hardness

Pressure Vessels – ASME/API 510 Inspections Meet API Recommendations.

- Reactors
- Columns
- Process Vessels
- Heat Exchangers
- Boilers
- Deaerator Tanks
- Dryer Rolls
- EN PED
- Vendor Surveillance

Piping – API 570

Inspections Meet API Recommendations.

- Sprinkler Systems
- Process Piping
- Chilled Water Systems

Building Sciences

Indoor Air Quality Assessments

include evaluation of building envelopes in commercial and industrial settings for contaminants related to worker and occupant exposures. Analyses may include personnel and area samples, short or long term sampling and indoor/outdoor comparison samples. Assessments include nuisance complaints, regulatory compliance and engineering control determinations for a variety of contaminants including fungi (mold), dust, aerosols, and chemicals.

Asbestos Surveys and

Assessments include observation of facilities for suspect asbestos-containing building materials (ACBM), assessment of existing physical conditions and the collection and analysis of samples. Abatement Design services include practical options for abatement and/or management of ACBM based upon materials identified during the asbestos survey. Abatement Monitoring services are provided for compliance with abatement project requirements to provide documentation of compliance with regulatory and contractual requirements.

Lead-based paint inspections are performed using x-ray fluorescence (XRF) equipment and include identification of lead-based paint and classification of all surfaces and components. Lead-based risk assessments are conducted to determine the presence of lead hazards in dust and soil, and abatement project design and monitoring services are provided as required based on conditions identified during the inspection and risk assessment. Lead-based paint clearance inspections are conducted to ensure all work has been completed as specified and that the site is free from lead hazards following abatement activities.

Environmental Site Assessment

Phase I Environmental Site

Assessments are conducted to support an innocent landowner's defense to CERCLA liability in general accordance with the American Society for Testing and Materials (ASTM) Standard E 1527-05. The standard includes a records review, site and surrounding property reconnaissance, interviews with property owners and occupants and an Environmental Site Assessment Report.



Phase II Environmental Site Assessments are conducted as required for specific site requirements based on conditions identified during the Phase I ESA. These services typically include the development of preliminary and secondary investigation plans, collection and analysis of soil, water, groundwater and air samples, soil borings for collecting soil samples, installation of temporary piezometers for collecting groundwater samples and installation of permanent groundwater monitoring wells.

Storage Tank Assessment

Storage tank services offered by TRIS include spill prevention control and counter-measure (SPCC) Plans, soil and groundwater investigations, compliance monitoring, tank management plans, nondestructive inspection and testing and mechanical integrity plans.

TRIS inspectors are qualified to STI; API 653, API 510 and API 570; and certified to ASNT recommended practice SNT-TC-1A.

Storm Water Management

TRIS provides storm water management services including erosion control design, storm water monitoring and permitting assistance, and also offers storm water pollution prevention plans, NPDES storm

water permits, storm water sampling, and sample collection training.

Sorting & Containment

Panic Situation

When situations occur necessitating containment, TRIS' NDT sorting capabilities can assist in limiting exposure to losses and down-time.

Why TRIS for Sorting & Containment?

- Very responsive 24 hours a day 365 days a year availability
- Expedited service
- High speed mobilizations onsite at customer locations, the point of entry or at one of our lab locations
- Advanced technology inspection capabilities — with the result of better sorting with higher accuracy and quality
- High speed sorting line capabilities
- More detail orientated than other providers
- Non destructive inspection methods to maximize salvage products
- Highly trained technicians

Service Offerings Include:

Non-Destructive testing methodologies include:

- Real Time, Computed, & Film Radiography
- Eddy Current
- Hardness Sorting

- Material Sorting (PMI)
- Magnetic Particle
- Ultrasonic (including Phased Array)
- Liquid Penetrant
- Visual Inspection by Qualified Personnel

Our Customers Are Satisfied

I would like to thank TUV / NDT Services for their prompt response and excellent performance during recent months. We had an immediate need for your services and the response was immediate and exceptional, including working long hours and weekends to make sure our needs were met. I greatly appreciate your prompt response, technical capability, level of service, and professionalism. I would not hesitate to recommend your NDT services to others.

— Gregg Alling
Global Quality Systems Manager
Dana Holding Corporation

Ohio Star Forge Co. commends you and your team for the excellent service your group has provided over the past 5 years. Your team has demonstrated its commitment to OSF's success by continually providing excellent service and pricing for all services provided. NDT has been a seamless extension of our own customer service philosophy by providing quick response to our customers when needs arise and to that we say "Great Job & Thank you for your support".

— Edward Bone
Quality Engineer
Ohio Star Forge Co.



Specialty Services

PEC

Pressure Equipment Certification

TRIS PEC is a world-renowned global provider of comprehensive pressure equipment certification and conformity assessment services. Offering a full range of inspection and certification services for pressure equipment, our role is to help pressure vessel manufacturers comply with international codes and standards, EU directives and jurisdictional regulations for global acceptance.

Our extensive global network of design engineers, inspectors, technicians and auditors allows us to reduce communication barriers between internationally active corporations and their clients, allowing manufacturers to get their products to markets faster.

Pressure Equipment Certification Services and Expertise:

- Pressure Equipment Directive (PED) 97/23EC
- Transportable Pressure Equipment Directive (TPED) 99/26/EC
- Simple Pressure Vessel Directive (SPVD) 87/404/EEC
- American Society of Mechanical Engineers (ASME), Boiler & Pressure Vessels & Nuclear Components

- International Approvals for Japan (MHLW), China (SELO) & India (IBR)
- Welding Procedure & Personnel Qualification & Certification
- Material Manufacture Quality System Certification
 - Certification in Accordance with PED Annex I Par. 4.3 to Issue Inspection Certificate EN 1020 Type 3.1
- Third-Party Independent Inspection & Expediting
- Design Reviews & Approvals for: PED, TPED, SPVD, AD 2000, DIN 13445, 3840, 3158, 4119, TEMA & ASME

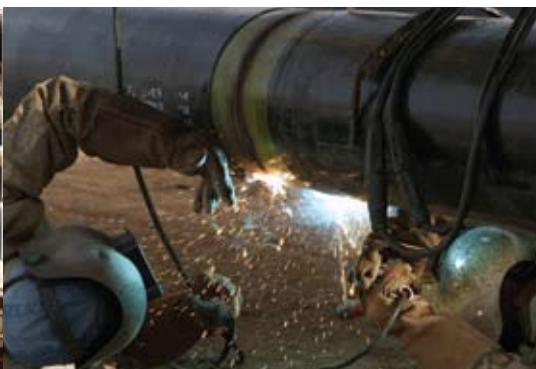
The Pressure Equipment Directive (PED) 97/23/EC applies to the design, manufacturing and conformity assessment of pressure equipment, as well as pressure equipment assemblies greater than 7.25 psi (0.5 bar). PED is required by law for placing pressure equipment in the European Community. Covered under the general term “Pressure Equipment” are pressure vessels, steam boilers, exchangers, tubing (pipe) and pressure accessories, as well as devices under pressure. Also included are all parts and products that are attached to pressurized parts (i.e., flanges, nozzles, lifting parts, fast-connectors and similar).

Support is provided for most of the countries currently requiring pressure vessels to meet the essential safety requirements and certification of the Pressure Equipment Directive 97/23/EC PED.

Training

Pre-manufacturing consulting and certification includes on-site consulting and a step-by-step/how-to approach to prepare for obtaining PED certification. Topics covered include:

- Manufacture’s Responsibilities & Notified Body’s Responsibilities
- Essential Safety Requirements
- Hazard Analysis & Design Requirements
- Material Testing, Certification, Procurement & Documentation
- Metallic Products – Types of Inspection Documents (EN 10204)
- Particular Material Appraisals
- Welding Qualification & Certification
- Fabrication & Inspection Requirements
- How to Select the Right Conformity Assessment Procedure
- Applying the ASME Code to Meet PED Requirements
- Traceability
- Declaration of Conformity
- Marking & Labeling



Industry Matrix

	Calibration Services	Cranes, Aerials & Ground Ladders	Eddy Current	Hardness	Liquid Penetrant	Magnetic Particle	Materials Testing	Positive Material Identification
Aerospace	●		●		●	●	●	● ●
Automotive	●		● ●	●	● ● ●	●	● ●	●
Commercial Buildings								
Electrical Components								
Fabrication Shops	●				●	●		●
Fire Stations		●		●		●		
Food			●		●	●	●	
Forging			● ●	● ●	● ●	● ●	● ●	● ●
Foundries/ Casting Houses	●		● ●	●	● ●	●	● ●	● ●
Medical			●	●	●	●	●	
Railway								
Refineries				●	●	●		●
Pharmaceutical				●	●	●	●	●
Power Generation			●	●	● ●	● ●	●	
Steel Mills						●	●	●
Transportation (DOT's)		●		● ●	●	●	●	
Welding (Spot Weld)			●	● ● ●	● ● ●	● ● ●	● ●	● ● ●
Wind Towers					●	●	● ●	

● = Laboratory Inspection

● = Field Services

● = Sorting & Containment Services

Radiography	Sign & Light Structures	Structural Concrete Inspection	Structural Steel Bridge Inspection	Structural Steel Inspection	Training & Consulting	Ultrasonic	Visual	Welding Evaluations
●					●	● ● ●	● ● ●	● ● ●
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With Over 490 Locations in 61 Countries

We can help get your products to market quicker



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TÜV Rheinland is the world leader in independent testing and assessment services. The \$1.5 billion corporation is comprised of an international network of 13,300 employees at over 490 locations in 61 countries and serves most industry sectors and markets worldwide. With North American headquarters in Boston, Mass., TÜV Rheinland North America Holding, Inc. has additional offices throughout North America.

United States

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Portland, OR
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